UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from ___ to ___

Commission file number: **001-38787**

CYCLERION THERAPEUTICS, INC.

(Exact Name of registrant as specified in its charter)

Massachusetts (State or Other Jurisdiction of Incorporation or Organization)	**83-1895370** (I.R.S. Employer Identification No.)
301 Binney Street, Cambridge, Massachusetts (Address of principal executive offices)	**02142** (Zip Code)

(857) 327-8778
Registrant's Telephone Number, Including Area Code

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, no par value	**CYCN**	**The Nasdaq Stock Market LLC (Nasdaq Global Select Market)**

Securities registered pursuant of Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer ☐

Accelerated filer ☐

Non-accelerated filer ☒

Smaller reporting company ☒

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the common stock held by non-affiliates of the registrant, as of June 28, 2019, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $306.2 million, computed using the closing price on that day of $11.45.

As of March 5, 2020, there were 27,754,894 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement, to be filed pursuant to Regulation 14A under the Securities Exchange Act of 1934, for its 2020 Annual Meeting of Stockholders are incorporated by reference in Part III of this Form 10-K.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, or this Annual Report, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that involve substantial risks and uncertainties. The forward-looking statements are contained principally in Part I, Item 1. “Business,” Part I, Item 1A. “Risk Factors,” and Part II, Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” but are also contained elsewhere in this Annual Report. In some cases, you can identify forward-looking statements by the words “may,” “might,” “will,” “would,” “could,” “should,” “believes,” “estimates,” “projects,” “potential,” “expects,” “plans,” “seeks,” “intends,” “evaluates,” “pursues,” “anticipates,” “continues,” “designs,” “impacts,” “affects,” “forecasts,” “target,” “outlook,” “initiative,” “objective,” “designed,” “priorities,” “goal” or the negative of those words or other similar expressions may identify forward-looking statements that represent our current judgment about possible future events, but the absence of these words does not necessarily mean that a statement is not forward-looking.

Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy and other future conditions. Because forward-looking statements relate to the future, by their nature, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. As a result, our actual results may differ materially from those contemplated by the forward-looking statements. Important factors that could cause actual results to differ materially from those in the forward-looking statements include regional, national or global political, economic, business, competitive, market and regulatory conditions and the following:

- our business and operations following the separation and any benefits or costs of the separation, including the tax treatment;
- our relationships with our suppliers, employees, and others;
- our ability to operate as a standalone company and execute our strategic priorities;
- our ability to finance our operations and business initiatives and obtain funding for such activities;
- the timing, investment and associated activities involved in developing, obtaining regulatory approval for, launching and commercializing our product candidates, including olinciguat and IW-6463;
- our interpretation of the data from the praliciguat Phase 2 clinical trial in patients with diabetic nephropathy, including regarding the clinical site whose results appear to be inconsistent with the overall study population; the potential of further evaluation of praliciguat for diabetic nephropathy;
- the potential commercial opportunities of praliciguat, including the potential for a future out-license of praliciguat by us; our ability to identify a licensee and to negotiate and execute an out-license or similar agreement with respect to praliciguat;
- the impact on our business of our recent workforce and expense reduction initiatives;
- our plans with respect to the development, manufacture or sale of our product candidates and the associated timing thereof, including the design and results of pre-clinical and clinical studies;
- the safety profile and related adverse events of our product candidates;
- the efficacy and perceived therapeutic benefits of our product candidates and the potential indications and market opportunities therefor;

- U.S. and foreign regulatory requirements for our product candidates, including any post-approval development and regulatory requirements, and the ability of our product candidates to meet such requirements;

- our ability to attract and retain key employees needed to execute our business plans and strategies and our expectations regarding our ability to manage the impact of any loss of key employees;

- our ability to obtain and maintain intellectual property protection for our product candidates and the strength thereof;

- our future financial performance, revenues, expense levels, payments, cash flows, profitability, tax obligations, capital raising and liquidity sources, real estate needs and concentration of voting control, as well as the timing and drivers thereof, and internal control over financial reporting;

- our ability to compete with other companies that are or may be developing or selling products that are competitive with our product candidates;

- the status of government regulation in the life sciences industry, particularly with respect to healthcare reform;

- potential indemnification liabilities we may owe to Ironwood after the separation;

- the tax treatment of the distribution and the limitations imposed on us under the tax matters agreement that we entered into with Ironwood; and

- trends and challenges in our potential markets.

You should refer to “Item 1A. Risk Factors” in this Annual Report for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this Annual Report will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. The forward-looking statements in this Annual Report represent our views as of the date of this Annual Report. We anticipate that subsequent events and developments may cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report.

You should read this report and the documents that we reference in this report, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

Unless the context requires otherwise, references in this report to “Cyclerion,” the “Company,” “we,” “us,” and “our” refer to Cyclerion Therapeutics, Inc. and, where appropriate, our consolidated subsidiaries, and references in this report to “Ironwood” refer to Ironwood Pharmaceutics, Inc. and, where appropriate, its consolidated subsidiaries.

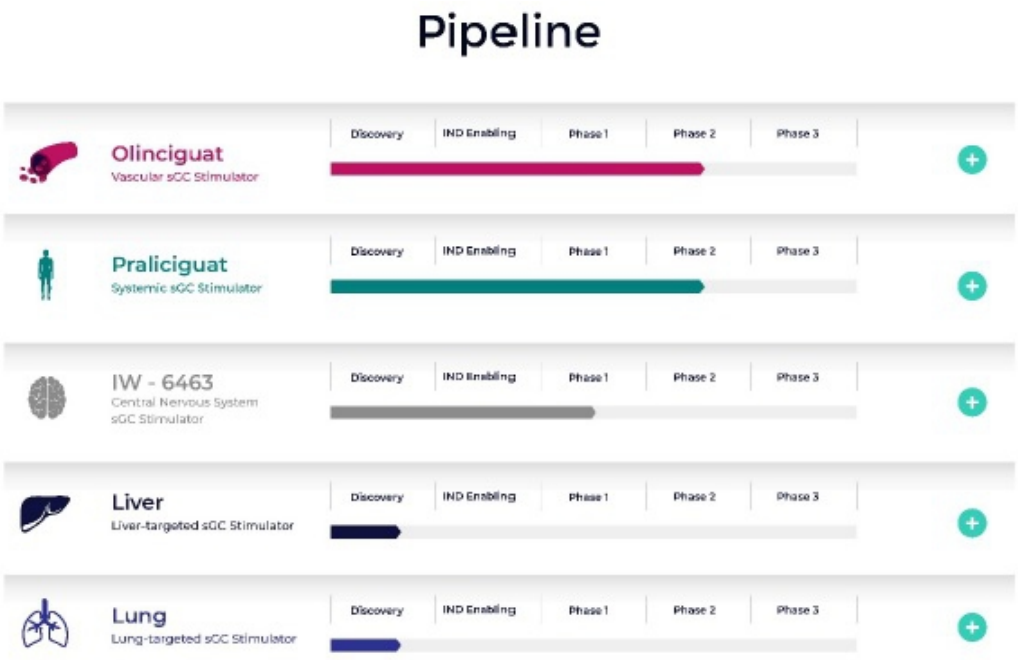
PART I

Item 1. Business.

Overview

We are a clinical-stage biopharmaceutical company focused on soluble guanylate cyclase, or sGC, pharmacology to discover, develop and commercialize treatments for serious and orphan diseases. We seek to enable the full therapeutic potential of next-generation sGC stimulators. sGC stimulators are small molecules that act synergistically with nitric oxide on sGC to boost production of cyclic guanosine monophosphate, or cGMP. cGMP is a key second messenger that, when produced by sGC, regulates diverse and critical biological functions throughout the body including blood flow and vascular dynamics, inflammatory and fibrotic processes, metabolism and neuronal function. We believe that the key to unlocking the full therapeutic potential of the nitric oxide-cGMP pathway is to design differentiated next-generation sGC stimulators that preferentially modulate pathway signaling in tissues of greatest relevance to the diseases they are developed to treat back to the appropriate physiological range of activity. We are led by an accomplished team, with a track record of discovering, developing and commercializing meaningful therapies for patients while creating value for stockholders and with a long history of experience in the NO-sGC-cGMP pathway.

We have a portfolio of five differentiated sGC stimulator programs. The following table presents the status of programs in our pipeline:



The status of our programs in the table above represents the ongoing phase of development and does not correspond to the completion of a particular phase. Drug development involves a high degree of risk and investment, and the status, timing and scope of our development programs are subject to change. Important factors that could adversely affect our drug development efforts are discussed in the “Risk Factors” section of this Annual Report on Form 10-K.

Research and Development programs

Olinciguat

Sickle cell disease (SCD) is a genetic disorder affecting approximately 100,000 people in the United States and approximately 50,000 in the EU5, or France, Germany, Italy, Spain and the United Kingdom. By amplifying nitric oxide signaling, we believe that olinciguat has the potential to reduce the proportion of sickled cells, as well as improve blood flow, endothelial integrity, and vascular inflammation. For patients with SCD, we believe this may translate into reduction in debilitating daily symptoms such as chronic pain and fatigue, decrease in anemia, reduction in painful VOCs and end-organ protection (e.g. kidney and lung) potentially leading to an increase in survival. Olinciguat is an orally administered, once-daily, vascular sGC stimulator that we believe is well suited for the treatment of SCD given its distribution to the vasculature and highly perfused organs, such as the kidney and lungs, which are frequently affected by the disease. Olinciguat has been granted Orphan Drug Designation for SCD by the U. S. Food and Drug Administration, or FDA, and is currently in a Phase 2 study, STRONG-SCD. We expect results from this study in the mid-2020.

Praliciguat

Praliciguat is an orally administered, once-daily systemic sGC stimulator that we believe is well suited for the treatment of serious cardiometabolic diseases given its extensive distribution into tissues, particularly adipose, kidney, heart and liver. We have evaluated praliciguat to treat two such diseases: diabetic nephropathy, or DN, and heart failure with preserved ejection fraction, or HFpEF.

On October 30, 2019, we announced topline results from our Phase 2 proof-of-concept studies of praliciguat in DN and in HFpEF.

The study of praliciguat in participants with DN did not meet statistical significance on its primary endpoint of reduction in albuminuria from baseline as compared to placebo, measured by urine albumin creatinine ratio (UACR), but there was a trend toward improvement across the total intention-to-treat (ITT) study population. During statistical validation, data from one clinical trial site were found to be inconsistent with those of the overall study population. At this site, a greater percentage of participants assigned to the praliciguat treatment arms had undetectable or very low praliciguat plasma concentrations and larger reductions in albuminuria than was seen across the broader study population. In a post-hoc sensitivity analysis in which data from this site were excluded, an increased treatment effect and reduced variability were observed. In addition, trends towards improvements were observed in participants treated with praliciguat in several secondary vascular and metabolic measures associated with cardiovascular risk and kidney disease progression, including blood pressure, cholesterol and HbA1c levels, compared to placebo. Praliciguat was generally well tolerated, and the safety profile supports further clinical investigation.

The study in HFpEF did not meet statistical significance on its primary endpoint of improved exercise capacity from baseline as compared to placebo, measured by cardiopulmonary exercise testing (CPET). There was clear evidence of drug exposure and pharmacological activity as judged by expected reductions in blood pressure. Praliciguat was generally well tolerated, and the safety profile supports investigation of praliciguat in other indications. A positive trend in reducing HbA1c levels was observed in the subset of participants with diabetes. This is consistent with the results observed in the Phase 2 study of praliciguat in diabetic nephropathy.

Following the Phase 2 results, the Company is in the process of seeking an out-license of praliciguat for late-stage global development and commercialization in DN, and/or additional cardiometabolic indications.

IW-6463

IW-6463 is an orally administered central nervous system (CNS)-penetrant sGC stimulator that, because it readily crosses the blood-brain barrier, affords an unprecedented opportunity to expand the utility of sGC pharmacology to serious neurodegenerative diseases. It is being developed as a potentially disease-modifying therapy for neurodegenerative diseases. Nitric oxide is one of several fundamental neurotransmitters, yet it has not been leveraged for its therapeutic potential in the CNS. There are clear links between nitric oxide signaling defects and neurodegenerative diseases. In preclinical studies, IW-6463 has been associated with increased cerebral blood flow, reduced markers of neuroinflammation, improved neuronal health, neuroprotective effects and enhanced cellular bioenergetics and mitochondrial function.

On January 13, 2020, we announced positive Phase 1 study results that provide the foundation for continued development of IW-6463. The Phase 1 healthy participant study results indicate that IW-6463 was well tolerated. Pharmacokinetic (PK) data, obtained from both blood and cerebral spinal fluid, support once-daily dosing with or without food and demonstrated IW-6463 penetration across the blood-brain-barrier at levels expected to be pharmacologically active. We believe that these results, together with preclinical data, provide strong support for continued development of IW-6463 as a potential new medicine for serious neurodegenerative diseases.

A translational pharmacology study in approximately 24 elderly participants is ongoing. This study will evaluate safety, PK, and measures of CNS pharmacological activity, including cerebral blood flow by MRI. Topline study results are expected in mid-2020. These results are intended to enable us to direct further development.

Our orally administered liver-targeted sGC stimulator is designed to selectively partition to the liver. By achieving liver concentrations many fold higher than corresponding plasma concentrations, we intend to maximize hepatic pharmacology. In animal models of liver fibrosis treated with systemic sGC stimulators, we have observed reductions in liver fibrosis, inflammation and steatosis, pathophysiological processes that underlie multiple chronic liver diseases.

Our lung-targeted sGC stimulator will be administered via inhalation and will be aimed at realizing the full potential of sGC stimulation in pulmonary diseases by selectively increasing exposure in the lung. By achieving significantly greater selectivity for lung over plasma, we intend to maximize pulmonary pharmacology.

Additional discovery efforts are ongoing and aimed at further expanding the potential of sGC stimulation in disorders of the CNS.

Our Strategy

Our mission, is to create and develop next-generation sGC stimulators that preferentially modulate the NO-sGC pathway in tissues of greatest relevance to the diseases they intend to treat, thereby enabling the therapeutic potential of this pathway. Key elements of our strategy include:

- completing an out-license of praliciguat in renal or cardiometabolic disease in order to advance global development as quickly as possible;
- delivering results from the STRONG-SCD study evaluating olinciguat in SCD in mid-2020 that enable go/no-go decision and rapid advancement to Phase 3;
- delivering results from a translational pharmacology study with IW-6463 in mid-2020 that enable go/no-go decision and rapid advancement in serious neurodegenerative diseases;
- actively seeking partnerships when we believe doing so will offer the greatest risk-adjusted value for our shareholders and accelerate global patient access to our drugs;
- leveraging our exceptional team of individuals who are experts in sGC and who have a passion for developing important new medicines for patients with serious and orphan diseases; and
- executing our strategy with our stockholders' long-term interests in mind by seeking to maximize long-term value of our assets and programs, including the use of partnerships and collaborations.

Intellectual Property

We vigorously protect the intellectual property and proprietary technology that we believe is important to our business, including by pursuing and maintaining U.S. and foreign patents that cover our products and compositions, their methods of use and the processes for their preparation, as well as any other relevant inventions and improvements that are commercially important to the development of our business. We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection.

Our commercial success depends in part on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions, improvements and know-how related to our business, defend and enforce our patents, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and proprietary rights of third parties.

As of February 10, 2020, we had twelve issued U.S. patents, nineteen pending U.S. patents applications, six pending Patent Cooperation Treaty, or PCT, applications, and numerous foreign patents and pending patent applications. The PCT applications are filed under an international patent law treaty that provides a unified procedure for filing a single initial patent application to seek patent protection for an invention simultaneously in each of the 153-member states, followed by the process of entering national phase, which requires a separate application in each of the member states in which national patent protection is sought.

The technology underlying our sGC patents and pending patent applications has been developed by us and was not acquired from any in-licensing agreement. We own all of the issued patents and pending applications.

The intellectual property portfolios for our most advanced product candidates as of March 2, 2020, are summarized below.

Olinciguat Patent Portfolio

Our olinciguat patent portfolio in the U.S. includes four U.S. patents, eight pending U.S. patent applications and one pending PCT application.

One of the U.S. patents, US 9,586,937, which will expire in 2034, is directed to olinciguat and pharmaceutical compositions thereof. The term of this U.S. patent may be eligible for patent term extension as described below. Two other U.S. patents, US 8,748,442 and US 9,139,564, expire in 2031, and provide generic coverage of olinciguat and intermediates used in the preparation of olinciguat, respectively. Another U.S. patent, 10,517,874, which will expire in 2034 is directed to the treatment of SCD using olinciguat alone or in combinations with other therapeutic agents.

Methods of treating other diseases with olinciguat are disclosed in pending PCT and U.S. applications, that if issued, will expire in 2036 or later. We have pending PCT and U.S. applications directed to polymorphs of olinciguat and processes and synthetic intermediates for preparing olinciguat that, if issued, will expire in 2037 or later.

Furthermore, we have two granted European patents, one expiring in 2031 and the other in 2032; two granted Japanese patents, one expiring in 2031 and the other in 2034; three granted Chinese patents, one expiring in 2031, another one in 2032 and the third one in 2034; and ten issued patents in other foreign jurisdictions, nine of them expiring in 2031 and one expiring in 2034. Some of these patents may be eligible for patent term extension depending on the jurisdiction. We also have numerous patent applications pending in foreign jurisdictions.

Praliciguat Patent Portfolio

Our praliciguat patent portfolio in the U.S. includes four U.S. patents, ten pending U.S. patent applications and two PCT applications.

One of the U.S. patents, US 9,481,689, which will expire in 2034, is directed to praliciguat and pharmaceutical compositions thereof. The term of this U.S. patent may be eligible for patent term extension as described below. Two other U.S. patents, US 8,748,442 and US 9,139,564, expire in 2031, and provide generic coverage of praliciguat and intermediates used in the preparation of praliciguat, respectively. The fourth U.S. patent, US 10,183,021 will expire in 2034 and is directed to the treatment of resistant hypertension with praliciguat or combinations of praliciguat and known anti-hypertensives.

We have a pending U.S. application directed to a method of treating DN with praliciguat, alone or in combination with other therapeutic agents, that has recently received a notice of allowance and will expire in 2034. We have pending PCT and U.S. applications directed to methods of treating DN and other diseases with praliciguat, that if issued, will expire in 2036 or later.

We have a pending U.S. application directed to a praliciguat formulation, that, if issued, will expire in 2036 or later. We have pending PCT and U.S. applications directed to processes and synthetic intermediates for preparing praliciguat that, if issued, will expire in 2037 or later.

Furthermore, we have three granted European patents, one expiring in 2031, another one in 2032 and the third one in 2034; two granted Japanese patents, one expiring in 2031 and the other in 2034; three granted Chinese patents, one expiring in 2031, one in 2032, and the third expiring in 2034; and fourteen issued patents in other foreign jurisdictions, nine of them expiring in 2031 and five expiring in 2034. Some of these patents may be eligible for patent term extension depending on the jurisdiction. We also have numerous patent applications pending in foreign jurisdictions.

IW-6463 Patent Portfolio

Our patent portfolio in the US includes one granted patent, one pending US application and three PCT pending patent applications.

The granted U.S. patent and pending application in the US are directed to IW-6463 and related compounds, their pharmaceutical compositions thereof and method of treating different types of neurodegenerative diseases and will expire in 2037 or later. The term of the U.S. patent may be eligible for patent term extension as described below. The three pending PCT applications are directed to other aspects of IW-6463 and, if issued, will expire in 2039 or later.

We also have patent applications pending in foreign jurisdictions.

Additional Intellectual Property

In addition to the patents and patent applications related to praliciguat, olinciguat and IW-6463, we currently have five issued U.S. patents; six patents granted in foreign jurisdictions, including European patents that have each been validated in several countries; and a number of pending U.S., foreign and PCT applications directed to other sGC stimulator molecules and uses thereof.

Patent Term

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the earliest date of filing a non-provisional patent application, assuming that all applicable maintenance or annuity fees are paid. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO, in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent. The duration of foreign patents varies in accordance with provisions of applicable local law, but typically is also 20 years from the earliest effective filing date. However, the actual protection afforded by a patent varies on a product by product basis, from country to country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in that country, and the validity and enforceability of the patent.

In addition, the term of a U.S. patent that covers an FDA-approved drug may be eligible for patent term extension under the Drug Price Competition and Hatch-Waxman Act, to account for some of the time the drug is under development and regulatory review after the patent is granted. For a drug for which FDA approval is the first permitted marketing of the active ingredient, the Hatch-Waxman Act allows for extension of the term of one U.S. patent that includes at least one claim covering the composition of matter of an FDA-approved drug (drug substance or drug product), an FDA-approved method of treatment using the drug and/or a method of manufacturing the FDA-approved drug. The extended patent term cannot exceed the shorter of five years beyond the non-extended expiration of the patent or 14 years from the date of the FDA approval of the drug. Some foreign jurisdictions, including Europe and Japan, have similar patent term extension provisions, which allow for extension of the term of a patent that covers a drug approved by the applicable foreign regulatory agency.

Trade Secrets and Proprietary Information

In addition to patents, we rely upon unpatented trade secrets and know-how and continuing technological innovation to develop and maintain our competitive position. We typically rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. We protect our proprietary information, including trade secrets and know-how, by establishing confidentiality agreements with our commercial partners, collaborators, scientific advisors, employees and consultants and invention assignment agreements with our employees, consultants, scientific advisors and contractors. These agreements generally provide that all confidential information developed or made known during the course of an individual or entities' relationship with us must be kept confidential during and after the relationship. These agreements also typically provide that all inventions resulting from work performed for us or relating to our business and conceived or completed during the period of employment or assignment, as applicable, shall be our exclusive property. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of technologies that are developed through a relationship with a third party. However, these agreements may be breached, and we may not have adequate remedies for any breach. We also take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our proprietary information by third parties. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our commercial partners, collaborators, employees and consultants use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Government Regulation

United States Regulation

The FDA regulates medical products, including prescription drugs under the Federal Food, Drug and Cosmetic Act, or FDCA, and its implementing regulations. Products are also subject to other federal, state and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval may subject an applicant and/or sponsor to a variety of administrative or judicial sanctions, including imposition of a clinical hold, refusal by the FDA to approve applications, withdrawal of an approval, import/export delays, issuance of warning letters and other types of enforcement letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement of profits, or civil or criminal investigations and penalties brought by the FDA, the Department of Justice, State Attorneys General, or other governmental entities.

The process required by the FDA before a drug may be approved and marketed in the United States generally involves the following:

- completion of extensive pre-clinical laboratory tests and animal tests conducted in accordance with applicable regulations, including Good Laboratory Practices, or GLP, regulations and applicable requirements for the humane use of laboratory animals;

- submission to the FDA of an IND application for human clinical testing, which must become effective before human clinical trials may commence;

- approval by an independent IRB, representing each clinical site before each clinical trial may be initiated;

- performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, GCPs and other clinical-trial related regulations to establish the safety and efficacy of the product for each proposed indication;

- preparation and submission to the FDA of a NDA;

- satisfactory completion of one or more FDA pre-approval inspection(s) of the manufacturing facility or facilities at which the product, or components thereof, are made to assess compliance with current GMP;

- payment of user fees for FDA review of the NDA; and

- FDA acceptance, review and approval of the NDA, which may include an Advisory Committee review.

The development and approval process require substantial time, effort and financial resources and the receipt and timing of any approval is uncertain.

Preclinical and Human Clinical Trials in Support of an NDA

Before testing any drug product candidate in humans, the product candidate must undergo rigorous pre-clinical testing. Pre-clinical studies include laboratory evaluations of the product candidate, as well as in vitro and animal studies to assess the potential safety and efficacy of the product candidate. The conduct of pre-clinical trials must comply with federal regulations and requirements, including GLP regulations. The sponsor must submit the results of the pre-clinical studies, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND, which must become effective before clinical trials may be commenced. The IND will become effective automatically 30 days after receipt by the FDA, unless the FDA raises concerns or questions about the conduct of the trials as outlined in the IND prior to that time. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can proceed.

Clinical trials involve the administration of the product candidate to human subjects under the supervision of qualified investigators in accordance with GCP requirements. Each clinical trial must be reviewed and approved by an IRB for the sites at which the trial will be conducted to ensure that the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB will consider, among other things, ethical factors, the safety of human subjects and the possible liability of the institution. The IRB also approves the informed consent form, including a privacy statement, that must be provided to each clinical trial participant or his or her legal representative, and must monitor the clinical trial until completed.

Clinical trials are typically conducted in three sequential phases prior to approval, which may overlap or be combined:

- *Phase 1*. Phase 1 clinical trials generally involve a small number of healthy participants or disease-affected participants who are initially exposed to a single dose and then multiple doses of the product candidate. The primary purpose of these clinical trials is to assess the metabolism, pharmacologic action, side effect tolerability and safety of the drug.

- *Phase 2.* Phase 2 clinical trials usually involve studies in a limited participant population to evaluate the efficacy of the product candidate for specific indications, determine dosage tolerance and optimal dosage and identify possible adverse effects and safety risks.

- *Phase 3.* Phase 3 clinical trials generally involve a larger number of participants at multiple sites and are designed to provide the data necessary to demonstrate the effectiveness of the product for its intended use, its safety in use, to establish the overall benefit/risk profile of the product and to provide an adequate basis for product approval.

- *Phase 4.* Post-approval trials, sometimes referred to as Phase 4 clinical trials, may be required to be conducted after approval to gain additional experience from the treatment of participants in the intended therapeutic indication and to document a clinical benefit in the case of drugs approved under accelerated approval regulations, or when otherwise requested by the FDA. Failure to promptly conduct any Phase 4 clinical trials required by the FDA could result in enforcement action or withdrawal of approval.

Progress reports detailing the results of clinical trials must be submitted at least annually to the FDA and more frequently if serious adverse events occur. The FDA or the sponsor may suspend or terminate a clinical trial at any time, or the FDA may impose other sanctions on various grounds, including a finding that the research participants are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the requirements of the IRB or if the drug has been associated with unexpected serious harm to participants. There are also requirements related to registration and reporting of certain clinical trials and completed clinical trial results to public registries.

Submission and Review of an NDA

Assuming successful completion of the required pre-clinical and clinical testing, the results of pre-clinical studies and clinical trials, together with detailed information on the product's manufacture, composition, quality controls and proposed labeling, among other things, are submitted to the FDA in the form of an NDA, requesting approval to market the product for one or more indications. The application must be accompanied by a significant user fee payment, which typically increases annually, although waivers may be granted in limited cases (e.g., for products that have received an Orphan Designation).

The FDA has substantial discretion in the approval process and may refuse to accept any application or decide that the data is insufficient for approval, and may require additional preclinical, clinical or other studies before it accepts the filing. If an NDA has been accepted for filing, which occurs 60 days after submission, the FDA sets a user fee goal date that informs the applicant of the specific date by which the FDA intends to complete its review. Under the goals and policies agreed to by the FDA under the Prescription Drug User Fee Act, or PDUFA, for original NDAs, the FDA has ten months from the filing date in which to complete its review of a standard application, and six months from the filing date for an application with priority review. The FDA does not always meet its PDUFA goal dates, and the review process may be significantly extended by FDA requests for additional information and clinical data or clarification.

The FDA reviews NDAs to determine, among other things, whether the proposed product is safe and effective for its intended use, and whether the product is being manufactured in accordance with current GMP to assure and preserve the product's identity, strength, quality and purity. Before approving an NDA, the FDA typically will inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facilities comply with current GMP. Additionally, the FDA will frequently inspect one or more clinical trial sites for compliance with GCPs and integrity of the data supporting safety and efficacy.

During the approval process, the FDA will also prepare an integrated benefit risk assessment and determine whether a Risk Evaluation and Mitigation Strategy, or REMS, is necessary to ensure that the benefits of the drug outweigh the risks and to assure the safe use of the product. If the FDA concludes a REMS is needed, the sponsor of the application must submit a proposed REMS. A REMS that includes elements to assure safe use, or ETASU, can substantially increase the costs of commercializing a drug. The FDA could also require a special warning, known as a boxed warning, to be included in the product label in order to highlight a particular safety risk. Boxed warnings may limit the type of advertising for a drug. The FDA may also convene an advisory committee of external experts to provide input on certain review issues relating to risk, benefit and interpretation of clinical trial data.

On the basis of the FDA's evaluation of the NDA and accompanying information, including the results of the inspection of the manufacturing facilities, FDA will issue either an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug and is accompanied by specific prescribing information for specific conditions of use. A Complete Response Letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response Letter usually describes all of the specific deficiencies in the submission identified by the FDA and may require additional clinical or other data, additional pivotal Phase 3 clinical trial(s) and/or other significant and time-consuming requirements related to clinical trials, pre-clinical studies or manufacturing. If a Complete Response Letter is issued, the applicant may either amend the NDA with data to address the raised concerns, resubmit the NDA, addressing all the deficiencies identified in the letter, engage in dispute resolution with the FDA about the identified deficiencies in the CRL, or withdraw the application. Even with submission of this additional information, the FDA may ultimately decide that the re-submitted application does not satisfy the regulatory criteria for approval.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition affecting fewer than 200,000 individuals in the United States, or in other limited cases. Orphan drug designation must be requested before submitting an NDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process, though companies developing orphan drugs may be eligible for certain incentives, including tax credits for qualified clinical testing. In June 2018, the FDA granted orphan drug designation to our product candidate olinciguat for the treatment of patients with SCD.

Generally, if a product that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications to market the same active moiety for the same indication for seven years from the date of such approval, except in limited circumstances. Competitors, however, may receive approval of different active moieties for the same indication or obtain approval for the same active moiety for a different indication. If one of our products designated as an orphan drug receives marketing approval for an indication broader than that which is designated, it may not be entitled to orphan drug exclusivity.

Expedited Review and Approval

The FDA has various programs that are intended to expedite development and approval of drugs intended for the treatment of serious or life-threatening diseases or conditions and that demonstrate the potential to address unmet medical needs.

An application may be eligible for a "fast track" designation for a product that is intended to treat a serious or life-threatening disease or condition and demonstrates the potential to address an unmet medical need. Fast track designation provides opportunities for more frequent interactions with the FDA review team and permits FDA to consider sections of the NDA on a rolling basis before the complete application is submitted.

In addition, a sponsor can request designation of a product candidate as a "breakthrough therapy." A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, where preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. The FDA must take certain actions with respect to breakthrough therapies, such as holding timely meetings with and providing advice to the product sponsor.

An application may be eligible for "accelerated approval" where the product candidate is intended to treat a serious or life-threatening illness and provides meaningful therapeutic benefit over existing treatments; applications eligible for accelerated approval may be approved on the basis of adequate and well-controlled clinical trials establishing that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, or IMM, that is reasonably likely to predict an effect on IMM or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA requires a sponsor to conduct confirmatory studies to verify the predicted effect on IMM or another clinical endpoint, and the product may be subject to expedited withdrawal procedures.

Once an NDA is submitted for a product intended to treat a serious condition, the FDA may assign a priority review designation if the FDA determines that the product, if approved, would provide a significant improvement in safety or effectiveness. Under priority review, the FDA must review an application in six months, compared to ten months for a standard review. A product may be eligible for more than one expedited approval program. Even if a product qualifies for one or more of these programs, however, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened. Furthermore, these expedited review pathways do not change the standards for approval and may not ultimately expedite the development or approval process.

Non-Patent Exclusivity

In addition to patent exclusivity, the holder of the NDA for the listed drug may be entitled to a period of non-patent exclusivity, during which the FDA cannot approve an ANDA for approval of a generic or 505(b)(2) application that relies on the listed drug as protected by regulatory exclusivity.

An NDA for a new chemical entity may receive five years of exclusivity, whereby the FDA will not accept for filing, with limited exceptions, a product seeking to rely upon the FDA's findings of safety or effectiveness for such new chemical entity. An ANDA containing a paragraph IV patent certification can be filed after four years. Alternatively, an NDA may obtain a three-year period of non-patent market exclusivity for a particular condition of approval, or change to a marketed product, such as a new formulation for a previously approved product, if one or more new clinical studies (other than bioavailability or bioequivalence studies) was essential to the approval of the application and was conducted/sponsored by the applicant.

Pediatric Exclusivity

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity for both drugs and biologics, and also Orange Book listed patents in the case of drugs. This six-month exclusivity may be granted if a sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted.

Post-Approval Requirements

Following approval of a new product, the manufacturer and the approved product are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims and some manufacturing and supplier changes, are subject to prior FDA review and approval. There also are continuing, annual user fee requirements for marketed products and the establishments where such products are manufactured, as well as new application fees for certain supplemental applications. The FDA may impose a number of post-approval requirements as a condition of approval of an NDA, such as Phase 4 clinical trials or a REMS.

In addition, entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state agencies and are subject to periodic unannounced inspections by the FDA and such state agencies for compliance with current GMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from current GMP requirements and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain current GMP compliance.

Once an approval is granted, the FDA may issue enforcement letters or withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Corrective action could delay product distribution and require significant time and financial expenditures. Later discovery of previously unknown safety issues with a product, including adverse events of unanticipated severity or frequency, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include:

- restrictions on the marketing or manufacturing of the product, suspension of the approval, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or other enforcement-related letters of clinical holds on post-approval clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- injunctions or the imposition of civil or criminal penalties; and
- consent decrees, corporate integrity agreements, debarment, or exclusion from federal healthcare programs.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications, in accordance with the provisions of the approved label and FDA guidance. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability, including investigation by federal and state authorities. Additionally, all promotional material must be truthful and non-misleading, and present balanced information regarding the risks and benefits of the drug product.

Other Regulatory Requirements

Outside the U.S., our abilities to develop and market a product are contingent upon receiving approval and ultimately marketing authorization from the appropriate regulatory authorities. The requirements governing the conduct of clinical trials, marketing authorization, pricing and reimbursement vary widely from jurisdiction to jurisdiction. At present, foreign marketing authorizations are applied for at a national level, although within the E.U. registration procedures are available to companies wishing to market a product in more than one E.U. member state.

We are subject to U.S. federal and foreign anti-corruption laws. Those laws include the U.S. Foreign Corrupt Practices Act, or FCPA, which prohibits U.S. corporations and their representatives from offering, promising, authorizing, or making payments to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business abroad. The scope of the FCPA encompasses certain healthcare professionals in many countries. We are also subject to similar laws of other countries that have enacted anti-corruption laws and regulations.

Pediatric Development

In the European Union, companies developing a new medicinal product must agree to a Paediatric Investigation Plan, or PIP, with the EMA and must conduct pediatric clinical trials in accordance with that PIP, unless a deferral or waiver applies, (e.g., because the relevant disease or condition occurs only in adults). The MAA for the product must include the results of pediatric clinical trials conducted in accordance with the PIP, unless a waiver applies or a deferral has been granted, in which case the pediatric clinical trials must be completed at a later date. Where the MAA includes the results of all pediatric studies conducted in accordance with the PIP and the results are reflected in the approved summary of product characteristics, the holder of a patent or supplementary protection certificate is entitled to receive a six month extension of the protection under a supplementary protection certificate or, in the case of orphan medicinal products, the product is eligible for a two year extension of the orphan market exclusivity. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the PIP are developed and submitted.

In the US, under Pediatric Research Equity Act (PREA), a pediatric development plan is required to accompany an NDA for all drugs, except those receiving non-oncology Orphan Drug Designation. This may include waiver or deferral of pediatric studies. The Best Pharmaceuticals for Children Act (BPCA) also allows for agreement with FDA on a pediatric written request that, if fulfilled, may extend data exclusivity for the molecule for an additional 6 months.

The Separation, Distribution and Private Placement

On April 1, 2019, Ironwood completed the separation of its sGC business, and certain other assets and liabilities, into us as a separate, independent publicly traded company by way of a pro-rata distribution of our common stock through a dividend distribution of one share of our common stock, with no par value per share, for every 10 shares of Ironwood common stock held by Ironwood stockholders as of the close of business on March 19, 2019, the record date for the distribution, which we refer to herein as the Separation. As a result of the Separation, we became an independent public company and commenced trading under the symbol “CYCN” on the Nasdaq Global Select Market on April 2, 2019.

In connection with the Separation, on March 30, 2019, we entered into certain agreements with Ironwood to provide a framework for our relationship with Ironwood following the Separation, including, among others, a Separation Agreement, a Tax Matters Agreement, and an Employee Matters Agreement. In addition, in connection with the Separation, on April 1, 2019, we entered into a Development Agreement, an Ironwood Transition Services Agreement, a Cyclerion Transition Services Agreement and an Intellectual Property License Agreement with Ironwood. For certain risks associated with the Separation, see "Risk Factors—Risks Related to the Separation."

On April 2, 2019, we issued 11,817,165 shares of our common stock, or the Private Placement Shares, to accredited investors for gross proceeds of $175 million (net proceeds of approximately $165 million) pursuant to the Amended and Restated Common Stock Purchase Agreement. We received the funds associated with the sale of the Private Placement Shares on April 2, 2019.

Competition

The biopharmaceutical industry is highly competitive within and across therapeutic categories and indications. There are many public and private biopharmaceutical companies, universities, government agencies and other research organizations actively engaged in the research and development of products that may be similar to our product candidates or address similar markets. In addition, the number of companies seeking to develop and commercialize products and therapies competing with our product candidates is likely to increase. However, we seek to build our portfolio with key differentiating attributes to provide a competitive advantage in the markets we target. The success of all of our product candidates, if approved, will likely depend upon their efficacy, safety, convenience, price, the level of generic competition and the availability of reimbursement from government and other third-party payors.

The sGC stimulator class of compounds has one major participant besides Cyclerion. Bayer/Merck have an active collaboration on sGC modulators and may be targeting some of the same indications as we through a similar mechanism of action. They have one approved sGC stimulator, ADEMPAS® (riociguat), indicated for PAH and CTEPH, and an investigational sGC stimulator, vericiguat, in clinical development for heart failure. In addition, they have three sGC activator programs in early clinical development for chronic kidney disease, pulmonary hypertension, and acute respiratory distress syndrome.

Many of our competitors, including those mentioned below, may have greater financial resources and broader expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved medicines than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and diagnostic industries may result in even more resources being concentrated among a smaller number of our competitors. These competitors also compete with Cyclerion in establishing clinical trial sites and participant registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

Olinciguat

In SCD, there are four approved products. Three drugs are indicated to reduce the frequency of painful crises, hydroxyurea (DROXIA® or SIKLOS®, as well as other generic forms) ENDARI®, an amino acid l-glutamine, and ADAKVEO® (crizanlizumab-tmca) a selectin blocker. Additionally, Oxbryta® (voxelotor), a hemoglobin S polymerization inhibitor, is indicated to treat sickle cell disease. We are aware of the following companies engaged in the clinical development of products for the chronic treatment of SCD: Novartis, which is developing ILARIS® (canakinumab) (Phase 2), a fully human monoclonal anti-human interleukin-1b antibody; AstraZeneca plc, which is developing ticagrelor (Phase 3), a P2Y12 platelet inhibitor in pediatric and adolescent patients; Micelle BioPharma, Inc., which is developing SC411 (Phase 3), a mixture of fatty acids; Imara, Inc., which is developing IMR-687 (Phase 2), a phosphodiesterase-9 inhibitor, or PDE9i; Shire/Takeda who are developing SHP655 (Phase 1/2), a recombinant ADAMTS13 von Willebrand factor-cleaving (VWF) protease, Agios, which is developing Mitapivat (Phase 1), a pyruvate kinase-R (PKR)activator, Forma Therapeutics which is developing FT-4202, a pyruvate kinase (PKR) activator (Phase 1), and Novo Nordisk which is developing an oral combination of tetrahydrouridine and decitabine (Phase 1). We are also aware of Prolong Pharmaceuticals, LLC which is developing Sanguinate (Phase 2), a PEGylated hemoglobin, for acute treatment in SCD. We may also face competition from one-time treatments such as HSCT, gene editing and gene therapy. We are aware of the following companies engaged in the clinical development of one-time treatments: bluebird bio, Inc. is currently conducting a Phase 1/2 study with their product, LentiGlobin®, for patients with severe SCD; and CRISPR Therapeutics AG/Vertex Pharmaceuticals, Inc. is conducting a Phase 1/2 study with their product, CTX-001; and Bioverativ/Sangamo is conducting a Phase 1/2 study with their product, BIVV-003. There are several other companies engaged in earlier stage clinical development for products targeting SCD.

Praliciguat

There are four approved products in the United States to treat DN.

AVAPRO® (irbesartan) and COZAAR® (losartan), are an angiotensin II receptor blockers, indicated to treat DN in patients with type 2 diabetes mellitus and a history of hypertension. CAPOTEN® (captopril), angiotensin I converting enzyme inhibitor, indicated to reduce the rate of progression in patients with Type 1 insulin-dependent diabetes mellitus and retinopathy. INVOKANA®, is an SGLT2 inhibitor indicated to improve renal and cardiovascular outcomes in patients with diabetes mellitus and diabetic nephropathy.

We are aware of the following companies engaged in the late-stage clinical development of products for the treatment of DN:

AstraZeneca plc has a Phase 3 study ongoing with FARXIGA®, an SGLT2 inhibitor, assessing renal outcomes and cardiovascular mortality in patients with chronic kidney disease. Eli Lilly/Boehringer Ingelheim GmbH are currently conducting a Phase 3 program in DN with JARDIANCE. Bayer has a Phase 3 program ongoing for the investigational product finerenone, a mineralocorticoid receptor antagonist, assessing its effect in patients with DN. Bayer also has a Phase 2 program ongoing for BAY1142524, a chymase inhibitor, in patients with diabetic kidney disease. There are several other companies engaged in earlier stage clinical development for products targeting DN.

Manufacturing

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We depend on third-party contract manufacturing organizations, or CMOs, for all of our requirements of raw materials, drug substance and drug product for our ongoing clinical trials of, olinciguat and IW-6463 and our non-clinical research. We intend to continue to rely on CMOs for the supply of praliciguat, olinciguat and IW-6463 for all stages of clinical development and commercialization, as well as for the supply of any other product candidates that we may identify. We require all of our CMOs to conduct manufacturing activities in compliance with current GMP requirements.

We believe that praliciguat, olinciguat and IW-6463 drug substance and drug product may be manufactured from readily available raw materials and the processes are amenable to large-scale production and do not require unusual equipment or handling. We believe adequate supply of praliciguat, olinciguat and IW-6463 drug substance and drug product is readily available from our current CMOs to satisfy our immediate clinical and non-clinical demands. We obtain our supplies from these CMOs on a purchase order basis and do not have arrangements in place for long-term supply or redundant supply of praliciguat olinciguat or IW-6463; however, we are working with our CMOs to implement improvements to our drug substance and drug product manufacturing processes to further ensure product capacity adequate to meet further development and commercial demands.

Employees

As of December 31, 2019, we had approximately 94 employees, 39 of whom hold M.D. or Ph.D. degrees. Approximately 16 employees are in discovery research, 52 in our drug development organization, 7 in our strategy and corporate development organizations and 19 in general and administrative functions. None of our employees is subject to a collective bargaining agreement or represented by a trade or labor union. We consider our employee relations to be good.

Corporate Information

We were incorporated in the Commonwealth of Massachusetts on September 6, 2018. Our principal executive offices are located at 301 Binney Street, Cambridge, MA 02142. Our telephone number is (857) 327-8778. Our common stock is listed on the Nasdaq Global Market under the symbol “CYCN.”

Available Information

Our internet website address is www.cyclerion.com. In addition to the information contained in this Annual Report, information about us can be found on our website. Our website and information included in or linked to our website are not part of this Annual Report.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge through our website as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission, or the SEC. The SEC maintains an internet site that contains reports, proxy and information statements and other information. The address of the SEC’s website is www.sec.gov.

Item 1A. Risk Factors.

The following information sets forth risk factors that could cause our actual results to differ materially from those contained in forward-looking statements we have made in this Annual Report on Form 10-K and those we may make from time to time. You should carefully consider the risks described below, in addition to the other information contained in this Annual Report on Form 10-K and our other public filings. Our business, financial condition or results of operations could be harmed by any of these risks. The risks and uncertainties described below are not the only ones we face. Additional risks not presently known to us or other factors not perceived by us to present significant risks to our business at this time also may impair our business operations.

Risks Related to Our Financial Position and Capital Needs

As we are a clinical-stage biopharmaceutical company with a limited operating history and no products approved for commercial sale, valuing our business and predicting our prospects is challenging.

We are a clinical-stage biopharmaceutical company that was incorporated in 2018. Our business was conducted within Ironwood prior to that time, and we had no history as an independent company prior to the completion of the separation. We are developing a pipeline of sGC stimulators, but we have no products approved for commercial sale, and we have never generated revenue from product sales. Our operating activities to date have been limited primarily to organizing and staffing our company, business planning, raising capital, developing our technology, identifying potential product candidates, pursuing partnership opportunities and conducting early stage clinical trials for our most advanced product candidates, praliciguat, olinciguat and IW-6463.

To date, we have not obtained marketing approval for any of our product candidates, engaged, on our own or through a third party, in commercial scale manufacturing, or conducted sales and marketing activities necessary for the successful commercialization of our product candidates. Our short operating history offers limited insight into our prospects for success or even viability. We expect our operating performance to fluctuate. We will encounter challenges frequently experienced by early-stage biopharmaceutical companies in rapidly evolving fields and we have not yet demonstrated an ability to successfully navigate such challenges. If we do not successfully address the challenges we face, our business, prospects, financial condition and results of operations will be materially harmed.

Our business has incurred significant losses and we anticipate that we will continue to incur significant losses for the foreseeable future. We have never generated revenue from product sales and may never be profitable.

Our business has incurred operating losses due to costs incurred in connection with our research and development activities and general and administrative expenses associated with our operations. Our net losses for the years ended December 31, 2018 and 2019 were $115.3 million and $123.0 million, respectively. We expect to incur significant losses for several years, as we continue our research activities and conduct development of, and seek regulatory approvals for, our product candidates.

Our ability to generate revenue from our product candidates and achieve profitability depends on our ability, alone or with strategic partners, to complete the development of, and obtain the necessary regulatory and essential pricing and reimbursement approvals to commercialize, our product candidates. We do not know when, if ever we will generate revenues from sales of our products.

Our expenses could increase beyond expectations if we are required by the FDA, the European Medicines Agency, or the EMA, or other regulatory agencies, domestic or foreign, to perform clinical and other studies in addition to those that we currently anticipate. Even if one or more of the product candidates that we develop is approved for commercial sale, we may never generate revenue in amounts sufficient to achieve and maintain profitability.

We will need to raise additional funding to advance our product candidates, which may not be available on acceptable terms, or at all. Failure to obtain capital when needed may force us to delay, limit or terminate our product development efforts or other operations. Raising additional capital may dilute our existing shareholders, restrict our operations or cause us to relinquish valuable rights.

As of December 31, 2019, we had unrestricted cash and cash equivalents of approximately $94.9 million. Our management believes that such cash and cash equivalents will be sufficient to fund our operating expenses and capital expenditure requirements through the first quarter of 2021. However, we will require significant additional funding to advance our product candidates, alone or with strategic partners, through clinical studies and to seek marketing approval, as well as to continue advancing our research and development efforts with our other product candidates. We may also need to raise additional funds sooner than currently anticipated if we choose to pursue additional indications or geographies for our product candidates, identify additional product candidates to advance through clinical development or otherwise expand more rapidly than we presently anticipate. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant expenses related to product sales, medical affairs, marketing, manufacturing and distribution.

We are seeking funds through collaborations, strategic alliances, or licensing arrangements with third parties, and such agreements may impact rights to our product candidates or technologies, future revenue streams, research programs or products candidates or to grant licenses on terms that may not be favorable to us. Such arrangements will limit our participation in the success of any of our product candidates that receive regulatory approval.

We may also seek to raise such capital through public or private equity, royalty financing or debt financing. Raising funds in the then-current economic environment may be challenging, and such financing may not be available in sufficient amounts or on acceptable terms, if at all. The terms of any financing may harm existing shareholders. The issuance of additional securities, whether equity or debt, or the possibility of such issuance, may cause the market price of our shares to decline. The sale of additional equity or convertible securities may dilute the ownership of existing shareholders. Incurring debt would result in increased fixed payment obligations, and we may agree to restrictive covenants, such as limitations on our ability to incur additional debt or limitations on our ability to acquire, sell or license intellectual property rights that could impede our ability to conduct our business. Regardless of the terms of our debt or equity financing, our agreements and obligations under the tax matters agreement with Ironwood limits our ability to issue stock. See “Risk factors–Risks Related to the Separation.”

If we are unable to raise capital when needed or on reasonable terms, we may curtail, delay or discontinue our research or development programs, scale back or cease any commercialization efforts or wind down our business. In addition, such additional fundraising efforts may divert our management from their day-to-day activities, which may impede our ability to develop and commercialize our product candidates.

Risks Related to our Business and Industry

The “target-to-disease” approach we are taking to discover and develop product candidates targeting cGMP, may never lead to marketable products.

We have concentrated our product research and development efforts to date on a "target-to-disease" approach to the treatment of diseases involving the cGMP pathway and/or sGC signaling, so our future success depends on the successful development of our pipeline of sGC stimulators. The scientific evidence to support the feasibility of developing our product candidates is both preliminary and limited. If we do not successfully develop and commercialize product candidates based upon our “target-to-disease” approach, we will not become profitable and the value of our common stock may decline.

Further, our focus solely on developing a pipeline of sGC stimulators, instead of multiple, more proven technologies, increases the risks associated with the ownership of our common stock. If we are not successful in developing any product candidates using our sGC platform, we may be required to change the scope and direction of our product development activities. In that case, we may not be able to identify and implement successfully an alternative product development strategy, which would materially harm our business, prospects, financial condition and results of operations.

Research and development of biopharmaceutical products is inherently risky. We may encounter substantial delays in our clinical studies, or we may fail to demonstrate safety and efficacy to the satisfaction of applicable regulatory authorities.

Our current product candidates are at an early stage of development. Our business depends heavily on successful preclinical development, clinical testing, regulatory approvals and commercialization of our lead product candidates. On October 30, 2019, we announced that our topline results from our Phase 2 proof-of-concept trials of praliciguat in participants with diabetic nephropathy and in HFpEF did not meet statistical significance on their respective primary endpoints. In light of this topline data, we do not intend to continue development of praliciguat in participants with HFpEF. However, there was a trend towards improvement across the total intention-to-treat diabetic nephropathy study population and praliciguat was generally well tolerated, therefore, as previously announced, we intend to pursue an out-license of praliciguat for diabetic nephropathy. Our other lead product candidates, olinciguat and IW-6463, as well as any other of our current product candidates or product candidates that we may discover in the future, will require regulatory approvals resulting from substantial additional development and testing prior to commercialization.

Before obtaining regulatory approvals for the commercial sale of any of our product candidates, we must demonstrate through lengthy, complex and expensive preclinical and clinical studies that our product candidates are both safe and effective for use in each target indication. Each product candidate must demonstrate an adequate benefit-risk profile for its intended use in its intended patient population. In some instances, significant variability in safety or efficacy appear in different clinical studies of the same product candidate due to numerous factors, including changes in study protocols, differences in the number and characteristics of the enrolled study participants, variations in the dosing regimen and other clinical study parameters or the dropout rate among study participants. Product candidates in later stages of clinical studies often fail to demonstrate adequate safety and efficacy despite promising preclinical testing and earlier clinical studies. A number of companies in the biopharmaceutical industry have suffered significant setbacks in later-stage clinical studies. Most product candidates that begin clinical studies are never approved for commercialization by regulatory authorities.

The reported results of our Phase 2 proof-of-concept trials of praliciguat in participants with diabetic nephropathy and in HFpEF are based on topline data. While we intend to follow our previously announced strategy not to continue internal development of praliciguat in diabetic nephropathy, we believe that positive trends on primary and secondary endpoints indicate a profile that merits further investigation. However, topline data may ultimately differ from actual results as additional evaluations are completed.

The reported results of our Phase 2 proof-of-concept trials of praliciguat in participants with diabetic nephropathy and in HFpEF that we have publicly disclosed, and that are discussed herein, consist of topline data. Topline data are based on a preliminary analysis of currently available efficacy and safety data, and therefore the reported results, findings and conclusions related to such clinical trials are subject to change following a comprehensive review of the more extensive data that we expect to receive related to these clinical trials. Topline data are based on important assumptions, estimations, calculations and information currently available to us. We continue to evaluate all data related to our Phase 2 proof-of-concept trials of praliciguat, including for one clinical trial site in the DN study where data was found to be inconsistent with the overall study population. Topline results may differ from future results, or different conclusions or considerations may qualify such results, as additional data is evaluated. In addition, third parties, including regulatory agencies and potential third-party licensees, may not accept or agree with our assumptions, estimations, calculations or analyses or may interpret or weigh the importance of data differently. If the topline data that we have reported related to our Phase 2 proof-of-concept trials of praliciguat differ from actual results, our ability to potentially obtain approval for or out-license and commercialize praliciguat may be harmed, which could harm our business, financial condition, operating results or prospects.

If we encounter difficulties in enrolling participants in our clinical studies, we could be delayed or prevented from proceeding with clinical trials of our product candidates.

Identifying and qualifying participants to participate in clinical studies of our product candidates is critical to our success. The timing of our clinical studies depends in part on the speed at which we can recruit participants to participate in testing our product candidates. Estimates of the prevalence of our target indication, SCD, vary considerably. Determining the incidence of these conditions, including in specific geographies or demographic groups, is challenging. The lower the actual prevalence of these conditions, the more challenges we will encounter enrolling participants in our clinical studies, which could delay development of our product candidates. Clinical trial enrollment may also encounter difficulties for a variety of other reasons. The number of participants eligible for a clinical trial may be substantially limited by stringent eligibility criteria in a study protocol, such as the inclusion of biomarker-driven identification or other highly specific criteria related to stage of disease progression or to specific patient reported outcome measures. The number of participants required to power the statistical analysis of the study's endpoints may be very large leading to an extended enrollment period. Issues such as the proximity of participants to a study site, the complexity of the study design, our ability to recruit investigators with appropriate skill and experience, competing clinical studies for similar therapies or targeting similar participants, perceptions of the benefit-risk profile of the product candidate relative to other available therapies or product candidates, and ability to obtain and maintain institutional review board, or IRB, or ethics committee, or EC, approvals and participant consents all could have a substantial impact on the timing of clinical trial enrollment. If we are unable to enroll sufficient participants in clinical studies in a timely way, obtaining study results will be delayed, which may harm our business, prospects, financial condition and results of operations.

The regulatory approval processes of the FDA and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If we are ultimately unable to obtain regulatory approval for our product candidates, we will be unable to generate product revenue and our business will be substantially harmed.

We cannot commercialize a product until the appropriate regulatory authorities have reviewed and approved the product candidate. The time required to obtain approval by the FDA and comparable foreign regulatory authorities is unpredictable, typically takes many years following the commencement of clinical studies and depends upon numerous factors, including the type and complexity of the product candidates involved. Regulatory authorities have substantial discretion in the approval process and may refuse to accept an application for review, or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. We have not requested or obtained regulatory approval for any product candidate, and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval.

Our ongoing clinical studies may not be completed on schedule, and our planned clinical studies may not begin on schedule, if at all. The completion or commencement of clinical studies can be delayed or prevented for a number of reasons, including, among others:

- the FDA or other regulatory bodies may not authorize us or our investigators to commence planned clinical studies, or require that we suspend ongoing clinical studies through imposition of clinical holds;
- negative results from our ongoing studies or other industry studies involving product candidates modulating the same or similar mechanism of action;
- delays in reaching or failing to reach agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical study sites, the terms of which can be subject to considerable negotiation and may vary significantly among different CROs and study sites;
- inadequate quantity or quality of a product candidate or other materials necessary to conduct clinical studies, for example delays in the manufacturing of sufficient supply of finished drug product;
- difficulties obtaining EC or IRB approval to conduct a clinical study at a prospective site or sites;
- challenges in recruiting and enrolling participants to participate in clinical studies, the proximity of participants to study sites, eligibility criteria for the clinical study, the nature of the clinical study protocol, the availability of approved effective treatments for the relevant disease and competition from other clinical study programs for similar indications;
- severe or unexpected drug-related side effects experienced by participants in a clinical study;
- the presence of unanticipated metabolites in participants in a clinical study may require considerable preclinical and clinical assessment;
- we may decide, or regulatory authorities may require us, to conduct additional clinical studies or abandon product development programs;
- delays in validating, or inability to validate, any endpoints utilized in a clinical study;

- the FDA or other regulatory bodies may disagree with our clinical study design and our interpretation of data from clinical studies, or may change the requirements for approval even after it has reviewed and commented on the design for our clinical studies;

- reports from preclinical or clinical testing of other competing candidates that raise safety or efficacy concerns; and

- difficulties retaining participants who have enrolled in a clinical study but may be prone to withdraw due to rigors of the clinical studies, lack of efficacy, side effects, personal issues, or loss of interest.

Clinical studies may also be delayed or terminated as a result of ambiguous or negative interim results. In addition, a clinical study may be suspended or terminated by us, the FDA or other comparable authorities, the IRBs or ECs overseeing a clinical study, a data and safety monitoring board overseeing the clinical study at issue or other regulatory authorities due to a number of factors, including, among others:

- failure to conduct the clinical study in accordance with regulatory requirements or our clinical protocols;

- inspection of the clinical study operations or study sites by the FDA or other regulatory authorities that reveals deficiencies or violations that require us to undertake corrective action, including in response to the imposition of a clinical hold;

- unforeseen safety issues, including any that could be identified in our ongoing studies, adverse side effects or lack of effectiveness;

- changes in government regulations or administrative actions;

- problems with clinical supply materials; and

- lack of adequate funding to continue clinical studies.

Our product candidates may cause side effects that are presented in the product labeling approved by regulatory authorities. Some may result in label restrictions.

The most commonly reported adverse events in the clinical studies for olinciguat were headaches, tachycardia, dizziness, nausea, vomiting and hypotension. The most commonly reported adverse events in the clinical studies for praliciguat were respiratory infections, diarrhea nausea, and hypoglycemia. As with ADEMPAS® (riociguat), the only FDA-approved sGC stimulator to date, our product candidates include a warning on the possibility of serious birth defects if taken while pregnant. These side effects and any other undesirable side effects observed with our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical studies and could result in restrictive label language or delay or denial of regulatory approval.

Changes in regulatory requirements, FDA guidance or unanticipated events during our preclinical studies and clinical studies of our product candidates may occur, which may result in changes to preclinical or clinical study protocols or additional preclinical or clinical study requirements, which could result in increased costs to us and could delay our development timeline.

Changes in regulatory requirements, FDA guidance or unanticipated events during our preclinical studies and clinical studies may force us to amend preclinical studies and clinical study protocols or the FDA may impose additional preclinical studies and clinical study requirements. Amendments or changes to our clinical study protocols would require resubmission to the FDA and IRBs for review and approval, which may increase the cost or delay the timing or successful completion of clinical studies. Similarly, amendments to our preclinical studies may increase the cost or delay the timing or successful completion of those preclinical studies. If we experience delays completing, or if we terminate, any of our preclinical or clinical studies, or if we are required to conduct additional preclinical or clinical studies, the commercial prospects for our product candidates may be harmed and our ability to generate product revenue will be delayed.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

In order to market any product outside of the United States, we must establish and comply with the numerous and varying safety, efficacy and other regulatory requirements of other countries. Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, but a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA or other comparable foreign regulatory authority grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States, including additional preclinical or clinical studies, as studies conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. The marketing approval processes in other countries may implicate all of the risks detailed above regarding FDA approval in the United States, as well as other risks. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our product candidates is also subject to approval.

Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. Failure to obtain marketing approval in other countries or any delay or other setback in obtaining such approval would impair our ability to market our product candidates in such countries. Any such impairment would reduce the size of our potential market, which could have a material adverse impact on our business, prospects, financial condition and results of operations.

Data/market exclusivity may be more limited than we expect based upon the competitive landscape and other factors outside of our control that may occur during development or after approval

There are many types of data/market exclusivity mechanisms that we have sought and continue to seek to secure. Many of these have risk of loss of exclusivity if the competitive landscape changes or regulations are revised. In June 2018, olinciguat received orphan drug designation for the treatment of patients with SCD in the US which confers additional exclusivity. If we seek and are awarded orphan drug designation in the EU based upon criteria in effect at the time, this designation may be rescinded if a similar drug or another therapy that confers a significant benefit over ours is subsequently approved. If olinciguat or our other product candidates were to fail to obtain orphan drug status, or lose such status after it is obtained, or the marketing exclusivity that such status provides, our business, prospects, financial condition and results of operations could be materially harmed. There are other types of data/ market exclusivity rights granted after approval that may not confer exclusivity anticipated if the competitive landscape changes and our business, prospects, financial condition and results of operations could be materially harmed.

Risks Related to Our Reliance on Third Parties

We may not succeed in our pursuit of an out-license agreement for the development and commercialization of praliciguat for diabetic nephropathy, which would materially adversely affect our financial condition and results of operations.

We are seeking an out-license of praliciguat for the purpose of pursuing further development and commercialization of praliciguat for DN and/or other cardiometabolic indications. There is no certainty that we will find a commercial or financial partner to fund and undertake development and commercialization, and failure to find such a partner may result in the discontinuation of development of praliciguat for DN. We may also incur costs to wind down our activities related to this product candidate. Failure to find a partner for the continued development and commercialization of praliciguat for DN would materially adversely affect our financial condition and results of operations.

Any collaboration or license arrangements that we enter into in the future may not be successful, which could impede our ability to develop and commercialize our product candidates.

We intend to seek collaboration or license arrangements for the commercialization, and/or potentially for the development, of certain of our product candidates depending on the merits of retaining commercialization rights for ourselves as compared to entering into collaboration or license arrangements. For example, we intend to out-license praliciguat for DN, and/or other cardiometabolic diseases. We will face significant challenges in seeking appropriate partners. Moreover, collaboration and license arrangements are complex and time-consuming to negotiate, document, implement and maintain. We may not be successful in our efforts to establish and implement such arrangements. The terms of any collaborations, licenses or other arrangements that we may establish may not be favorable to us.

Any future collaboration or license arrangements that we enter into may not be successful. The success of such arrangements will depend heavily on the efforts and activities of our partners. Collaboration and license arrangements are subject to numerous risks, which may include risks that:

- partners have significant discretion in determining the efforts and resources that they will apply to collaborations;
- a partner with marketing, manufacturing and distribution rights to one or more products may not commit sufficient resources to or otherwise not perform satisfactorily in carrying out these activities;
- partners may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- collaboration and license arrangements may be terminated, and, if terminated, this may result in a need for additional capital to pursue further development or commercialization of the applicable current or future product candidates;
- partners may own or co-own intellectual property covering products that results from our collaborating with them, and in such cases, we would not have the exclusive right to develop or commercialize such intellectual property;
- disputes may arise with respect to the ownership of any intellectual property developed pursuant to our collaboration or license arrangements; and
- a partner’s sales and marketing activities or other operations may not be in compliance with applicable laws resulting in civil or criminal proceedings.

We rely, and expect that we will continue to rely, on third parties to conduct any preclinical or clinical studies for our product candidates. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business could be substantially harmed.

We do not have the ability to independently conduct clinical studies. We rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, to conduct clinical studies on our product candidates. We rely heavily on such parties for execution of clinical studies for our product candidates and can control only certain aspects of their activities. As a result, we have less direct control over the conduct, timing and completion of these clinical studies and the management of data developed through clinical studies than would be the case if we were relying entirely upon our own staff. Communicating with outside parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Outside parties may have staffing difficulties, fail to comply with contractual obligations, experience regulatory compliance issues, undergo changes in priorities, become financially distressed or form relationships with other entities, some of which may be our competitors.

These factors may materially impede the willingness or ability of third parties to complete quality clinical studies and may subject us to unexpected cost increases that are beyond our control. Nevertheless, we are responsible for ensuring that each of our clinical studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific requirements and standards, and our reliance on CROs does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with regulations and guidelines, including good clinical practices, or GCPs, for conducting, monitoring, recording and reporting the results of clinical studies to ensure that the data and results are scientifically credible and accurate, and that the study participants are adequately informed of the potential risks of participating in clinical studies. These regulations are enforced by the FDA and comparable foreign regulatory authorities for any products in clinical development. The FDA enforces GCP regulations through periodic inspections of clinical study sponsors, principal investigators and study sites. If we and our CROs or our investigators fail to comply with applicable GCPs, the clinical data generated in our clinical studies may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical studies before approving our marketing applications. We cannot assure you that, upon inspection, the FDA will determine that any of our clinical studies comply with GCPs. In addition, our clinical studies must be conducted with product candidates produced under current good manufacturing practice, or GMP, regulations and will require a large number of participants. Our failure or the failure of our CROs to comply with these regulations may require us to repeat clinical studies, which would delay the regulatory approval process and could also subject us to enforcement action up to and including civil and criminal penalties.

Although we design our product candidate clinical studies, CROs conduct all of the clinical studies. As a result, many important aspects of the execution of our drug development programs are outside of our direct control. In addition, the CROs may not perform all of their obligations under arrangements with us or in compliance with regulatory requirements, but we remain responsible and are subject to enforcement action that may include civil penalties and criminal prosecution for any violations of FDA laws and regulations during the conduct of our clinical studies. If the CROs do not perform clinical studies in a satisfactory manner, breach their obligations to us or fail to comply with regulatory requirements, the development and commercialization of our product candidates may be delayed or our development program materially and irreversibly harmed. We may fail to control the amount and timing of resources these CROs devote to our program or our clinical products. If we are unable to rely on clinical data collected by our CROs, we could be required to repeat, extend the duration of, or increase the size of our clinical studies and this could significantly delay commercialization and require significantly greater expenditures.

If any of our relationships with these third-party CROs terminate, we may not be able to enter into arrangements with alternative CROs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, any clinical studies such CROs are associated with may be extended, delayed or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. As a result, we believe that our financial results and the commercial prospects for our product candidates in the approved indication would be harmed, our costs could increase and our ability to generate revenue could be delayed.

We rely completely on third-party suppliers to manufacture our non-clinical and clinical drug supplies for our product candidates, and we intend to rely on third parties to produce commercial supplies of any product candidates that are approved.

We do not currently have, nor do we plan to acquire, the infrastructure or capability to internally manufacture the clinical drug supply of our product candidates, or any future product candidates, for use in the conduct of our clinical studies. We lack the internal resources and the capability to manufacture any product candidates on a clinical or commercial scale. We depend on third-party contract manufacturing organizations, or CMOs, for all of our requirements of raw materials, drug substance and drug product for our ongoing clinical trials of olinciguat and IW-6463. We do not have long-term supply agreements in place with our CMOs and each batch of our product candidates is individually contracted under a services agreement on a purchase order basis. We expect to continue to rely on CMOs for the supply of olinciguat and IW-6463 for later-stage development and commercialization, as well as for the supply of any other product candidates that we may identify, and we may not be able to enter into long-term supply agreements with such CMOs on favorable terms. As a further result, we are subject to price fluctuations for our clinical drug supplies. If the prices charged by these CMOs increase, our business, prospects, financial condition and results of operations could be materially harmed. We apply industry risk management practices to minimize the impact to clinical timelines associated with delays to our clinical supplies. However, these delays could still lead to clinical trials delays that could adversely impact our business.

In addition, the facilities used by our contract manufacturers to manufacture the active pharmaceutical ingredient and final drug product must complete a pre-approval inspection by the FDA and other comparable foreign regulatory agencies to assess compliance with applicable requirements, including current GMP, after we submit our new drug application, or NDA, or relevant foreign regulatory submission to the applicable regulatory agency. If the FDA or an applicable foreign regulatory agency determines now or in the future that these facilities are noncompliant, we may need to find alternative manufacturing facilities, which would impede our ability to develop, obtain regulatory approval for or market our product candidates.

Our reliance on third parties requires us to share our confidential information, including trade secrets and know-how, which increases the possibility that our confidential information will be misappropriated or disclosed.

Because we rely on third parties to manufacture our product candidates, and because we collaborate with various CROs to conduct our clinical trials, we must, at times, share our trade secrets or know-how with them. We seek to protect our confidential information, including know-how and trade secrets, in part by entering into confidentiality agreements and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors and consultants prior to beginning our collaborations or disclosing confidential information to such parties. These agreements typically limit the rights of the third parties to use or disclose our confidential information, such as trade secrets and know-how. Despite these contractual provisions, the need to share our confidential information with third parties increases the risk that confidential information such as trade secrets and know-how becomes known by our competitors, is inadvertently incorporated into the technology of others, or is disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our confidential information including know-how and trade secrets, a competitor's discovery of our confidential information or other unauthorized use or disclosure could impair our competitive position and may have a material adverse effect on our business, prospects, financial condition and results of operations.

Risks Related to Our Intellectual Property Rights

If we are unable to adequately protect our proprietary technology, or obtain and maintain issued patents that are sufficient to protect our product candidates, others could compete against us more directly, which would have a material adverse impact on our business, prospects, financial condition and results of operations.

Our success will depend significantly on our ability to obtain and maintain patent and other proprietary protection in the United States and other countries for commercially important technology, inventions and know-how related to our business, defend and enforce our patents, should they issue, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and proprietary rights of third parties. We strive to protect and enhance the proprietary technologies that we believe are important to our business, including seeking patents intended to cover our products and compositions, their methods of use and any other inventions that are important to the development of our business.

As of February 10, 2020, we had twelve issued U.S. patents, nineteen pending U.S. patents applications, six pending Patent Cooperation Treaty, or PCT, applications, and numerous foreign patents and pending patent applications. Our issued U.S. and foreign patents covering olinciguat expire between 2031 and 2034 and our issued U.S. and foreign patents covering praliciguat also expire between 2031 and 2034, in each case subject to patent term extensions. Multiple pending U.S. and foreign patents applications covering different aspects of olinciguat and praliciguat will expired between 2034 and 2040, subject to patent term extensions. We have one issued patents covering IW-6463, which expires in 2037, subject to patent term extensions. Our pending patent applications relating to IW-6463, if issued, will expire in 2037 or later. See “Business—Intellectual Property.” We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection.

The patent positions of biotechnology and pharmaceutical companies, including ours, involve complex legal and factual questions, which in recent years have been the subject of much litigation, and, therefore, the issuance, scope, validity, enforceability and commercial value of any patent claims that we may obtain cannot be predicted with certainty. Our pending patent applications may not be granted as issued patents in any particular jurisdiction and, even if they do, these patents may not include claims with a sufficient scope to protect our product candidates or otherwise provide any competitive advantage.

Even if our patent applications are issued, competitors and other third parties may infringe, misappropriate or otherwise violate our patents and other intellectual property rights. We may not be able to prevent infringement, misappropriation or other violations of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming and divert the attention of our management and key personnel from our business operations

Moreover, our patents, if issued, may be challenged, deemed unenforceable, invalidated or circumvented in the United States and abroad. U.S. patents and patent applications may also be subject to interference, derivation, ex-parte reexamination, post-grant review, or inter-partes review proceedings, supplemental examination and challenges in district court. Interference proceedings provoked by third parties or brought by us may be necessary to determine the priority of inventions with respect to our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our involvement in litigation or interference proceedings may fail and, even if successful, may result in substantial costs, and distract our management and other employees. Furthermore, an adverse decision in an interference or derivation proceeding can result in a third party receiving the patent right sought by us, which in turn could affect our ability to develop, market or otherwise commercialize our product candidates.

Patents may also be subjected to opposition, post-grant review or comparable proceedings lodged in various foreign, both national and regional, patent offices or courts. Such proceedings could result in revocation or amendment of our patents in such a way that they no longer cover our product candidates or competitive products. In addition, such proceedings may be costly. Thus, any patents, should they issue, that we may own or exclusively license may not provide any protection against competitors.

Furthermore, though a patent, if it were to issue, is presumed valid and enforceable, its issuance is not conclusive as to its validity or its enforceability and it may not provide us with adequate protection to exclude competitors from making similar products. Even if a patent issues and is held to be valid and enforceable, competitors may be able to design around or circumvent our patents, such as by using pre-existing or newly developed technology or products in a non-infringing manner. If these developments were to occur, they could have a material adverse effect on our business, prospects, financial condition and results of operations.

Any litigation to enforce or defend our patent rights, even if we were to prevail, would be costly and time-consuming and would divert the attention of our management and key personnel from our business operations. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded if we were to prevail may not be commercially meaningful.

In addition, proceedings to enforce or defend our patents, if and when issued, puts our patents at risk of being invalidated, held unenforceable or not infringed, or interpreted narrowly. Such proceedings could also provoke third parties to assert counterclaims against us, including that some or all of the claims in one or more of our patents are invalid, not infringed or unenforceable. Grounds for a validity challenge include alleged failures to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for unenforceability assertions of a patent include allegations that someone connected with prosecution of the patent application that matured into the patent withheld relevant information from the U.S. Patent and Trademark Office, or the USPTO, or made a misleading statement, during prosecution of the patent application. In an infringement proceeding, a court may disagree with our allegations and refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question, or may decide that a patent of ours is invalid or unenforceable. An adverse result in any litigation, defense or post-grant proceedings could result in one or more of our patents being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it would have a material adverse effect on the price of our common stock.

The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to validity, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates.

If any of our patents, if and when issued, covering our product candidates are invalidated or found not infringed or unenforceable, our business, prospects, financial condition and results of operations could be materially harmed.

We may infringe the intellectual property rights of others, which may prevent or delay our product development efforts and stop us from commercializing or increase the costs of commercializing our product candidates, if approved.

Our success will depend in part on our ability to operate without infringing, misappropriating or otherwise violating the intellectual property and proprietary rights of third parties. Other parties may allege that our product candidates or the use of our technologies infringes or otherwise violates patent claims or other intellectual property rights held by them or that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to compositions, materials, formulations, methods of manufacture or methods for treatment related to our product candidates. Because patent applications can take many years to issue, third parties may have currently pending patent applications which may later result in issued patents that our product candidates may infringe, or which such third parties claim are infringed by our technologies.

The pharmaceutical industry is characterized by extensive litigation regarding patents and other intellectual property rights. Patent and other types of intellectual property litigation can involve complex factual and legal questions, and their outcome is uncertain and cannot be adequately quantified in advance. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we are sued for patent infringement, we would need to demonstrate that our product candidates, products or methods either does not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could have a material adverse effect on our business and operating results. In addition, we may not have sufficient resources to bring these actions to a successful conclusion.

If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, defend an infringement action or challenge the validity of the patents in court, or redesign our products. In addition, if any such claim were successfully asserted against us and we could not obtain such a license, we may be forced to stop or delay developing, manufacturing, selling or otherwise commercializing our product candidates. Any claim relating to intellectual property infringement that is successfully asserted against us may require us to pay substantial damages, including treble damages and attorney's fees if we are found to be willfully infringing another party's patents, for past use of the asserted intellectual property and royalties and other consideration going forward if we are forced to take a license.

Any of these risks coming to fruition could have a material adverse effect on our business, prospects, financial condition and results of operations.

We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

Our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors enter into confidentiality and intellectual property assignment agreements with us or have entered into confidentiality and intellectual property assignment agreements with Ironwood. We seek to have inventions assigned to us by the person rendering services. However, we may not be able to enter into these agreements with all parties or these agreements may not be honored and may not effectively assign intellectual property rights to us.

Litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions over the lifetime of our owned patents and applications. In some cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors or other third parties might be able to enter the market earlier than would otherwise have been the case and this circumstance could have a material adverse effect on our business, prospects, financial condition and results of operations.

We may not seek to protect our intellectual property rights in all jurisdictions throughout the world and we may not be able to adequately enforce our intellectual property rights even in the jurisdictions where we seek protection.

The statutory deadlines for pursuing patent protection in individual foreign jurisdictions are based on the priority date of each of our patent applications and we may not timely file foreign patent applications. Thus, for each of the patent families that we believe provide coverage for our product candidates, we will need to decide whether and where to pursue protection outside the United States. Filing and prosecuting patent applications, and defending patents on product candidates in all countries and jurisdictions throughout the world would be prohibitively expensive, and so we are unlikely to pursue and maintain patents in all countries worldwide. As such, competitors may use our technologies in jurisdictions where we do not pursue and obtain patent protection to develop their own products.

The laws of some foreign countries may not protect intellectual property rights to the same extent as the laws of the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States even if we have a patent in that jurisdiction. Further, a competitor may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Even if we pursue and obtain issued patents in particular jurisdictions, our patent claims or other intellectual property rights may not be effective or sufficient to prevent third parties from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biotechnology or pharmaceuticals. This could make it difficult for us to stop the infringement of our patents, if obtained, or the misappropriation of or marketing of competing products in violation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. Patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

If we do not obtain additional protection under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, and similar foreign legislation by extending the patent terms and obtaining data exclusivity for our product candidates, our business, prospects, financial condition and results of operations may be materially harmed.

Depending upon the timing, duration and specifics of FDA marketing approval of our product candidates, one or more of the U.S. patents we own may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent term extension as compensation for patent term lost during the FDA regulatory review process. A maximum of five years can be restored to the eligible patent. In all cases, the total patent life for the product with the patent extension cannot exceed 14 years from the product's approval date, or in other words, 14 years of potential marketing time. However, we may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain a patent term extension or the term of any such extension is less than we request, the duration of patent protection we obtain for our product candidates may not provide us with any meaningful commercial or competitive advantage, our competitors may obtain approval of competing products earlier than they would otherwise be able to do so, and our ability to generate revenues could be harmed.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other biotechnology companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biotechnology industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the United States has recently enacted and is currently implementing wide-ranging patent reform legislation: the Leahy-Smith America Invents Act, or the America Invents Act. The America Invents Act includes a number of significant changes to U.S. patent law. These provisions affect the way patent applications will be prosecuted and may also affect patent litigation. It is not yet clear what, if any, impact the America Invents Act will have on the operation of our business. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of any patents that may issue from our patent applications, all of which could have a material adverse effect on our business, prospects, financial condition and results of operations.

In addition to increasing uncertainty with regard to our ability to obtain future patents, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on these and other decisions by the U.S. Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce any patents that may issue in the future.

We may be subject to damages resulting from claims that we or our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers.

Our employees may have been previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. We also engage advisors and consultants who are concurrently employed at universities or who perform services for other entities.

We may be subject to claims that we or our employees, advisors or consultants have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of a former employer or other third party. We may be subject to claims that an employee, advisor or consultant performed work for us that conflicts with that person's obligations to a third party, such as an employer, and thus, that the third party has an ownership interest in the intellectual property arising out of work performed for us. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management. If we fail in defending such claims, in addition to paying money claims, we may lose valuable intellectual property rights or personnel. A loss of key personnel or their work product could hamper or prevent our ability to commercialize our product candidates, which would materially harm our commercial development efforts.

Risks Related to the Future Commercialization of Our Product Candidates

The incidence and prevalence for target patient populations of our product candidates have not been established with precision. If the market opportunities for our product candidates are smaller than we estimate, or if any approval that we obtain is based on a narrower definition of the patient population, our revenue and ability to achieve profitability may be harmed.

The incidence and prevalence for all the conditions we aim to address with our programs vary considerably. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, surveys of clinics, patient foundations or market research, and may prove to be incorrect. Further, new trials may change the estimated incidence or prevalence of these diseases. The total addressable market across all of our product candidates will ultimately depend upon, among other things, the diagnosis criteria included in the final label for each of our product candidates, if approved for sale for these indications, acceptance by the medical community and patient access, drug pricing and reimbursement. The number of patients in the United States and other major markets and elsewhere may turn out to be lower than expected, patients may not be otherwise amenable to treatment with our products or new patients may become increasingly difficult to identify or gain access to, all of which would harm our results of operations and our business. Further, even if we obtain significant market share for our product candidates, because the potential target populations are very small, we may never achieve profitability despite obtaining such significant market share.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market any product candidates, if approved, we may not be successful in commercializing those product candidates if and when they are approved.

We do not currently have an infrastructure for the sale, marketing, market access, patient service and distribution of pharmaceutical products. In order to market our product candidates, if approved by the FDA or any other regulatory authority outside the United States, we must build our sales, marketing, managerial and other non-technical capabilities, or arrange with third parties to perform these services. There are risks involved with both establishing our own commercial capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force or reimbursement specialists is expensive and time-consuming and could delay any product candidate launch. If commercialization is delayed or does not occur, we would have prematurely or unnecessarily incurred such expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our commercialization personnel.

If we enter into arrangements with third parties to perform sales, marketing, commercial support and distribution services, our product revenue or the profitability of product revenue may be lower than if we were to market and sell any products we may develop ourselves. In addition, we may fail to enter into arrangements with third parties to commercialize our product candidates or may be unable to do so on terms that are favorable to us. We may have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish commercialization capabilities successfully, either on our own or in collaboration with third parties, or if we are unable to do so on commercially reasonable terms, we will not be successful in commercializing our product candidates if approved and our business, prospects, financial condition and results of operations will be materially harmed.

Even if we obtain regulatory approval for our product candidates, our product candidates may not achieve broad market acceptance by patients, physicians, healthcare payors or others in the medical community, which would limit the revenue that we generate from their sales.

The future commercial success of our product candidates, if approved by the FDA or other applicable regulatory authorities outside the United States, will depend upon the awareness and acceptance of our product candidates among the medical community, including patients, physicians and healthcare payors. If any of our product candidates are approved but do not achieve an adequate level of acceptance by patients, physicians, healthcare payors and others in the medical community, we may not generate sufficient revenue to become, or remain, profitable. Market acceptance of our product candidates, if approved, will depend on a number of factors, including, among others:

- the efficacy and safety of our approved product candidates as demonstrated in clinical trials;
- the clinical indications and labeling claims for our product candidates that are approved;
- limitations or warnings contained in the labeling approved for our product candidates by the FDA or other applicable regulatory authorities;
- any restrictions on the use of our products together with other medications or restrictions on the use of our products in certain types of patients;
- the prevalence and severity of any adverse effects associated with our product candidates;
- the size of the target patient population, and the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the safety, efficacy, cost and other potential advantages of our approved product candidates compared to other available therapies;
- our ability to generate cost effectiveness data that supports a profitable price;
- our ability to obtain sufficient reimbursement and pricing by third-party payors and government authorities;
- the willingness of patients to pay out-of-pocket in the absence of sufficient payor coverage;
- the effectiveness of our sales and marketing strategies; or
- publicity concerning our products or competing products and treatments.

If our product candidates are approved but do not achieve an adequate level of acceptance by patients, physicians and payors, we may not generate sufficient revenue from our product candidates to become or remain profitable. Before granting reimbursement approval, healthcare payors may require us to demonstrate that our product candidates, in addition to treating these target indications, also provide incremental health benefits to patients. Our efforts to educate the medical community and third-party payors about the benefits of our product candidates may require significant resources and may never be successful.

Reimbursement may be limited or unavailable in certain market segments for our product candidates, which could make it difficult for us to sell our products profitably. Price controls may be imposed in certain markets, which may harm our future profitability.

Market acceptance and sales of any approved product candidates will depend significantly on the availability of adequate coverage and reimbursement from third-party payors and government authorities and may be affected by existing and future health care reform measures. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs they will pay for and establish reimbursement levels. Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is: a covered benefit under its health plan; safe, effective and medically necessary; appropriate for the specific patient; cost-effective; and neither experimental nor investigational.

Obtaining coverage and reimbursement approval for a product from a government or other third-party payor is a time consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data for the use of our products to the payor. We or our partners may not be able to provide data sufficient to gain acceptance with respect to coverage and reimbursement. We cannot be sure that coverage or adequate reimbursement will be available for any of our product candidates. Also, we cannot be sure that reimbursement amounts will not reduce the demand for, or the price of, our products. If reimbursement is not available or is available only to limited levels, we may not be able to commercialize certain of our products. In addition, in the United States, third-party payors are increasingly attempting to contain health care costs by limiting both coverage and the level of reimbursement of new drugs. As a result, significant uncertainty exists as to whether and how much third-party payors will reimburse patients for their use of newly approved drugs, which in turn will put pressure on the pricing of drugs.

In some countries, particularly member states of the European Union, the pricing of prescription drugs is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after receipt of marketing approval for a product. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various European Union member states and parallel distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. In some countries, we or our partners may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of our product candidates to other available therapies in order to obtain or maintain reimbursement or pricing approval. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed.

If we fail to comply with healthcare and other regulations, we could face substantial penalties and our business, prospects, financial condition and results of operations could be harmed.

The product candidates that we are evaluating in clinical studies are subject to certain federal and state healthcare laws and regulations that may affect our business. These laws and regulations include:

- federal healthcare program anti-kickback laws, which prohibit, among other things, persons from offering, soliciting, receiving or providing remuneration, directly or indirectly, as an inducement or reward for their past, current or potential future prescribing, purchase, use, recommending for use, referral, formulary placement, or dispensing of our products;

- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which prohibits executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters and which also imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information;

- the Federal Food, Drug, and Cosmetic Act, which among other things, strictly regulates drug product and medical device research, development, and marketing, prohibits manufacturers from marketing or promoting such products prior to approval; and

- state law equivalents of the above federal laws, such as anti-kickback laws, state transparency laws, state laws limiting interactions between pharmaceutical manufacturers and members of the healthcare industry and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by federal laws, thus complicating compliance efforts.

In addition, we may be subject to privacy and security laws in the various jurisdictions in which we operate, obtain or store personally identifiable information. For example, if we conduct clinical studies in any of the member states of the European Union, the processing of personal data in the European Economic Area, or the EEA, is subject to the 1995 Data Protection Directive, imposing strict obligations and restrictions on the ability to collect, analyze and transfer personal data. In May 2018, the General Data Protection Regulation, or the GDPR, took effect, increasing our obligations with respect to clinical studies conducted in the EEA and increasing the scrutiny applied by clinical study sites located in the EEA to transfers of personal data from such sites to countries that are considered by the European Commission to lack an adequate level of data protection, such as the United States. The compliance obligations imposed by the GDPR may increase our cost of doing business. In addition, the GDPR imposes substantial fines for breaches of data protection requirements, and it confers a private right of action on data subjects for breaches of data protection requirements.

If our operations are found to be in violation of any of the laws described above or any other laws, rules or regulations that apply to us, we will be subject to penalties, including civil and criminal penalties, damages, fines and the curtailment or restructuring of our operations. Any penalties, damages, fines, curtailment or restructuring of our operations could impede our ability to operate our business and our financial results. We cannot be certain that compliance programs will address all areas of potential exposure and the risks in this area cannot be entirely eliminated, particularly because the requirements and government interpretations of the requirements in this space are constantly evolving. Any action against us for violation of these laws, rules or regulations, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business, as well as damage our business or reputation. Moreover, achieving and sustaining compliance with applicable federal and state privacy, security, fraud and reporting laws may prove costly.

We face significant competition in an environment of rapid technological and scientific change, and our competitors may achieve regulatory approval before us or develop therapies that are safer, more advanced or more effective than ours, which may harm our ability to successfully market or commercialize any product candidates we may develop and ultimately harm our financial condition.

Our future success depends on our ability to demonstrate and maintain a competitive advantage with respect to the design, development and commercialization of our product candidates. Our objective is to design, develop and commercialize new products with superior efficacy, safety, tolerability and convenience. In many cases, our product candidates that we commercialize will compete with existing, market-leading products. The development and commercialization of new drug products is highly competitive. We may face competition with respect to any product candidates that we seek to develop or commercialize in the future from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

Bayer AG and Merck & Co., Inc., or Bayer/Merck, have an active collaboration on sGC and may be targeting some of the same indications through a similar mechanism of action with one sGC stimulator, ADEMPAS® (riociguat), which has been approved for the treatment of Pulmonary Arterial Hypertension, or PAH, and Chronic Thromboembolic Pulmonary Hypertension, or CTEPH. Bayer/Merck are also evaluating sGC product candidates in a number of indications, including vericiguat for the treatment of heart failure. Such sGC products may compete directly with our own product candidates in our target indications. Because Bayer/Merck already have experience conducting successful clinical trials and obtaining regulatory approvals for an sGC product, they may be able to conduct clinical trials and obtain regulatory approvals for additional product candidates and target indications more quickly or efficiently than we can.

Furthermore, we are aware of a number of other approved products and late-stage product candidates for the treatment of our target indications. In SCD, there are four approved products. Three drugs are indicated to reduce the frequency of painful crises, hydroxyurea (DROXIA® or SIKLOS®, as well as other generic forms) ENDARI®, an amino acid l-glutamine, and ADAKVEO® (crizanlizumab-tmca) a selectin blocker. Additionally, Oxbryta® (voxelotor), a hemoglobin S polymerization inhibitor, is indicated to treat sickle cell disease. We are aware of the following companies engaged in the clinical development of products for the chronic treatment of SCD: Novartis, which is developing ILARIS® (canakinumab) (Phase 2), a fully human monoclonal anti-human interleukin-1b antibody; AstraZeneca plc, which is developing ticagrelor (Phase 3), a P2Y12 platelet inhibitor in pediatric and adolescent patients; Micelle BioPharma, Inc., which is developing SC411 (Phase 3), a mixture of fatty acids; Imara, Inc., which is developing IMR-687 (Phase 2), a phosphodiesterase-9 inhibitor, or PDE9i; Shire/Takeda who are developing SHP655 (Phase 1/2), a recombinant ADAMTS13 von Willebrand factor-cleaving (VWF) protease, Agios, which is developing Mitapivat (Phase 1), a pyruvate kinase-R (PKR)activator, Forma Therapeutics which is developing FT-4202, a pyruvate kinase (PKR) activator (Phase 1), and Novo Nordisk which is developing an oral combination of tetrahydrouridine and decitabine (Phase 1). We are also aware of Prolong Pharmaceuticals, LLC which is developing Sanguinate (Phase 2), a PEGylated hemoglobin, for acute treatment in SCD. We may also face competition from one-time treatments such as HSCT, gene editing and gene therapy. We are aware of the following companies engaged in the clinical development of one-time treatments: bluebird bio, Inc. is currently conducting a Phase 1/2 study with their product, LentiGlobin®, for patients with severe SCD; and CRISPR Therapeutics AG/Vertex Pharmaceuticals, Inc. is conducting a Phase 1/2 study with their product, CTX-001; and Bioverativ/Sangamo is conducting a Phase 1/2 study with their product, BIVV-003. There are several other companies engaged in earlier stage clinical development for products targeting SCD.

There are four approved products in the United States to treat DN. AVAPRO® (irbesartan) and COZAAR® (losartan), are an angiotensin II receptor blockers, indicated to treat DN in patients with type 2 diabetes mellitus and a history of hypertension. CAPOTEN® (captopril), angiotensin I converting enzyme inhibitor, indicated to reduce the rate of progression in patients with Type 1 insulin-dependent diabetes mellitus and retinopathy. INVOKANA®, is an SGLT2 inhibitor indicated to improve renal and cardiovascular outcomes in patients with diabetes mellitus and diabetic nephropathy. We are aware of the following companies engaged in the late-stage clinical development of products for the treatment of DN: AstraZeneca plc has a Phase 3 study ongoing with FARXIGA®, an SGLT2 inhibitor, assessing renal outcomes and cardiovascular mortality in patients with chronic kidney disease. Eli Lilly/Boehringer Ingelheim GmbH are currently conducting a Phase 3 program in DN with JARDIANCE. Bayer has a Phase 3 program ongoing for the investigational product finerenone, a mineralocorticoid receptor antagonist, assessing its effect in patients with DN. Bayer also has a Phase 2 program ongoing for BAY1142524, a chymase inhibitor, in patients with diabetic kidney disease. There are several other companies engaged in earlier stage clinical development for products targeting DN.

If our product candidates do not obtain regulatory approvals in our target indications prior to these or any other competing product candidates, or if our product candidates do not demonstrate superior efficacy, safety or tolerability compared to these and any other approved therapeutics for our target indications, we may not be able to compete effectively.

Many of our current or potential competitors, either alone or with their strategic partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical studies, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours and may obtain orphan product exclusivity from the FDA for indications our product candidates are targeting, which could result in our competitors establishing a strong market position before we are able to enter the market.

In addition, we could face litigation or other proceedings with respect to the scope, ownership, validity and/or enforceability of our patents relating to our competitors' products and our competitors may allege that our products infringe, misappropriate or otherwise violate their intellectual property. The availability of our competitors' products could limit the demand, and the price we are able to charge, for any products that we may develop and commercialize. See “—Risks Related to Our Intellectual Property Rights.”

The impact of healthcare reform and other governmental and private payor initiatives may harm our business.

Our revenue prospects could be affected by changes in healthcare spending and policy in the United States and abroad. We operate in a highly regulated industry and new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to health care availability, the method of delivery or payment for health care products and services could harm our business, operations and financial condition. There is significant interest in promoting health care reform, as evidenced by the enactment in the United States of the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act in 2010. It is likely that federal and state legislatures within the United States and foreign governments will continue to consider changes to existing health care legislation. We cannot predict the reform initiatives that may be adopted in the future or whether initiatives that have been adopted will be repealed or modified. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare may adversely affect: the demand for any drug products for which we may obtain regulatory approval; our ability to set a price that we believe is fair for our products; our ability to obtain coverage and reimbursement approval for a product; our ability to generate revenues and achieve or maintain profitability; and the level of taxes that we are required to pay.

Our future growth may depend, in part, on our ability to commercialize our product candidates outside the United States, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future profitability may depend, in part, on our ability to commercialize our product candidates outside the United States for which we may rely on partnerships with third parties. If we commercialize our product candidates outside the United States, we would be subject to additional risks and uncertainties, including:

- our customers' ability to obtain reimbursement for our product candidates outside the United States;
- our ability to gain reimbursement in foreign markets at a price that is profitable;
- our inability to directly control commercial activities because we are relying on third parties;
- the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements;
- different medical practices and customs in foreign countries affecting acceptance in the marketplace;
- import or export licensing requirements;
- longer accounts receivable collection times;
- longer lead times for shipping;
- language barriers for technical training;
- reduced protection of intellectual property rights in some foreign countries;
- the existence of additional potentially relevant third-party intellectual property rights;
- foreign currency exchange rate fluctuations; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

Foreign sales of our product candidates could also be harmed by the imposition of governmental controls, political and economic instability, trade restrictions and changes in tariffs.

In light of the large population of patients with SCD who reside in foreign countries, our ability to generate meaningful revenues in those jurisdictions may be limited due to the strict price controls and reimbursement limitations imposed by governments outside of the United States.

In some countries, particularly in the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a drug. To obtain coverage and reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies, or to meet other criteria for pricing approval. Given the significant portion of the population of patients with SCD who reside outside of the United States, if reimbursement of olinciguat, if approved, is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business, prospects, financial condition and results of operations could be harmed.

If any of our product candidates obtain regulatory approval, additional competitors could enter the market with generic versions of such drugs, which may result in a material decline in sales of affected products.

Under the Hatch-Waxman Act, a pharmaceutical manufacturer may file an abbreviated new drug application, or an ANDA, seeking approval of a generic copy of an approved, small-molecule innovator product. Under the Hatch-Waxman Act, a manufacturer may also submit an NDA that references the FDA's prior approval of the small-molecule innovator product. The Hatch-Waxman Act also provides for certain periods of regulatory exclusivity. These include, subject to certain exceptions, the period during which an FDA-approved drug is subject to orphan drug exclusivity. In addition to the benefits of regulatory exclusivity, an innovator NDA holder may have patents claiming the active ingredient, product formulation or an approved use of the drug, which would be listed with the product in the FDA publication, "Approved Drug Products with Therapeutic Equivalence Evaluations," known as the "Orange Book." If there are patents listed in the Orange Book, a generic or NDA applicant that seeks to market its product before expiration of the patents must include in the ANDA a "Paragraph IV certification," challenging the validity or enforceability of, or claiming non-infringement of, the listed patent or patents.

Accordingly, if any of our product candidates are approved, competitors could file ANDAs for generic versions of our small-molecule drug products or NDAs that reference our small-molecule drug products, respectively. If there are patents listed for our small-molecule drug products in the Orange Book, those ANDAs and NDAs would be required to include a certification as to each listed patent indicating whether the ANDA applicant does or does not intend to challenge the patent. We cannot predict which, if any, patents in our current portfolio or patents we may obtain in the future will be eligible for listing in the Orange Book, how any generic competitor would address such patents, whether we would sue on any such patents, or the outcome of any such suit.

We may not be successful in securing or maintaining proprietary patent protection for products and technologies we develop or license. Moreover, if any of our patents that are listed in the Orange Book are successfully challenged by way of a Paragraph IV certification and subsequent litigation, the affected product could immediately face generic competition and its sales would likely decline rapidly and materially.

Risks Related to Our Business Operations

Our prospects for success depend on our ability to retain our management team and to attract, retain and motivate qualified personnel.

We are highly dependent on our management, scientific and medical personnel, including our Chief Executive Officer, Peter M. Hecht, Ph.D., our President, Mark Currie, Ph. D, our Chief Financial Officer, William Huyett, our Chief Innovation Officer, Andreas Busch, Ph.D. and our Head of Global Development, Christopher Wright, M.D., Ph.D. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. The loss of the services of any of our executive officers, other key employees and other scientific and medical advisors and an inability to find suitable replacements could result in delays in product development and harm our business. Pursuant to their employment arrangements, each of our executive officers, and other employees may voluntarily terminate their employment at any time, with or without notice. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel.

We may not be able to attract or retain qualified management and scientific personnel in the future due to the competition for a limited number of qualified personnel among biopharmaceutical, biotechnology, pharmaceutical and other businesses. Many of the other pharmaceutical companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high quality candidates than what we may be able to offer. We also experience competition for the hiring of scientific personnel from universities and research institutions. The failure to succeed in preclinical or clinical studies may make it more challenging to recruit and retain qualified personnel. In addition, in order to induce employees to continue their employment with us, we have provided equity awards that vest over time and the value to our employees of such equity awards may be significantly affected by movements in our stock price that are beyond our control and may be at any time insufficient to counteract more lucrative offers from other companies. If we are unable to continue to attract and retain high quality personnel, the rate and success at which we can develop and commercialize product candidates will be limited.

We will need to expand our organization and we may experience difficulties in managing growth of our employee base, which could disrupt our operations.

As of December 31, 2019, we had 94 full-time employees. As we mature, we expect to expand our full-time employee base and to hire more consultants and contractors. Our management may need to divert a disproportionate amount of its attention away from our day-to-day activities and devote a substantial amount of time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and/or grow revenues could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize product candidates and compete effectively will depend, in part, on our ability to effectively manage any future growth.

We face potential product liability exposure, and, if claims are brought against us, we may incur substantial liability.

The use of our product candidates in clinical studies and the sale of our products, if approved, exposes us to the risk of product liability claims. Product liability claims might be brought against us by patients, healthcare providers or others selling or otherwise coming into contact with our product candidates. For example, we may be sued if any product candidate we develop allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, including as a result of interactions with alcohol or other drugs, negligence, strict liability and a breach of warranties. Claims could also be asserted under state consumer protection acts. If we become subject to product liability claims and cannot successfully defend ourselves against them, we could incur substantial liabilities. In addition, regardless of merit or eventual outcome, product liability claims may result in, among other things: withdrawal of subjects from our clinical studies; substantial monetary awards to patients or other claimants; decreased demand for our product candidates or any future product candidates following marketing approval, if obtained; damage to our reputation and exposure to adverse publicity; increased FDA warnings on product labels; litigation costs; distraction of management's attention from our primary business; loss of potential revenue; and the inability to successfully commercialize our product candidates or any future product candidates, if approved.

We maintain product liability insurance coverage for our clinical studies through both domestic and international insurance policies, subject to an annual coverage limit. Nevertheless, our insurance coverage may be insufficient to reimburse us for any expenses or losses we may suffer if a judgment or settlement exceeds available insurance proceeds. Moreover, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses, including if insurance coverage becomes increasingly expensive. If and when we obtain marketing approval for our product candidates, we intend to expand our insurance coverage to include the sale of commercial products; however, we may not be able to obtain this product liability insurance on commercially reasonable terms. Large judgments have been awarded in class action lawsuits based on drugs that had unanticipated side effects. The cost of any product liability litigation or other proceedings, even if resolved in our favor, could be substantial, particularly in light of the size of our business and financial resources. A product liability claim or series of claims brought against us could cause our stock price to decline and, if we are unsuccessful in defending such a claim or claims and the resulting judgments exceed our insurance coverage, our business, prospects, financial condition and results of operations could be materially harmed.

During the course of treatment, patients may suffer adverse events, including death, for reasons that may or may not be related to our product candidates. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market our product candidates, if approved, or require us to suspend or abandon our commercialization efforts of any approved product candidates. Even in a circumstance in which we do not believe that an adverse event is related to our products, the investigation into the circumstance may be time-consuming or inconclusive. These investigations may interrupt our sales efforts, delay our regulatory approval process, or impact and limit the type of regulatory approvals our product candidates receive or maintain. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, prospects, financial condition and results of operations.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could result in sanctions or other penalties that would harm our business.

We are subject to the reporting requirements of the Securities Exchange Act of 1934, or the Exchange Act, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, and the rules and regulations of The Nasdaq Global Select Market, or Nasdaq. Until the separation and distribution, our financial results were included within the consolidated results of Ironwood and we had not been directly subject to reporting and other requirements of the Exchange Act and Section 404 of the Sarbanes-Oxley Act. We are an "emerging growth company" and a "smaller reporting company." For so long as we remain an emerging growth company, we will be exempt from Section 404(b) of the Sarbanes-Oxley Act, which requires auditor attestation to the effectiveness of internal control over financial reporting. We will cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total gross annual revenues of $1.07 billion or more; (ii) December 31, 2024, the last day of our fiscal year following the fifth anniversary of the date of the distribution; (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. Even after we no longer qualify as an emerging growth company, we may still qualify as a smaller reporting company, which would allow us to take advantage of many of the same exemptions from disclosure requirements, including exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may rely on the exemptions available to us as an emerging growth company and/or smaller reporting company. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We are, however, subject to Section 404(a) of the Sarbanes-Oxley Act. Beginning with our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, we must include a management assessment of the effectiveness of our internal control over financial reporting. As of the expiration of our emerging growth company status and smaller reporting company status, we will be broadly subject to enhanced reporting and other requirements under the Exchange Act and Sarbanes-Oxley Act. This will require, among other things, annual management assessments of the effectiveness of our internal control over financial reporting and a report by our independent registered public accounting firm addressing these assessments. These and other obligations will place significant demands on our management, administrative and operational resources, including accounting and information technology resources. To comply with these requirements, we anticipate that we will need to further upgrade our systems, including duplicating computer hardware infrastructure, implement additional financial and management controls, reporting systems and procedures and hire additional accounting, finance and information technology staff. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costlier. If we are unable to do this in a timely and effective fashion, our ability to comply with our financial reporting requirements and other rules that apply to reporting companies could be impaired and our business, prospects, financial condition and results of operations could be harmed.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls over financial reporting, we may not be able to produce timely and accurate financial statements. If that were to happen, our investors could lose confidence in our reported financial information, the market price of our stock could decline, and we could be subject to sanctions or investigations by the SEC or other regulatory authorities.

Unfavorable global economic conditions could harm our business, prospects, financial condition and results of operations.

Our results of operations could be harmed by general conditions in the global economy and in the global financial markets. A severe or prolonged economic downturn could result in a variety of risks to our business, including, weakened demand for our product candidates and our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our suppliers, possibly resulting in supply disruption. Any of the foregoing could harm our business, prospects, financial condition and results of operations.

Our business could be adversely affected by the effects of widespread public health epidemics.

Public health epidemics or widespread outbreaks of contagious diseases could adversely impact our business. Any outbreak of contagious diseases, such as the recent novel strain of coronavirus (COVID-19) that is affecting the global community, could affect our operations depending on future developments, which are highly uncertain and largely beyond our control. These uncertain factors, including the duration of the outbreak, the severity of the disease and the actions to contain or treat its impact, could impair our operations, including among others, employee mobility and productivity, availability of facilities, conduct of our clinical trials, manufacturing and supply capacity, and availability/productivity of third party service suppliers.

Our internal computer systems, or those of our third-party CROs, CMOs or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product candidates' development programs.

Despite the implementation of security measures, our internal computer systems and those of our third-party CROs, CMOs, business development partners and other contractors and consultants may be vulnerable to damage from computer viruses, unauthorized access, ransomware, natural disasters, terrorism, war and telecommunication and electrical failures. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our programs. For example, the loss of clinical study data for our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach results in a loss of or damage to our data or applications or other data or applications relating to our technology or product candidates, or inappropriate disclosure of confidential or proprietary information, we could incur liabilities and the further development of our product candidates could be delayed. Insurance may not be adequate to fully cover costs to restore data and resume normal working operations, which could harm our business, prospects, financial condition and results of operation.

Our employees may engage in misconduct or other improper activities, including violating applicable regulatory standards and requirements or engaging in insider trading, which could significantly harm our business.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with the regulations of the FDA and applicable foreign regulators, provide accurate information to the FDA and applicable foreign regulators, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately and/or disclose unauthorized activities to us. In particular, research and development, commercialization and business arrangements in the healthcare industry are subject to considerable laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict, regulate or prohibit a wide range of activities pertaining to clinical trials including the informed consent process, data integrity and conducting the study in accordance with the investigational plan, and for approved products, pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of, including trading on, information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may be ineffective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. Additionally, we are subject to the risk that a person could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions, possible exclusions from participation in Medicare, Medicaid and other U.S. federal healthcare programs, contractual damages and reputational harm.

If we or any contract manufacturers and suppliers we engage fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We and any contract manufacturers and suppliers we engage are subject to numerous federal, state and local environmental, health and safety laws, regulations and permitting requirements, including those governing laboratory procedures; the generation, handling, use, storage, treatment and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air and water; and employee health and safety. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. We also could incur significant costs associated with civil or criminal fines and penalties.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act, or the FCPA, and other worldwide anti-bribery laws.

We are subject to the FCPA, which prohibits U.S. corporations and their representatives from offering, promising, authorizing or making payments to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business abroad. The scope of the FCPA includes interactions with certain healthcare professionals in many countries. Other countries have enacted similar anti-corruption laws and/or regulations. In some countries in which we operate, the pharmaceutical and life sciences industries are exposed to a high risk of corruption associated with the conduct of clinical trials and other interactions with healthcare professionals and institutions. Any such activities could expose us to potential liability under the FCPA, which may result in us incurring significant criminal and civil penalties and to potential liability under the anti-corruption laws and regulations of other jurisdictions in which we operate. In addition, the costs we may incur in defending against an FCPA investigation could be significant.

Risks Related to the Separation

We may not achieve some or all of the expected benefits of the separation, and the separation could harm our business, prospects, financial condition and results of operations.

We may not be able to achieve some or all of the anticipated strategic, financial, operational, marketing or other benefits expected to result from the separation, or such benefits may be delayed or not occur at all. These actions may not provide the benefits we currently expect, and could lead to disruption of our operations, loss of or inability to recruit, key personnel needed to operate and grow our businesses, weakening of our internal standards, controls or procedures and impairment of our key collaborations and supplier relationships.

By separating from Ironwood, we may have become more susceptible to market fluctuations and other adverse events than we would have been if we were still a part of the Ironwood organizational structure. As part of Ironwood, we were able to benefit from Ironwood's experience and expertise as a commercial-stage company developing multiple products, and opportunities to pursue integrated strategies with Ironwood's other business activities. We also benefited from Ironwood's strategic advantages as an established market participant, including its improved negotiating power and historical partnerships. Additionally, when we were part of Ironwood, we benefited from Ironwood's market reputation, historical performance and brand identity when operating our business. As a newly formed, independent, publicly traded company, we do not have, and may never develop, a comparable market reputation, performance or brand identity of our own, which may limit our ability to recruit and retain personnel, pursue and negotiate strategic transactions, and access the capital markets to finance our operations. If we fail to achieve some or all of the benefits that we expect to achieve as an independent company, or do not achieve them in the time we expect, our business, prospects, financial condition and results of operations may be materially harmed.

We have incurred and will continue to incur significant charges in connection with the separation and incremental costs as a standalone public company.

Prior to completion of the separation, we operated as part of Ironwood's corporate organization, and Ironwood assisted us by providing various corporate and other business functions. As a result of the separation, Ironwood has no obligation to assist our operations or growth strategy, other than providing certain services or rights pursuant to agreements entered into in connection with the separation. Accordingly, we have begun to replicate or replace certain functions, systems and infrastructure to which we no longer have the same access after the separation and we may also need to make additional investments or hire additional employees in the future. These initiatives may be complex and costly to implement and the timing of the incurrence of these costs is subject to change.

In connection with the separation, we entered into an intellectual property license agreement with Ironwood, in connection with which Ironwood granted to us a license to use certain Ironwood know-how in connection with our research and development of sGC stimulator products. If we were to use such licensed know-how and if our rights under the intellectual property license agreement were challenged by a third party or we were otherwise prevented from exercising our rights as contemplated under the intellectual property license agreement, our research and development activities could be delayed until we were able to either resume exercising such rights or develop or acquire adequate alternative know-how.

Our historical financial information is not necessarily representative of the results that we would have achieved as a separate, publicly traded company and should not be relied upon as an indicator of our future results.

Certain of our historical combined information provided in this Annual Report is derived from the consolidated financial statements and accounting records of Ironwood. Accordingly, the historical and combined financial information included in this Annual Report may not reflect the operating results, financial condition or cash flows that we would have achieved as a separate, publicly traded company during the periods presented, or the financial results we will achieve in the future. In particular, our future financial results may vary from the historical and combined financial information included in this Annual Report as a result of the following factors, among others:

- our historical combined financial data prior to the separation does not reflect the separation;
- our historical financial data prior to the separation reflects expense allocations for certain business and support functions that are provided on a centralized basis within Ironwood, such as expenses for research and development and corporate administrative services, including information technology, finance, legal, insurance, compliance and human resources activities, that may be lower than the comparable expenses we would have actually incurred, or will incur in the future, as a standalone company;
- the separation may have a material effect on our relationships with our suppliers, collaborators and other business relationships.

As a result of the separation, it may be difficult for investors to compare our future results to historical results or to evaluate our relative performance or trends in our business.

If the separation and distribution, together with certain related transactions, did not qualify as a transaction that was tax-free for U.S. federal income tax purposes, Ironwood could be subject to significant tax liabilities, and we could be required to indemnify Ironwood for all or a portion of such taxes and related costs pursuant to indemnification obligations under the tax matters agreement.

Ironwood received a favorable private letter ruling from the IRS relating to the U.S. federal income tax treatment of the distribution. Consistent with the IRS's ruling guidelines, the IRS private letter ruling did not cover all of the issues that are relevant to determining whether the distribution was generally tax free for U.S. federal income tax purposes. In addition, as a condition to the distribution, Ironwood received an opinion of KPMG LLP confirming that the distribution, together with certain related transactions, generally was tax-free for U.S. federal income tax purposes under Sections 355 and 368(a)(1)(D) of the Internal Revenue Code of 1986, as amended (the "Code"). The opinion of KPMG LLP delivered to Ironwood and the IRS private letter ruling are based, among other things, on various facts and assumptions, as well as certain representations, statements and undertakings from us and Ironwood (including those relating to the past and future conduct of us and Ironwood). If any of these facts, assumptions, representations, statements or undertakings is, or becomes, inaccurate or incomplete, or if we or Ironwood breach any of our respective covenants relating to the separation, the IRS private letter ruling and/or the opinion of KPMG LLP may be invalid. In addition, the opinion of KPMG LLP delivered to Ironwood represents the judgment of KPMG LLP, which is not binding on the IRS or any court. Accordingly, notwithstanding receipt by Ironwood of the tax opinion and the favorable IRS private letter ruling referred to above, the IRS could assert that the distribution and/or certain related transactions did not qualify for tax-free treatment for U.S. federal income tax purposes.

If the distribution, together with certain related transactions, failed to qualify as a transaction that was tax-free under Sections 355 and 368(a)(1)(D) of the Code, for U.S. federal income tax purposes, Ironwood would recognize taxable gain with respect to our distributed common stock and Ironwood stockholders who received shares of our common stock in the distribution would be subject to tax as if they had received a taxable distribution equal to the fair market value of such shares.

Even if the distribution otherwise qualified as tax-free for U.S. federal income tax purposes, under Sections 355 and 368(a)(1)(D) of the Code, Ironwood may have been required to recognize taxable gain under Section 355(e) of the Code as if it had sold our distributed shares for fair market value if the distribution were deemed to be part of a plan (or series of related transactions) pursuant to which one or more persons acquire, directly or indirectly, shares representing a 50% or greater interest (by vote or value) in Ironwood or us. Under the terms of the common stock purchase agreement, the investors in the private placement acquired 43% of our common stock on a basic shares outstanding method. For purposes of this test, the private placement will generally be treated as part of such a plan or series of transactions, although some portion of the private placement may have been excluded from such treatment if investors who owned shares of Ironwood common stock immediately prior to the distribution participated in the private placement to maintain their respective ownership held immediately prior to the private placement. The rules governing such exclusions are complex, and there can be no assurance given as to the amount or percentage of the private placement that will be excluded from such treatment under these rules. Thus, a relatively minor additional change in the ownership of the our common stock could trigger a prohibited change in control, resulting in a significant amount of taxable gain for Ironwood under Section 355 of the Code (as a result of which we would be required to indemnify Ironwood under the tax matters agreement, as discussed below), if that additional ownership change and the portion of the private placement that must be taken into account (together with, in certain circumstances, changes in ownership of Ironwood common stock) were each considered to be part of a plan or series of related transactions that included the distribution and, in the aggregate, resulted in a 50% or greater change in ownership of our common stock, as determined under the Code and applicable Treasury regulations. The process for determining whether a prohibited change in control has occurred under the rules is complex, inherently factual and subject to interpretation of the facts and circumstances of a particular case. If we or Ironwood do not carefully monitor our or its compliance with these rules, we or Ironwood might inadvertently cause or permit a prohibited change in our ownership or the ownership of Ironwood. Furthermore, sales and/or acquisitions by the investors in the private placement (or by other persons) of our or Ironwood common stock could potentially trigger a prohibited change of control in us or Ironwood. For purposes of these rules, any acquisitions of Ironwood or our shares within the period beginning two years before the distribution and ending two years after the distribution are presumed to be part of such a plan, although we or Ironwood may be able to rebut that presumption based on the facts or circumstances or under regulatory safe harbors.

In connection with the distribution, we entered into a tax matters agreement with Ironwood pursuant to which we are responsible for certain liabilities and obligations following the distribution. In general, under the terms of the tax matters agreement, if the distribution, together with certain related transactions, failed to qualify as a transaction that was generally tax-free, for U.S. federal income tax purposes, under Sections 355 and 368(a)(1)(D) of the Code, and if and to the extent that such failure results from a prohibited change of control in Ironwood under Section 355(e) of the Code or an acquisition of shares of Ironwood common stock or assets or certain actions by Ironwood, then Ironwood will bear any resulting taxes, interest, penalties and other costs. If and to the extent that such failure results from a prohibited change of control in us under Section 355(e) of the Code or an acquisition of our stock or assets or certain actions by us, then we will indemnify Ironwood for any resulting taxes, interest, penalties and other costs, including any reductions in Ironwood's net operating loss carryforwards or other tax assets. If such failure does not result from a prohibited change of control in Ironwood or us under Section 355(e) of the Code and both we and Ironwood are responsible for such failure, liability will be shared according to relative fault. If neither we nor Ironwood is responsible for such failure, Ironwood will bear any resulting taxes, interest, penalties and other costs. Our indemnification obligations to Ironwood under the tax matters agreement is not limited in amount or subject to any cap. If we are required to pay any taxes or indemnify Ironwood under the circumstances set forth in the tax matters agreement, we may be subject to substantial liabilities. To the extent that the tax matters agreement requires Ironwood to bear any taxes, interest and penalties, Ironwood is required to indemnify us in the event that the IRS or another taxing authority asserts that we are jointly and severally liable as a result of our having been included in Ironwood's consolidated or combined tax returns prior to the separation.

We may not be able to engage in attractive strategic or capital-raising transactions as a result of the separation.

To preserve the tax-free treatment of the separation and the distribution for U.S. federal income tax purposes, for the period ending two years after the distribution, we will be prohibited under the tax matters agreement, except in specific circumstances, from: (i) entering into or approving any transaction or series of transactions involving the acquisition of our outstanding or newly issued equity that, when combined with other changes in ownership of our capital stock, results in a change in ownership of 3% or more; (ii) liquidating or partially liquidating, or merging or consolidating (unless we are the survivor); (iii) making or changing any entity classification election; (iv) ceasing to be engaged in an active trade or business, or selling, transferring or disposing of 25% or more of the net or gross assets of any active trade or business; (v) amending any of our organizational documents or taking any action affecting the voting rights of our capital stock; or (vi) redeeming or otherwise repurchasing any of our outstanding stock or options, unless we receive an IRS private letter ruling or an unqualified opinion of a tax advisor, in form and substance satisfactory to Ironwood, to the effect that such action will not result in tax liability to Ironwood in connection with the separation and distribution. In addition, we are prohibited, except in specific circumstances, from taking or failing to take any action that would be inconsistent with or cause to be untrue any statement, information, covenant or representation from us relating to the IRS private letter ruling and/or the opinion of KPMG LLP or would prevent the distribution and certain related transactions from qualifying as a transaction that was generally tax-free for U.S. federal income tax purposes under Sections 355 and 368(a)(1) (D) of the Code. These restrictions may limit for a period of time our ability to pursue certain strategic transactions, equity issuances or repurchases or other transactions that we may believe to be in the best interests of our shareholders or that might increase the value of our business.

In connection with the separation, we assumed and agreed to indemnify Ironwood for certain liabilities. If we are required to make payments pursuant to these indemnities to Ironwood, we may need to divert cash to meet those obligations and our financial results could be harmed.

Pursuant to the separation agreement and certain other agreements we entered into with Ironwood, we assumed and agreed to indemnify Ironwood for certain liabilities for uncapped amounts, which may include, among other items, associated defense costs, settlement amounts and judgments. Payments pursuant to these indemnities may be significant and could harm our business, particularly indemnities relating to our actions that could impact the tax-free nature of the distribution and certain related transactions as discussed in more detail above. Third parties could also seek to hold us responsible for any of the liabilities of the Ironwood business. Ironwood agreed to indemnify us for liabilities of the Ironwood business, but such indemnity from Ironwood may not be sufficient to protect us against the full amount of such liabilities, and Ironwood may not fully satisfy its indemnification obligations. Moreover, even if we ultimately succeed in recovering from Ironwood any amounts for which we are held liable, we may be temporarily required to bear these losses ourselves. Each of these risks could harm our business, prospects, financial condition and results of operations.

Our agreements with Ironwood may not reflect terms that would have resulted from negotiations with unaffiliated third parties.

The agreements related to the separation, including, among others, the separation agreement, the employment matters agreement, the tax matters agreement, the intellectual property license agreement, the transition services agreements and the development agreement, were negotiated in the context of the separation while we were still controlled by Ironwood. Until the distribution occurred, Ironwood effectively had the sole and absolute discretion to determine and change the terms of the separation, including the terms of any agreements between Ironwood and us and the establishment of the record date and distribution date. As a result, the provisions thereof may be unfavorable to us and may not reflect terms that would have resulted from negotiations between unaffiliated third parties.

Risks Related to Ownership of Our Common Stock

The market price of our ***common stock may fluctuate widely and you could lose all or part of your investment in our common stock as a result.***

Our common stock has a limited trading history and the market price has fluctuated widely, and may in the future fluctuate widely, depending upon many factors, some of which are beyond our control, including the following:

- a relatively low-volume trading market for our shares of common stock may result, which could cause trades of small blocks of shares to have a significant impact on the price of our shares of common stock;
- results and timing of preclinical studies and clinical studies of our product candidates;
- the commercial performance of our products, if approved, as well as the costs associated with such activities;
- results of clinical studies of our competitors' products;
- failure to adequately protect our trade secrets;
- our inability to raise additional capital and the terms on which we raise it;
- commencement or termination of any strategic partnership or licensing arrangement;
- regulatory developments with respect to our products or our competitors' products, including any developments, litigation or public concern about the safety of such products;
- announcements concerning product development results, including clinical trial results, the introduction of new products or intellectual property rights of us or others;
- actual or anticipated fluctuations in our financial condition and our quarterly and annual operating results;
- deviations in our operating results from any guidance we may provide or the estimates of securities analysts;
- additions and departures of key personnel;
- the passage of legislation or other regulatory developments affecting us or our industry;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- sales of our common stock by us, our insiders or our other shareholders;

- strategic decisions by us or our competitors, such as acquisitions, divestitures, spin-offs, joint ventures, strategic investments or changes in business strategy;
- announcement or expectation of additional financing efforts;
- publication of research reports by securities analysts about us or our competitors or our industry and speculation regarding our company or our stock price in the financial or scientific press or in online investor communities;
- changes in market conditions in the pharmaceutical and biotechnology sector; and
- changes in general market and economic conditions.

In addition, if the market for stocks in our industry or industries related to our industry, or the stock market in general, experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, results of operations, financial condition and prospects. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

The market price for our common stock is particularly volatile.

The market for our common stock is characterized by significant price volatility when compared to seasoned issuers, and we expect that our stock price will continue to be more volatile than those of a seasoned issuer. Several factors cause the volatility in our share price. We are a speculative or "risky" investment due to our short operating history, lack of revenues and the uncertain success (including of regulatory approval) of any of our product candidates. For example, on October 30, 2019, we announced that topline results from our Phase 2 proof-of-concept trials of praliciguat in patients with diabetic nephropathy and in HFpEF did not meet statistical significance on their respective primary endpoints. After this announcement, the market price of our common stock decreased substantially. As a consequence of this risk, more risk-averse investors may, under the fear of losing all or most of their investment in the event of further negative news or lack of progress, be more inclined to sell their shares of our common stock more quickly and at greater discounts than would be the case with the stock of a seasoned issuer. Plaintiffs have, in the past, initiated securities class action litigation against a company following periods of volatility in the market price of its securities. We may in the future be the target of such litigation. Securities litigation could result in substantial costs and liabilities and could divert management's attention and resources.

If securities or industry analysts fail to initiate or maintain coverage of our stock, publish a negative report or change their recommendations regarding our stock adversely, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us, our business, our market or our competitors. If securities or industry analysts fail to initiate coverage of our stock, the lack of exposure to the market could cause our stock price or trading volume to decline. If any of the analysts who cover us or may cover us in the future publish a negative report or change their recommendation regarding our stock adversely, or provide more favorable relative recommendations about our competitors, our stock price would likely decline. If any analyst who covers us or may cover us in the future were to cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We do not expect to pay any cash dividends for the foreseeable future.

We do not anticipate that we will pay any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our operations. In addition, any future debt financing arrangement may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

We have adopted anti-takeover provisions in our articles of organization and bylaws and are subject to provisions of Massachusetts law that may frustrate any attempt to remove or replace our current board of directors or to effect a change of control or other business combination involving our company.

Our articles of organization and bylaws and certain provisions of Massachusetts law may discourage certain types of transactions involving an actual or potential change of control of our company that might be beneficial to us or our security holders. For example, our bylaws grant our directors the right to adjourn any meetings of shareholders. Our board of directors also may issue shares of any class or series of preferred stock in the future without shareholder approval and upon such terms as our board of directors may determine. The rights of the holders of our common stock will be subject to, and may be harmed by, the rights of the holders of any class or series of preferred stock that may be issued in the future. Massachusetts state law also prohibits us from engaging in specified business combinations unless the combination is approved or consummated in a prescribed manner. These provisions, alone or together, could delay hostile takeovers and changes in control of our company or changes in our management.

Our articles of organization designate the state and federal courts located within the Commonwealth of Massachusetts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our shareholders, which could discourage lawsuits against us and our directors and officers.

Our articles of organization designate the state and federal courts located within the Commonwealth of Massachusetts as the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our shareholders, creditors or other constituents, any action asserting a claim arising pursuant to any provision of the Massachusetts Business Corporation Act, or the MBCA, or any action asserting a claim governed by the internal affairs doctrine, in all cases subject to the court's having personal jurisdiction over the indispensable parties named as defendants. In additional, our articles of organization provide that unless our board of directors consents in writing to the selection of an alternative forum, the U.S. federal district courts shall be the exclusive forum for the resolutions of any complaint asserting a cause of action arising under the U.S. federal securities laws. This exclusive forum provision may limit the ability of our shareholders to bring a claim in a judicial forum that such shareholders find favorable for disputes with us or our directors or officers, which may discourage such lawsuits against the company and our directors and officers. Alternatively, if a court outside of Massachusetts were to find this exclusive forum provision inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings described above, we may incur additional costs associated with resolving such matters in other jurisdictions, which could harm our business, prospects, financial condition and results of operations.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties

Upon completion of the separation, we entered into a lease agreement with a landlord for approximately 114,000 square feet of office and laboratory space in Cambridge, Massachusetts expiring in June 2029. On October 18, 2019, we entered into an agreement to sublease approximately 15,700 square feet of the current facility to a subtenant through June 2029. On February 28, 2020, we entered into a lease amendment with our landlord for the partial surrender of approximately 40,000 square feet of office and laboratory space in the current facility. After such surrender, we will occupy approximately 74,000 square feet, including the subleased premises. We believe these facilities will be suitable and adequate for our needs for the foreseeable future.

Item 3. Legal Proceedings

We are not a party to any material legal proceedings at this time. From time to time, we may be subject to various legal proceedings and claims, which may have a material adverse effect on our financial position or results of operations.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information for Common Stock

Our common stock is listed on the Nasdaq Global Select Market under the symbol "CYCN."

Holders of Record

As of March 5, 2020, we had 113 holders of record of our common stock, which excludes stockholders whose shares were held in nominee or street name by brokers. The actual number of common stockholders is greater than the number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We currently intend to retain all available funds and any future earnings, if any, to fund the development and expansion of our business and we do not anticipate paying any cash dividends in the foreseeable future. Any future determination to pay dividends will be made at the discretion of our board of directors and will depend on various factors, including applicable laws, our results of operations, financial condition, future prospects and any other factors deemed relevant by our board of directors.

Unregistered Sales of Equity Securities

The following sets forth information as to all securities we sold in 2019 which were not registered under the Securities Act:

On April 1, 2019, in connection with the closing of the separation and pursuant to the terms of the amended and restated common stock purchase agreement, we issued an aggregate of 11,817,165 shares of our common stock to the investors named therein at a per share purchase price of $14.809, resulting in aggregate gross proceeds to us of $175.0 million. This issuance of our common stock did not involve any underwriters, underwriting discounts or commissions or a public offering and such issuance was exempt from registration requirements pursuant to Rule 506(b) of Regulation D.

Purchase of Equity Securities by the Issuer and Affiliated Parties

None.

Item 6. Selected Financial Data.

We are a smaller reporting company as defined by Rule 12b-2 of the Exchange Act and are not required to provide the information required under this item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and related notes and the related Management's Discussion and Analysis of Financial Condition and Results of Operations included in this Annual Report on Form 10-K.

Forward-Looking Information

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated and combined financial statements and the notes to those financial statements appearing elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve significant risks and uncertainties. As a result of many factors, such as those set forth under "Special Note Regarding Forward-Looking Statements" and "Risk Factors" in Item 1A of this Annual Report on Form 10-K, our actual results may differ materially from those anticipated in these forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company harnessing the power of soluble guanylate cyclase, or sGC, pharmacology to discover, develop and commercialize breakthrough treatments for serious and orphan diseases. Our focus is enabling the full therapeutic potential of next-generation sGC stimulators. Our strategy rests on a solid scientific foundation that is enabled by our people and capabilities, external collaborations and a responsive capital allocation approach.

We operate in one reportable business segment—human therapeutics.

Separation from Ironwood Pharmaceuticals

On April 1, 2019, Ironwood Pharmaceuticals Inc., or Ironwood, completed the separation of its sGC business, and certain other assets and liabilities, into us as a separate, independent publicly traded company by way of a pro-rata distribution of our common stock through a dividend distribution of one share of our common stock, with no par value per share, for every 10 shares of Ironwood common stock held by Ironwood stockholders as of the close of business on March 19, 2019, the record date for the distribution, which we refer to herein as the Separation. As a result of the Separation, we became an independent public company and commenced trading under the symbol "CYCN" on the Nasdaq Global Select Market on April 2, 2019.

In connection with the Separation, on March 30, 2019, we entered into certain agreements with Ironwood to provide a framework for our relationship with Ironwood following the Separation, including, among others, a Separation Agreement, a Tax Matters Agreement, and an Employee Matters Agreement.

In addition, in connection with the Separation, on April 1, 2019, we entered into a Development Agreement, an Ironwood Transition Services Agreement, a Cyclerion Transition Services Agreement and an Intellectual Property License Agreement with Ironwood.

On April 2, 2019, we issued 11,817,165 shares of our common stock, or the Private Placement Shares, to accredited investors for gross proceeds of $175 million (net proceeds of approximately $165 million) pursuant to the Amended and Restated Common Stock Purchase Agreement. We received the funds associated with the sale of the Private Placement Shares on April 2, 2019.

Our historical consolidated and combined financial statements for the periods prior to the Separation have been derived from Ironwood's combined financial statements and accounting records and are presented in conformity with United States Generally Accepted Accounting Principles, or U.S. GAAP.

Our consolidated and combined financial statements reflect our financial position, results of operations and cash flows of the business that were transferred to us in the Separation. The historical financial statements may not be indicative of our future performance and do not necessarily reflect what our results of operations, financial condition and cash flows would have been had we operated as a separate, publicly traded company for the periods presented prior to the Separation. The consolidated and combined financial statements prior to the Separation included herein do not reflect any changes that occurred in our financing or operations as a result of the Separation from Ironwood.

Financial Overview

Research and Development Expense. Research and development expenses are incurred in connection with the discovery and development of our product candidates. These expenses consist primarily of the following costs: compensation, benefits and other employee-related expenses, research and development related facilities, third-party contracts relating to nonclinical study and clinical trial activities. All research and development expenses are charged to operations as incurred.

The core of our research and development strategy is to harness the power of sGC pharmacology to develop therapies for serious and orphan diseases. Our portfolio of programs includes:

Olinciguat is a once-daily, orally administered vascular sGC stimulator that is well suited for the potential treatment of sickle cell disease, or SCD. We are conducting a dose-ranging Phase 2 study, STRONG-SCD, that is expected to enroll up to 88 patients from both US and ex-US sites. This study is designed to explore a broad range of tolerated doses and optimize our understanding of the therapeutic potential of olinciguat in SCD. We expect topline data from this study in mid-2020.

In June 2018, the U.S. Food and Drug Administration, or the FDA, granted Orphan Drug Designation to olinciguat for the treatment of patients with SCD. Orphan Drug Designation provides marketing exclusivity for seven years from the date of the product's approval for marketing and contributes to a significant reduction in development costs.

Praliciguat is an orally administered, once-daily systemic sGC stimulator that was evaluated in two recently completed Phase 2 proof-of-concept studies: a dose-ranging study in 156 adult patients with diabetic nephropathy, and a study in 196 adult patients with heart failure with preserved ejection fraction (HFpEF), CAPACITY-HFpEF. On October 30, 2019, we released topline results from these studies.

In CAPACITY-HFpEF, the study did not meet statistical significance on its primary endpoint of improved exercise capacity from baseline as compared to placebo, measured by cardiopulmonary exercise testing. There was clear evidence of drug exposure and pharmacological activity as judged by expected reductions in blood pressure. Praliciguat was generally well tolerated. We are discontinuing development of praliciguat in HFpEF.

The study of praliciguat in participants with diabetic nephropathy also did not meet statistical significance on its primary endpoint of reduction in albuminuria from baseline as compared to placebo, measured by urine albumin creatinine ratio. However, there was a trends toward improvement across the total intention-to-treat study population. Praliciguat was generally well tolerated. As previously announced, we intend to out-license praliciguat for late-stage global development and commercialization.

IW-6463 is an orally administered central nervous system-penetrant sGC stimulator that, because it readily crosses the blood-brain barrier, affords an unprecedented opportunity to expand the utility of sGC pharmacology to serious neurodegenerative diseases. . On January 13, 2020 we released positive top line results from our first-in-human study of IW-6463. IW-6463 was generally well tolerated in healthy human adults. The study demonstrated IW-6463 penetration across the blood-brain-barrier at levels expected to be pharmacologically active as well as a mild reduction in blood pressure providing evidence of peripheral pharmacological activity. The Company intends to continue development activities for IW-6463. In December 2019 we initiated an ongoing translational pharmacology study in elderly subjects. Topline data from this study is expected in mid-2020.

Discovery Research. Our discovery efforts are primarily focused on identifying, designing and developing sGC stimulators for serious and orphan diseases. sGC stimulation is a powerful mechanism that can broadly regulate blood flow, inflammation, fibrosis and metabolism. In diseases that are localized to specific organs or tissues, we believe that our organ-targeting strategy will maximize the efficacy of sGC pharmacology in these organs while reducing the potential for dose-limiting hemodynamic effects sometimes observed with sGC stimulation. Our initial focus is on the liver and the lung due to the clear role of nitric oxide signaling in diseases with high unmet need that affect these organs. Additional discovery efforts are ongoing and aimed at further expanding the potential of sGC stimulation in disorders of the CNS.

The following table summarizes our research and development expenses related to our product pipeline, as well as employee and facility related costs allocated to research and development expense, for the years ended December 31, 2019 and 2018. These product pipeline expenses relate primarily to external costs associated with nonclinical studies and clinical trial costs, which are presented by development candidates.

	Years Ended December 31,	
	2019	2018
	(in thousands)	
Product pipeline external costs:		
Praliciguat	$ 13,344	$ 17,814
Olinciguat	13,064	6,603
IW-6463	4,278	2,603
Discovery research	1,293	2,248
Total product pipeline external costs	31,979	29,268
Personnel and related internal costs	40,008	37,029
Facilities and other	23,153	21,419
Total research and development expenses	$ 95,140	$ 87,716

Securing regulatory approvals for new drugs is a lengthy and costly process. Any failure by us to obtain, or any delay in obtaining, regulatory approvals would materially adversely affect our product development efforts and our business overall.

Given the inherent uncertainties of pharmaceutical product development, we cannot estimate with any degree of certainty how our programs will evolve, and therefore the amount of time or money that would be required to obtain regulatory approval to market them. As a result of these uncertainties surrounding the timing and outcome of any approvals, we are currently unable to estimate precisely when, if ever, our discovery and development candidates will be approved. We invest carefully in our pipeline, and the commitment of funding for each subsequent stage of our development programs is dependent upon the receipt of clear, supportive data.

The successful development of our product candidates is highly uncertain and subject to a number of risks including, but not limited to:

- The duration of clinical trials may vary substantially according to the type and complexity of the product candidate and may take longer than expected.

- The FDA and comparable agencies in foreign countries impose substantial and varying requirements on the introduction of therapeutic pharmaceutical products, which typically require lengthy and detailed laboratory and clinical testing procedures, sampling activities and other costly and time-consuming procedures.

- Data obtained from nonclinical and clinical activities at any step in the testing process may be adverse and lead to discontinuation or redirection of development activity. Data obtained from these activities also are susceptible to varying interpretations, which could delay, limit or prevent regulatory approval.

- The duration and cost of discovery, nonclinical studies and clinical trials may vary significantly over the life of a product candidate and are difficult to predict.

- The costs, timing and outcome of regulatory review of a product candidate may not be favorable, and, even if approved, a product may face post-approval development and regulatory requirements.

- The emergence of competing technologies and products and other adverse market developments may negatively impact us.

As a result of the factors listed above, including the factors discussed under the “Risk Factors” in Item 1A of this Annual Report on Form 10-K, we are unable to determine the duration and costs to complete current or future nonclinical and clinical stages of our product candidates or when, or to what extent, we will generate revenues from the commercialization and sale of our product candidates. Development timelines, probability of success and development costs vary widely. We anticipate that we will make determinations as to which additional programs to pursue and how much funding to direct to each program on an ongoing basis in response to the data from the studies of each product candidate, the competitive landscape and ongoing assessments of such product candidate’s commercial potential.

General and Administrative Expense. General and administrative expense consists primarily of compensation, benefits and other employee-related expenses for personnel in our administrative, finance, legal, information technology, business development, communications and human resource functions. Other costs include the legal costs of pursuing patent protection of our intellectual property, general and administrative related facility costs, insurance costs and professional fees for accounting and legal services. Certain costs associated with our Separation from Ironwood are included in these expenses. We record all general and administrative expenses as incurred.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based upon our consolidated and combined financial statements prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make certain estimates and assumptions that may affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated and combined financial statements, and the amounts of expenses during the reported periods. Significant estimates and assumptions in our consolidated and combined financial statements include those related to allocation of expenses, assets and liabilities from Ironwood's historical financial statements for the periods prior to the Separation, impairment of long-lived assets; income taxes, including the valuation allowance for deferred tax assets; research and development expenses; contingencies and share-based compensation. We base our estimates on our historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ materially from our estimates under different assumptions or conditions. Changes in estimates are reflected in reported results in the period in which they become known.

We believe that our application of accounting policies requires significant judgments and estimates on the part of management and is the most critical to aid in fully understanding and evaluating our reported financial results. Our significant accounting policies are more fully described in Note 2, *Summary of Significant Accounting Policies*, of the consolidated and combined financial statements elsewhere in this Annual Report on Form 10-K.

All research and development expenses are expensed as incurred. We defer and capitalize nonrefundable advance payments we make for research and development activities until the related goods are received or the related services are performed. See Note 2, *Summary of Significant Accounting Policies*, of the consolidated and combined financial statements appearing elsewhere in this Annual Report on Form 10-K.

Results of Operations

For the period prior to the Separation, our consolidated and combined financial statements include an allocation of expenses related to certain Ironwood corporate functions, including senior management, legal, human resources, finance, information technology and quality assurance. These expenses were allocated to Cyclerion based on direct usage or benefit where identifiable, with the remainder allocated pro-rata based on project related costs, headcount or other measures. We considered the allocation methodologies used to be a reasonable and appropriate reflection of the historical Ironwood expenses attributable to us. The expenses reflected in the consolidated and combined financial statements may not be indicative of expenses that will be incurred by us in the future. After the Separation, we began performing these corporate functions using internal resources or purchased services, certain of which are being provided by Ironwood under the transition services agreement. The following discussion summarizes the key factors we believed are necessary for an understanding of our consolidated financial statements.

	Years Ended December 31,		Change	
	2019	2018	$	%
	(dollars in thousands)			
Revenue from related party	$ 4,507	$ -	$ 4,507	100%
Cost and expenses:				
Research and development	95,140	87,716	7,424	8%
General and administrative	34,404	27,536	6,868	25%
Total cost and expenses	129,544	115,252	14,292	12%
Loss from operations	(125,037)	(115,252)	(9,785)	8%
Interest and other income	2,029	-	2,029	100%
Net loss	$ (123,008)	$ (115,252)	$ (7,756)	7%

Revenue from related party. The increase in revenue from related party for the year ended December 31, 2019 compared to the year ended December 31, 2018 is the result of services performed under the Development Agreement for Ironwood, which was entered into in connection with the Separation.

Research and Development Expense. The increase in research and development expense of approximately $7.4 million for the year ended December 31, 2019 compared to the year ended December 31, 2018 was primarily related to an increase of approximately $3.0 million in employee-related expenses as compared to the pre-Separation allocation costs from Ironwood, including approximately $2.5 million related to one-time costs associated with a workforce reduction, an increase of approximately $1.7 million in facilities and operating costs allocated to research and development, and a net increase of approximately $2.7 million in external research costs. The net increase in external research costs was primarily due to an increase of approximately $6.5 million associated with olinciguat due to increased enrollment and site activity for the STRONG-SCD Phase 2 study as well as supporting ancillary studies, toxicology and manufacturing, and an increase of approximately $1.7 million associated with IW-6463 studies, partially offset by a decrease of approximately $4.5 million associated with praliciguat due to the timing of study activities which ceased enrollment and closed out by the end of 2019 and a decrease of approximately $1.0 million in discovery research.

General and Administrative Expense. The increase in general and administrative expenses of approximately $6.9 million for the year ended December 31, 2019 compared to the year ended December 31, 2018 primarily was driven by increases of approximately $5.8 million in stock-based compensation as compared to the pre-Separation allocation from Ironwood, approximately $2.8 million in other employee-related costs, and approximately $1.0 million in facilities and other operating costs. These increases were partially offset by a net decrease of approximately $2.9 million in consulting fees and other professional services expenses.

Interest and other income. Interest and investment income increased by approximately $2.0 million for the year ended December 31, 2019 compared to the year ended December 31, 2018 due to $1.9 million of interest generated on excess operating funds from investments in U.S. government money market funds and overnight repurchase agreements and the recognition of approximately $0.1 million of net sublease income. There was no investment and sublease income for the year ended December 31, 2018 because there was no cash allocated to Cyclerion and no lease directly attributed to Cyclerion prior to the Separation.

Liquidity and Capital Resources

Prior to the Separation, the primary source of liquidity for our business was cash flow allocated to Cyclerion from Ironwood. Transfers of cash to and from Ironwood have been reflected in net parent investment in the historical combined balance sheets, statements of cash flows and statements of changes in stockholders' equity (deficit). Ironwood's cash has not been assigned to us for any of the periods prior to the Separation presented in the consolidated and combined financial statements because those cash balances are not directly attributable to us. Post Separation, transfers of cash to and from Ironwood related to the Transition Service Agreements, Development Agreement and provisions of the Separation Agreement, have been reflected in the consolidated and combined statement of cash flows.

After giving effect to the completion of the Separation on April 1, 2019, we raised approximately $165 million net of direct financing expenses with the closing of the private placement on April 2, 2019. Subsequent to the Separation, we no longer participate in Ironwood's centralized cash management or receive direct funding from Ironwood.

On December 31, 2019, we had approximately $94.9 million of unrestricted cash and cash equivalents. Our cash equivalents include amounts held in U.S. government money market funds. We invest cash in excess of immediate requirements in accordance with our investment policy, which requires all investments held by us to be at least "AAA" rated or equivalent, with a remaining final maturity when purchased of less than twelve months, so as to primarily achieve liquidity and capital preservation.

Our ability to fund our operations and capital needs will depend on our ongoing ability to generate cash from operations and access to capital markets and other sources of capital, as further described below. We anticipate that our principal uses of cash in the future will be primarily to fund our operations, working capital needs, capital expenditures and other general corporate purposes.

Going Concern

Based on our development plans and clinical stage patient testing and our timing expectations related to the progress of our discovery research programs, we expect that our existing cash and cash equivalents as of December 31, 2019, will be sufficient to fund our planned operating expenses and capital expenditure requirements through at least the first quarter of 2021. We have based this estimate on assumptions that may prove to be wrong, particularly as the process of testing drug candidates in clinical trials is costly and the timing of progress in these trials is uncertain.

Cash Flows

The following is a summary of cash flows for the years ended December 31, 2019 and 2018:

	Years Ended December 31,		Change	
	2019	2018	$	%
	(dollars in thousands)			
Net cash used in operating activities	$ (102,215)	$ (97,503)	$ (4,712)	5%
Net cash used in investing activities	$ (6,715)	$ (3,438)	$ (3,277)	95%
Net cash provided by financing activities	$ 211,571	$ 100,941	$ 110,630	110%

Cash Flows from Operating Activities

Net cash used in operating activities totaled approximately $102.2 million for the year ended December 31, 2019. The primary uses of cash were our net loss of $123.0 million, changes in assets of approximately $0.1 million and changes in liabilities of approximately $2.2 million. The changes in assets resulted primarily from increases in related party accounts receivable of approximately $1.5 million, prepaid expenses of approximately $1.1 million, and other assets of approximately $0.6 million, partially offset by a decrease in the operating lease right of use asset of approximately $3.1 million. The changes in liabilities resulted primarily from decreases in accrued research and development costs of approximately $3.1 million, accrued expenses of approximately $1.6 million and accounts payable of approximately $0.3 million, partially offset by increases in operating lease liabilities of approximately $2.7 million and related party accounts payable of approximately $0.1 million. These uses of cash were partially offset by non-cash items including share-based compensation of approximately $19.6 million, depreciation and amortization expense of approximately $2.7 million, and loss on disposal of property and equipment of approximately $0.8 million.

Net cash used in operating activities totaled approximately $97.5 million for the year ended December 31, 2018. The primary uses of cash were our net loss of $115.3 million and changes in other current assets of less than $0.1 million. These uses of cash were partially offset by non-cash items of approximately $14.0 million, including approximately $12.5 million in share-based compensation expense and approximately $1.5 million in depreciation and amortization expense of property and equipment, changes in assets of $0.4 million resulting primarily from decreases in prepaid expenses and other assets of approximately $0.4 million and $0.1 million, respectively, and changes in liabilities of approximately $3.3 million resulting primarily from increases in accounts payable, accrued research and development costs, and accrued expenses and other current liabilities of approximately $1.0 million, $0.3 million and $2.0 million, respectively.

Cash Flows from Investing Activities

Cash used in investing activities for the year ended December 31, 2019 totaled approximately $6.7 million, resulting from purchases of property and equipment, primarily leasehold improvements, of approximately $6.9 million, partially offset by proceeds from the sale of property and equipment of approximately $0.2 million.

Cash used in investing activities for the year ended December 31, 2018 totaled approximately $3.4 million, resulting from the purchase of property and equipment, primarily laboratory equipment.

Cash Flows from Financing Activities

Cash provided by financing activities for the year ended December 31, 2019 was approximately $211.6 million, primarily as a result of approximately $164.6 million in net proceeds from the private placement, approximately $46.5 million of cash transferred to us from Ironwood prior to Separation when Ironwood managed our cash and financing arrangements, and approximately $0.5 million from proceeds from the exercises of stock options and the employee stock purchase plan.

Cash provided by financing activities for the year ended December 31, 2018 was approximately $100.9 million, resulting from the cash transferred to us from Ironwood based on changes in our cash used for operations.

Funding Requirements

We expect our expenses to increase as we advance the preclinical activities and clinical trials of our product candidates. In addition, as a result of the Separation, we expect to continue incur additional costs associated with operating as a public company. Our expenses will also increase as we:

- continue advancing our product candidates into preclinical and clinical development;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- may potentially hire additional clinical, quality control and scientific personnel;
- enhance our operational, financial and management systems and
- maintain, expand and protect our intellectual property portfolio.

We believe that our existing cash, cash equivalents and restricted cash as of December 31, 2019 will enable us to fund our operating expenses and capital expenditure requirements through at least the first quarter of 2021. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect.

Because of the many risks and uncertainties associated with research, development and commercialization of product candidates, we are unable to estimate the exact amount of our working capital requirements. Our future funding requirements will depend on, and could increase or decrease significantly as a result of, many factors, including the:

- scope, progress, results and costs of researching and developing our product candidates, and conducting preclinical studies and clinical trials;
- costs, timing and outcome of regulatory review of our product candidates;
- costs of future activities, including medical affairs, manufacturing and distribution, for any of our product candidates for which we receive marketing approval;
- cost and timing of necessary actions to support our strategic objectives;
- costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims; and
- timing, receipt and amount of sales of, or milestone payments related to or royalties on, our current or future product candidates, if any.

A change in any of these or other variables with respect to the development of any of our product candidates could significantly change the costs and timing of the development of that product candidate. Further, our operating plans may change in the future, and we may need additional funds to meet operational needs and capital requirements associated with such operating plans.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances or licensing arrangements with third parties. As discussed under the “Risk Factors” in Item 1A of this Annual Report on Form 10-K, to preserve the tax-free treatment of the Separation, we may be barred, in certain circumstances, for a two year period following the Separation, from engaging in certain capital raising transactions. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect your rights as a common shareholder. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specified actions, such as incurring additional debt, making capital expenditures or declaring dividends. In addition, debt financing would result in increased fixed payment obligations.

If we raise funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us.

If we are unable to raise additional funds when needed, we may be required to delay, reduce or eliminate our product development or future commercialization efforts, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Commitments and Obligations

Tax-related Obligations

We exclude assets, liabilities or obligations pertaining to uncertain tax positions from our summary of contractual commitments and obligations as we cannot make a reliable estimate of the period of cash settlement with the respective taxing authorities. As of December 31, 2019, we had no uncertain tax positions.

Other Funding Commitments

As of December 31, 2019, we had, and continue to have, several ongoing studies in various clinical trial stages. Our most significant clinical trial spending is with clinical research organizations, or CROs. The contracts with CROs generally are cancellable, with notice, at our option and do not have any significant cancellation penalties.

Transition from Ironwood and Costs to Operate as an Independent Company

Our consolidated and combined financial statements for the period prior to the Separation reflect our operating results and financial position as it was operated by Ironwood, rather than as an independent company. As a result of the Separation, we have incurred additional ongoing operating expenses to operate as an independent, publicly traded, company. These costs include the cost of various corporate headquarters functions, incremental information technology-related costs and incremental costs to operate stand-alone accounting, legal, human resources and other administrative functions. We also incur non-recurring expenses and non-recurring capital expenditures.

As an independent company, our information technology operating costs may be higher than the costs allocated in the historical combined financial statements. In addition, we will incur non-recurring expenses and capital expenditures to establish independent information technology systems.

We have entered into a Transition Services Agreement with Ironwood that will provide us with certain services and resources related to corporate functions for an initial term of up to two years from the date of the Separation (as applicable). This Transition Services Agreement will help us to operate our business independently prior to establishing stand-alone infrastructure. During the transition from Ironwood, we will incur non-recurring expenses to expand our infrastructure.

It is not practicable to estimate the costs that would have been incurred in each of the periods presented in the historical financial statements for the functions described above. Actual costs that would have been incurred if we operated as a stand-alone company for the periods prior to the Separation would have depended on various factors, including organizational design, outsourcing and other strategic decisions related to corporate functions, information technology and back office infrastructure.

Off-Balance Sheet Arrangements

We do not have any relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, that would have been established for the purpose of facilitating off-balance sheet arrangements (as that term is defined in Item 303(a)(4)(ii) of Regulation S-K) or other contractually narrow or limited purposes. As such, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in those types of relationships. We enter into guarantees in the ordinary course of business related to the guarantee of our own performance.

New Accounting Pronouncements

For a discussion of new accounting pronouncements see Note 2, *Summary of Significant Accounting Policies*, of the consolidated and combined financial statements appearing elsewhere in this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are a smaller reporting company as defined by Rule 12b-2 of the Exchange Act and are not required to provide the information required under this item.

Item 8. Financial Statements and Supplementary Data.

The information required by this Item 8 is set forth in our financial statements included in Part IV, Item 15 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, that are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that such information is accumulated and communicated to our management, including our principal executive and our principal financial officers, as appropriate, to allow timely decisions regarding required disclosure.

With respect to the year ended December 31, 2019, under the supervision and with the participation of our management, we conducted an evaluation of the effectiveness of the design and operations of our disclosure controls and procedures. Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of December 31, 2019 to provide reasonable assurance that the information required to be disclosed by us in this Annual Report was (a) reported within the time periods specified by SEC rules and regulations and (b) communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding any required disclosure.

Management's Report on Internal Control Over Financial Reporting

This Annual Report does not include a report of management's assessment regarding internal control over financial reporting or an attestation report of our independent registered public accounting firm as allowed by the SEC during the transition period for newly public companies.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the fiscal year ended December 31, 2019 which have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Internal Controls

In designing and evaluating the disclosure controls and procedures, management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control systems are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. The design of any disclosure controls and procedures also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud.

Item 9B. Other Information.

Not applicable.

PART III

We will file a definitive Proxy Statement for our 2020 Annual Meeting of Stockholders, or the Proxy Statement, with the SEC, pursuant to Regulation 14A, not later than 120 days after the end of our fiscal year. Accordingly, certain information required by Part III has been omitted under General Instruction G(3) to Form 10-K. Only those sections of the 2020 Proxy Statement that specifically address the items set forth herein are incorporated by reference.

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item 10 will be included in our Proxy Statement under the captions “Information Regarding the Board of Directors and Corporate Governance,” “Election of Directors,” “Executive Officers” and “Section 16(a) Beneficial Ownership Reporting Compliance” and is incorporated herein by reference.

Item 11. Executive Compensation.

The information required by this Item 11 will be included in our Proxy Statement under the captions “Executive Compensation” and “Director Compensation” and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item 12 will be included in our Proxy Statement under the captions “Security Ownership of Certain Beneficial Owners and Management” and “Securities Authorized for Issuance under Equity Compensation Plans” and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 will be included in our Proxy Statement under the captions “Transactions with Related Persons” and “Independence of the Board of Directors” and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required by this Item 14 will be included in our Proxy Statement under the caption “Ratification of Selection of Independent Registered Public Accounting Firm” and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a)(1) Financial Statements

See the Index to Consolidated Financial Statements in the Financial Statements Section beginning on page F-1 of this Annual Report on Form 10-K.

(a)(2) Financial Statement Schedules

All financial statement schedules have been omitted as they are not required, not applicable, or the required information is included in the financial statements or notes to the financial statements.

(a)(3) Exhibits

EXHIBIT INDEX

Exhibit No.	Description
2.1	Separation Agreement, dated March 30, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 2.1 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
3.1	Restated Articles of Organization of Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 4.1 to Registration Statement on Form S-8 filed on March 29, 2019) (File No. 333-230615))
3.2	Amended and Restated Bylaws of Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 4.2 to Registration Statement on Form S-8 filed on March 29, 2019) (File No. 333-230615))
4.1	Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934, as amended
10.1	Transition Services Agreement, dated April 1, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.2	Transition Services Agreement, dated April 1, 2019, by and between Cyclerion Therapeutics, Inc. and Ironwood Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.2 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.3	Tax Matters Agreement, dated March 30, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.3 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.4	Employee Matters Agreement, dated March 30, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.4 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.5	Development Agreement, dated April 1, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.5 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.6	Intellectual Property License Agreement, dated April 1, 2019, by and between Ironwood Pharmaceuticals, Inc. and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.6 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.7+	Form of Indemnification Agreement between Cyclerion Therapeutics, Inc. and individual directors and officers (incorporated by reference to Exhibit 10.7 to Form 10 filed on January 28, 2019 (File No. 001-38787))
10.8+	Offer Letter, effective April 1, 2019, by and between Cyclerion Therapeutics, Inc. and Peter M. Hecht, Ph.D. (incorporated by reference to Exhibit 10.11 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.9+	Offer Letter, effective April 1, 2019, by and between Cyclerion Therapeutics, Inc. and Mark G. Currie, Ph.D. (incorporated by reference to Exhibit 10.12 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))

10.10+	Offer Letter, effective April 1, 2019, by and between Cyclerion Therapeutics, Inc. and William Huyett (incorporated by reference to Exhibit 10.13 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.11+	Cyclerion Therapeutics, Inc. 2019 Employee Stock Purchase Plan (incorporated by reference to Exhibit 4.3 to Registration Statement on Form S-8 filed on March 29, 2019 (File No. 333-230615))
10.12+	Cyclerion Therapeutics, Inc. 2019 Equity Incentive Plan and forms of agreements thereunder (incorporated by reference to Exhibit 4.4 to Registration Statement on Form S-8 filed on March 29, 2019 (File No. 333-230615))
10.13+	Cyclerion Therapeutics, Inc. Amended and Restated 2010 Employee, Director and Consultant Equity Incentive Plan and forms of agreement thereunder (incorporated by reference to Exhibit 4.5 to Registration Statement on Form S-8 filed on March 29, 2019 (File No. 333-230615))
10.14+	Cyclerion Therapeutics, Inc. Amended and Restated 2005 Stock Incentive Plan (incorporated by reference to Exhibit 4.6 to Registration Statement on Form S-8 filed on March 29, 2019 (File No. 333-230615))
10.15+	Form of Cyclerion Therapeutics, Inc. Executive Severance Agreement (incorporated by reference to Exhibit 10.15 to Form 10 filed on January 28, 2019 (File No. 001-38787))
10.16	Amended and Restated Common Stock Purchase Agreement, dated as of February 25, 2019, by and between Cyclerion Therapeutics, Inc. and the investors party thereto (incorporated by reference to Exhibit 10.19 on Amendment No. 1 to Form 10 filed on March 4, 2019 (File No. 001-38737))
10.17+	Non-Employee Director Compensation Plan (effective June 1, 2019) (incorporated by reference to Exhibit 10.7 on Form 10-Q filed on August 12, 2019 (File No. 001-38737))
10.18	Lease, dated April 1, 2019, by and between BMR-Rogers Street LLC and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.14 to Current Report on Form 8-K filed on April 2, 2019 (File No. 001-38787))
10.19	First Ammendment to and Partial Termination of Lease Agreement Lease, dated April 1, 2019, by and between BMR-Rogers Street LLC and Cyclerion Therapeutics, Inc. (incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on March 5, 2020 (File No. 001-38787)
21.1	List of Subsidiaries
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm
24.1	Power of Attorney (included on signature page to this Form 10-K)
31.1	Certificate of Chief Executive Officer (Principal Executive Officer) pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certificate of Chief Financial Officer (Principal Financial Officer) pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certificate of Chief Executive Officer (Principal Executive Officer) pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certificate of Chief Financial Officer (Principal Executive Officer) pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

+ Indicates a management contract or compensatory plan.

Item 16. Form 10-K Summary.

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrants have duly caused this report to be signed on their behalf by the undersigned, thereunto duly authorized, on March 12, 2020.

CYCLERION THERAPEUTICS, INC.

By: /s/ PETER M. HECHT
Peter M. Hecht
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Peter M. Hecht and William Huyett, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign this Annual Report on Form 10-K of Cyclerion Therapeutics, Inc., and any or all amendments thereto, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his, her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on March 12, 2020.

Signature	Title
/s/ PETER M. HECHT Peter M. Hecht	Chief Executive Officer (Principal Executive Officer)
/s/ WILLIAM HUYETT William Huyett	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)
/s/ KEVIN CHURCHWELL Kevin Churchwell	Director
/s/ GEORGE CONRADES George Conrades	Director
/s/ MARSHA FANUCCI Marsha Fanucci	Director
/s/ OLE ISACSON Ole Isacson	Director
/s/ STEPHANIE LOVELL Stephanie Lovell	Director
/s/ TERRANCE MCGUIRE Terrance McGuire	Director
/s/ MICHAEL MENDELSOHN Michael Mendelsohn	Director
/s/ AMY SCHULMAN Amy Schulman	Director

Index to Consolidated and Combined Financial Statements of Cyclerion Therapeutics, Inc.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cyclerion Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated and combined balance sheets of Cyclerion Therapeutics, Inc. (the Company) as of December 31, 2019 and 2018, the related consolidated and combined statements of operations and comprehensive loss**,** shareholders' equity (deficit) and cash flows for each of the two years in the period ended December 31, 2019, and the related notes (collectively referred to as the "consolidated and combined financial statements"). In our opinion, the consolidated and combined financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

Adoption of ASC 842

As discussed in Note 2 to the consolidated and combined financial statements, the Company changed its method of accounting for leases in 2019 due to the adoption of Accounting Standards Update (ASU) No. 2016-02, *Leases (Topic 842)*, and related amendments.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP
We have served as the Company's auditor since 2018.
Boston, Massachusetts
March 12, 2020

Cyclerion Therapeutics, Inc.
Consolidated and Combined Balance Sheets
(In thousands except share and per share data)

	December 31, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 94,895	$ -
Related party accounts receivable	1,474	-
Prepaid expenses	1,966	867
Other current assets	2,862	12
Total current assets	101,197	879
Restricted cash, net of current portion	4,991	-
Property and equipment, net	11,613	6,497
Operating lease right-of-use asset	68,137	-
Other assets	540	25
Total assets	$ 186,478	$ 7,401
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 3,230	$ 2,781
Related party accounts payable	81	-
Accrued research and development costs	2,198	5,261
Accrued expenses and other current liabilities	9,320	9,804
Current portion of operating lease liabilities	3,420	-
Total current liabilities	18,249	17,846
Operating lease liabilities, net of current portion	70,500	-
Commitments and contingencies		
Stockholders' equity (deficit)		
Common stock, no par value, 400,000,000 shares authorized and 27,598,133 issued and outstanding at December 31, 2019 and no shares issued or outstanding at December 31, 2018	-	-
Accumulated deficit	(85,627)	-
Net parent investment	-	(10,445)
Paid-in capital	183,376	-
Accumulated other comprehensive loss	(20)	-
Total stockholders' equity (deficit)	97,729	(10,445)
Total liabilities and stockholders' equity (deficit)	$ 186,478	$ 7,401

The accompanying notes are an integral part of these consolidated and combined financial statements.

Cyclerion Therapeutics, Inc.
Consolidated and Combined Statements of Operations and Comprehensive Loss
(In thousands except per share data)

	Years Ended December 31,	
	2019	**2018**
Revenue from related party	$ 4,507	$ -
Cost and expenses:		
Research and development	95,140	87,716
General and administrative	34,404	27,536
Total cost and expenses	129,544	115,252
Loss from operations	(125,037)	(115,252)
Interest and other income	2,029	-
Net loss	$ (123,008)	$ (115,252)
Net loss per share:		
Basic and diluted net loss per share	$ (4.49)	$ (4.21)
Weighted average shares used in calculating:		
Basic and diluted net loss per share	27,380	27,380
Other comprehensive loss:		
Net loss	$ (123,008)	$ (115,252)
Other comprehensive loss:		
Foreign currency translation adjustment	(20)	-
Total other comprehensive loss	(20)	-
Comprehensive loss	$ (123,028)	$ (115,252)

The accompanying notes are an integral part of these consolidated and combined financial statements.

Cyclerion Therapeutics, Inc.
Consolidated and Combined Statements of Stockholders' Equity (Deficit)
(In thousands except share data)

	Common Stock		Net Parent Investment	Paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total Stockholders' equity (deficit)
	Shares	Amount					
Balance at December 31, 2017	-	$ -	$ (8,567)	$ -	$ -	$ -	$ (8,567)
Net loss	-	-	(115,252)	-	-	-	(115,252)
Net transfers from Ironwood	-	-	100,941	-	-	-	100,941
Ironwood allocation - share-based compensation	-	-	12,433	-	-	-	12,433
Balance at December 31, 2018	-	$ -	$ (10,445)	$ -	$ -	$ -	$ (10,445)
Balance at December 31, 2018	$ -	$ -	$ (10,445)	$ -	$ -	$ -	$ (10,445)
Net loss	-	-	(37,381)	-	(85,627)	-	(123,008)
Net transfers from Ironwood	-	-	38,687	-	-	-	38,687
Ironwood allocation - share-based compensation	-	-	3,989	-	-	-	3,989
Separation-related adjustments	-	-	7,752	-	-	-	7,752
Reclassification of net parent company investment	-	-	(2,602)	2,602	-	-	-
Distribution of common stock by Ironwood upon separation	15,562,555	-	-	-	-	-	-
Issuance of common stock - private placement, net of fees	11,817,165	-	-	164,622	-	-	164,622
Issuance of common stock upon exercise of stock options, RSUs and employee stock purchase plan	196,471	-	-	510	-	-	510
Issuance of common stock awards	21,942	-	-	-	-	-	-
Share-based compensation expense related to issuance of stock options and RSUs to employees and employee stock purchase plan	-	-	-	15,642	-	-	15,642
Foreign currency translation adjustment	-	-	-	-	-	(20)	(20)
Balance at December 31, 2019	27,598,133	$ -	$ -	$ 183,376	$ (85,627)	$ (20)	$ 97,729

The accompanying notes are an integral part of these consolidated and combined financial statements.

Cyclerion Therapeutics, Inc.
Consolidated and Combined Statements of Cash Flows
(In thousands)

	Years Ended December 31,	
	2019	**2018**
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	(123,008)	$ (115,252)
Adjustments to reconcile net loss to net cash (used in) operating activities:		
Depreciation and amortization	2,700	1,528
Loss on disposal of property and equipment	751	-
Share-based compensation expense	19,631	12,433
Changes in operating assets and liabilities:		
Related party accounts receivable	(1,474)	-
Prepaid expenses	(1,099)	384
Other current assets	(115)	(4)
Operating lease assets	3,129	-
Other assets	(515)	55
Accounts payable	(331)	979
Related party accounts payable	81	-
Accrued research and development costs	(3,064)	356
Operating lease liabilities	2,655	-
Accrued expenses and other current liabilities	(1,556)	2,018
Net cash (used in) operating activities	(102,215)	(97,503)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(6,888)	(3,438)
Proceeds from sale of property and equipment	173	-
Net cash (used in) investing activities	(6,715)	(3,438)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Gross proceeds from private placement	175,000	-
Costs associated with private placement	(10,378)	-
Proceeds from exercises of stock options and ESPP	510	-
Transfers from Ironwood	46,439	100,941
Net cash provided by financing activities	211,571	100,941
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(20)	-
Net increase in cash, cash equivalents and restricted cash	102,621	-
Cash, cash equivalents and restricted cash, beginning of period	-	-
Cash, cash equivalents and restricted cash, end of period	$ 102,621	$ -
Supplemental cash flow disclosure:		
Non-cash investing activities		
Fixed asset purchases in accounts payable and accrued expenses	$ 823	$ 455
Reconciliation of cash, cash equivalents and restricted cash to the condensed consolidated and combined balance sheets		
Cash and cash equivalents	$ 94,895	$ -
Restricted cash	7,726	-
Total cash, cash equivalents and restricted cash	$ 102,621	$ -

The accompanying notes are an integral part of these consolidated and combined financial statements.

1. Nature of Business

Nature of Operations

Cyclerion Therapeutics, Inc. ("Cyclerion" or the "Company") is a clinical-stage biopharmaceutical company harnessing the power of soluble guanylate cyclase ("sGC") pharmacology to discover, develop and commercialize breakthrough treatments for serious and orphan diseases. Cyclerion's focus is enabling the full therapeutic potential of next-generation sGC stimulators. The Company's strategy rests on a solid scientific foundation that is enabled by our people and capabilities, external collaborations, and a responsive capital allocation approach.

Cyclerion GmbH, a wholly owned subsidiary, was incorporated in Zug, Switzerland on May 3, 2019. Cyclerion GmbH is an operational entity with one employee who is the Company's Chief Innovation Officer. The functional currency is the Swiss franc.

The Separation

On April 1, 2019, Ironwood Pharmaceuticals, Inc. ("Ironwood") completed the previously announced separation of its sGC business, and certain other assets and liabilities, into a separate, independent publicly traded company by way of a pro-rata distribution of all of the outstanding shares of common stock of Cyclerion Therapeutics, Inc. through a dividend distribution of one share of the Company's common stock, with no par value per share, for every 10 shares of Ironwood common stock held by Ironwood stockholders as of the close of business on March 19, 2019, the record date for the Distribution (the entire transaction being the "Separation"). As a result of the Separation, the Company became an independent public company and commenced regular way trading under the symbol "CYCN" on the Nasdaq Global Select Market on April 2, 2019.

In connection with the Separation, on March 30, 2019, the Company entered into certain agreements with Ironwood to provide a framework for the Company's relationship with Ironwood following the Separation, including, among others, the Separation Agreement, Tax Matters Agreement, and Employee Matters Agreement ("EMA").

In addition, in connection with the Separation, on April 1, 2019, the Company entered into a Development Agreement, an Ironwood Transition Services Agreement, a Cyclerion Transition Services Agreement and an Intellectual Property License Agreement with Ironwood.

On April 2, 2019, the Company issued 11,817,165 shares (''Private Placement Shares'') of its common stock to accredited investors for gross proceeds of $175 million (net proceeds of approximately $165 million) pursuant to the amended and restated common stock purchase agreement, dated as of February 25, 2019, by and among the Company and the selling stockholders listed therein (the "Amended and Restated Common Stock Purchase Agreement"). The funds associated with the sale of Private Placement Shares were received by the Company on April 2, 2019.

Basis of Presentation

The Company did not operate as a separate, stand-alone entity for the full period covered by the annual consolidated and combined financial statements. The Company's consolidated balance sheet as of December 31, 2019 consists of the consolidated balances of Cyclerion as prepared on a stand-alone basis. The Company's combined balance sheet as of December 31, 2018 and consolidated and combined statements of operations and comprehensive loss for the years ended December 31, 2019 and 2018, as well as our statements of cash flows for the years ended December 31, 2019 and 2018, respectively, have been prepared on a "carve out" basis for the periods and dates prior to the Separation on April 1, 2019.

The consolidated and combined financial statements reflect the historical results of the operations, financial position and cash flows of Cyclerion, in conformity with United States generally accepted accounting principles ("U.S. GAAP").

The accompanying consolidated and combined financial statements reflect the consolidated and combined financial position and consolidated and combined results of operations of the Company as an independent, publicly-traded company for the period after the Separation on April 1, 2019. The consolidated and combined financial statements also reflect the financial position and results of operations of the Company as a combined reporting entity of Ironwood for periods prior to the Separation.

These consolidated and combined financial statements of Cyclerion reflect the assets, liabilities, and expenses directly attributable to Cyclerion, as well as allocations of certain corporate level assets, liabilities and expenses, deemed necessary to fairly present the financial position, results of operations and cash flows of Cyclerion, as discussed further below. As such, these allocations may not be indicative of the actual amounts that would have been recorded had Cyclerion operated as an independent, publicly traded company for the years presented.

During the year ended December 31, 2019, the Company recorded approximately $7.8 million in Separation-related adjustments in its consolidated and combined statements of stockholders' equity (deficit). The Separation-related adjustments primarily related to differences between assets and liabilities transferred to Cyclerion as a result of the Separation and assets and liabilities reported in the Company's combined balance sheet as of March 31, 2019.

Prior to the Separation, Cyclerion was dependent upon Ironwood for all of its working capital and financing requirements, as Ironwood used a centralized approach to cash management and financing its operations. There were no cash amounts specifically attributable to Cyclerion for the historical periods presented; therefore, there is no cash reflected for historical periods in the consolidated and combined financial statements. Accordingly, cash and cash equivalents, debt or related interest expense have not been allocated to Cyclerion in the historical financial statements. Financing transactions related to Cyclerion are accounted for as a component of net parent investment in the historical combined balance sheets and as a financing activity on the accompanying combined statements of cash flows.

Prior to the Separation, Cyclerion's combined financial statements included an allocation of expenses related to certain Ironwood corporate functions, including senior management, legal, human resources, finance, information technology and quality assurance. These expenses were allocated to Cyclerion based on direct usage or benefit where identifiable, with the remainder allocated pro-rata based on project related costs, headcount or other measures. These allocations may not be indicative of the actual expense that would have been incurred had Cyclerion operated as an independent, publicly traded company for the periods presented.

Prior to the Separation, the combined balance sheets of Cyclerion included assets and liabilities that were allocated principally on a specific identification basis and net parent investment was shown in lieu of stockholders' equity. As a result of the Separation, the Company's net parent investment balance was reclassified to paid-in capital.

Going Concern

At each reporting period, the Company evaluates whether there are conditions or events that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued. The Company's evaluation entails analyzing prospective operating budgets and forecasts for expectations of the Company's cash needs and comparing those needs to the current cash and cash equivalent balances. The Company is required to make certain additional disclosures if it concludes substantial doubt exists and it is not alleviated by the Company's plans or when its plans alleviate substantial doubt about the Company's ability to continue as a going concern.

The Company has experienced negative operating cash flows for all historical periods presented and it expects these losses to continue into the foreseeable future as the Company continues the development and clinical testing of the product candidates, olinciguat and IW-6463, and its discovery research programs, as well as the close-out of the recently completed praliciguat studies. On April 2, 2019, the Company issued the Private Placement Shares to accredited investors for gross proceeds of $175 million (net proceeds of approximately $165 million) pursuant to the Amended and Restated Common Stock Purchase Agreement. The funds associated with the sale of Private Placement Shares were received by the Company on April 2, 2019.

After considering the Company's current research and development plans and the timing expectations related to the progress of its programs, and after considering its existing cash and cash equivalents as of December 31, 2019, the Company did not identify conditions or events that raise substantial doubt about the Company's ability to continue as a going concern within one year from the date these financial statements were issued.

2. Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated and combined financial statements include the accounts of Cyclerion Therapeutics, Inc. and its wholly owned subsidiaries, Cyclerion GmbH and Cyclerion Securities Corporation. All intercompany transactions and balances are eliminated in consolidation.

Segment Information

Operating segments are components of an enterprise for which separate financial information is available and is evaluated regularly by the Company's chief operating decision-maker in deciding how to allocate resources and in assessing performance. The Company currently operates in one reportable business segment—human therapeutics.

Use of Estimates

The preparation of consolidated and combined financial statements in accordance with U.S. GAAP requires the Company's management to make estimates and judgments that may affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated and combined financial statements, and the amounts of expenses during the reported periods. On an ongoing basis, the Company's management evaluates its estimates, judgments and methodologies. Significant estimates and assumptions in the consolidated and combined financial statements include those related to allocations of expenses, assets and liabilities from Ironwood's historical financial statements for the periods prior to the Separation, impairment of long-lived assets, income taxes, including the valuation allowance for deferred tax assets, research and development expenses, contingencies and share-based compensation. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ materially from these estimates under different assumptions or conditions. Changes in estimates are reflected in reported results in the period in which they become known.

Cash and Cash Equivalents

The Company considers all highly liquid investment instruments with a remaining maturity when purchased of three months or less to be cash equivalents. Investments qualifying as cash equivalents may consist of money market funds and overnight repurchase agreements. The carrying amount of cash equivalents approximates fair value. There were no cash amounts specifically attributable to Cyclerion for the historical periods presented; therefore, there is no cash reflected in the combined financial statements.

Restricted Cash

The Company is contingently liable under an unused letter of credit with a bank, related to the Company's facility lease, in the amount of approximately $7.7 million as of December 31, 2019. The Company records as restricted cash the collateral used to secure the letter of credit. The amount of restricted cash in current assets and non-current assets was approximately $2.7 million and $5.0 million at December 31, 2019, respectively. See Note 14, *Subsequent Events*.

Property and Equipment

Property and equipment, including leasehold improvements, are recorded at cost, and are depreciated when placed into service using the straight-line method based on their estimated useful lives as follows:

Asset Description	Estimated Useful Life (In Years)
Laboratory equipment	5
Computer and office equipment	3
Furniture and fixtures	7
Software	3

Included in property and equipment are certain costs of software obtained for internal use. Costs incurred during the preliminary project stage are expensed as incurred, while costs incurred during the application development stage are capitalized and amortized over the estimated useful life of the software. The Company also capitalizes costs related to specific upgrades and enhancements when it is probable the expenditures will result in additional functionality. Maintenance and training costs related to software obtained for internal use are expensed as incurred.

Costs for capital assets not yet placed into service have been capitalized as construction in progress and are depreciated in accordance with the above guidelines once placed into service. Maintenance and repair costs are expensed as incurred.

Leasehold improvements are amortized over the shorter of the estimated useful life of the asset or the lease term. The Company has no capital leases.

Fair Value of Investment Instruments

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

· Level 1 — Quoted prices in active markets for identical assets or liabilities.

· Level 2 — Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.

· Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

Foreign Currency Translation Adjustment

The functional currency of the Company’s foreign subsidiary is its local currency, the Swiss franc. The assets and liabilities of the Company’s foreign subsidiary are translated into U.S. dollars at exchange rates in effect at the balance sheet date. Income and expense items are translated at the average exchange rates prevailing during the period. The cumulative translation effect for the Company’s foreign subsidiary is included as a foreign currency translation adjustment in the consolidated and combined statements of stockholders’ equity (deficit) and as a component of comprehensive loss in the consolidated and combined statements of operations and comprehensive loss.

The Company's intercompany accounts are typically denominated in the functional currency of the foreign subsidiary. Gains and losses resulting from the remeasurement of intercompany balances are recorded in the consolidated statements of operations.

Related Party Accounts Receivable

The Company makes judgments as to its ability to collect outstanding receivables and provides an allowance for receivables when collection becomes doubtful. Provisions are made based upon a specific review of all significant outstanding invoices. The Company's receivables primarily relate to amounts earned under a Development Agreement with Ironwood. The Company believes that credit risks associated with Ironwood are not significant. To date, the Company has not had significant write-offs of bad debt and the Company did not have an allowance for doubtful accounts as of December 31, 2019.

Impairment of Long-Lived Asset

The Company regularly reviews the carrying amount of its long-lived assets to determine whether indicators of impairment may exist, which warrant adjustments to carrying values or estimated useful lives. If indications of impairment exist, projected future undiscounted cash flows associated with the asset are compared to the carrying amount to determine whether the asset's value is recoverable. If the carrying value of the asset exceeds such projected undiscounted cash flows, the asset will be written down to its estimated fair value. There were no significant impairments of long-lived assets for the years ended December 31, 2019 and 2018.

Leases

Effective January 1, 2019, the Company adopted Accounting Standards Codification ("ASC") Topic 842, *Leases* ("ASC 842") using the optional transition method. The adoption of ASC 842 represents a change in accounting principle that aims to increase transparency and comparability among organizations by requiring the recognition of right-of-use assets and lease liabilities on the balance sheet for both operating and finance leases. In addition, the standard requires enhanced disclosures that meet the objective of enabling financial statement users to assess the amount, timing, and uncertainty of cash flows arising from leases. The reported results for the year ended December 31, 2019 reflect the application of ASC 842 guidance, while the reported results for prior periods were prepared in conjunction with ASC 840, *Leases* ("ASC 840").

The recognition of right-of-use ("ROU") assets and lease liabilities related to the Company's operating leases under ASC 842 has had a material impact on the Company's consolidated and combined financial statements.

As part of the ASC 842 adoption, the Company has used certain practical expedients outlined in the guidance. These practical expedients include:

- Account policy election to use the short-term lease exception by asset class;
- Election of the practical expedient package during transition, which includes:
- An entity need not reassess whether any expired or existing contracts are or contain leases.
  - An entity need not reassess the classification for any expired or existing leases. As a result, all leases that were classified as operating leases in accordance with ASC 840 are classified as operating leases under ASC 842, and all leases that were classified as capital leases in accordance with ASC 840 are classified as finance leases under ASC 842.
  - An entity need not reassess initial direct costs for any existing leases.

The Company's lease portfolio includes a property lease for its headquarters location at 301 Binney Street, Cambridge, MA (the "Master Lease"). The Company determines if an arrangement is a lease at the inception of the contract. The asset component of the Company's operating leases is recorded as operating lease right-of-use assets, and the liability component is recorded as current portion of operating lease liabilities and operating lease liabilities, net of current portion, in the Company's consolidated balance sheets.

ROU assets and operating lease liabilities are recognized based on the present value of lease payments over the lease term at the commencement date. The Company uses an incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments if an implicit rate of return is not provided with the lease contract. Operating lease right-of-use assets are adjusted for incentives received.

Lease cost is recognized on a straight-line basis over the lease term, and includes amounts related to short-term leases. Variable lease costs that do not depend on an index or rate are recognized as incurred.

On October 18, 2019, the Company entered into an agreement to sublease 15,700 rentable square feet of its Master Lease to a subtenant. Sublease income is recognized on straight-line basis over the term of the sublease agreement and is recorded net of the related rent expense from the Master Lease within interest and other income in the consolidated and combined statements of operations and comprehensive loss. In sublease agreements that contain non-monetary consideration, the Company estimates the fair market value of the non-monetary consideration received using market data and recognizes it on a straight-line basis over the sublease term. Variable lease consideration that does not depend on an index or rate is allocated to a non-lease component and is recognized over time in accordance with the pattern of transfer.

ROU assets and operating lease liabilities are remeasured upon certain modifications to leases using the present value of remaining lease payments and estimated incremental borrowing rate upon lease modification. The Company reviews any changes to its lease agreements for potential modifications and/or indicators of impairment of the respective ROU asset. No modification or impairment was deemed to have occurred by entering into the sublease agreement because the Company was not released, either fully or in part, from its obligations under the Master Lease. See Note 8, *Leases* and Note 14, *Subsequent Events*.

Revenue

Upon executing a revenue generating arrangement, the Company assesses whether it is probable the Company will collect consideration in exchange for the good or service it transfers to the customer. To determine revenue recognition for arrangements that the Company determines are within the scope of ASC Topic 606, *Revenue from Contracts with Customers* ("ASC 606"), it performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the Company satisfies the performance obligations. The Company must develop assumptions that require significant judgment to determine the stand-alone selling price for each performance obligation identified in the contract. The assumptions that are used to determine the stand-alone selling price may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success.

The Company generates revenue from a Development Agreement with Ironwood, pursuant to which the Company provides certain research and development services with respect to certain of Ironwood's products and product candidates. Such research and development activities are governed by a joint steering committee composed of representatives of both companies. Services performed are invoiced at a mutually agreed upon rate and the initial term of the agreement is two years from the date of Separation and automatically renews for one year unless either party notifies the other at least six months prior to the expiration.

Research and Development Costs

The Company expenses research and development costs to operations as incurred. The Company defers and capitalizes nonrefundable advance payments made by the Company for research and development activities until the related goods are received or the related services are performed.

Research and development expenses are comprised of costs incurred in performing research and development activities, which may include salary, benefits and other employee-related expenses; share-based compensation expense; laboratory supplies and other direct expenses; facilities expenses; overhead expenses; third-party contractual costs relating to nonclinical studies and clinical trial activities and related contract manufacturing expenses, development of manufacturing processes and regulatory registration of third-party manufacturing facilities; and other outside expenses.

General and Administrative Expenses

The Company expenses general and administrative costs to operations as incurred. General and administrative expense consists of compensation, share-based compensation, benefits and other employee-related expenses for personnel in the Company's administrative, finance, legal, information technology, business development and human resource functions. Other costs include the legal costs of pursuing patent protection of the Company's intellectual property, general and administrative related facility costs, insurance costs and professional fees for accounting and legal services.

Income taxes

For periods prior to the Separation, income taxes as presented herein include current and deferred income taxes of Ironwood allocated to the Company's standalone financial statements in a manner that is systematic, rational and consistent with the asset and liability method prescribed by the ASC Topic 740, Income Taxes ("Topic 740"). Accordingly, the Company's income tax provision for those periods was prepared following the "Separate Return Method." The Separate Return Method applies Topic 740 to the standalone financial statements of each member of the consolidated group as if the group member were a separate taxpayer and a standalone enterprise. As a result, actual tax transactions included in the consolidated financial statements of Ironwood may not be included in the combined financial statements of Cyclerion. Similarly, the tax treatment of certain items reflected in the combined financial statements of Cyclerion may not be reflected in the consolidated financial statements and tax returns of Ironwood; therefore, items such as net operating losses, credit carryforwards and valuation allowances may exist in the standalone financial statements that may or may not exist in Ironwood's consolidated financial statements.

Cyclerion provides for income taxes under the asset and liability method. Deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities and are measured using the enacted tax rates in effect when the differences are expected to reverse. Net deferred tax assets are reduced by a valuation allowance to reflect the uncertainty associated with their ultimate realization.

Cyclerion accounts for uncertain tax positions recognized in the combined financial statements in accordance with the provisions of Topic 740 by prescribing a more-likely-than-not threshold for financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. When uncertain tax positions exist, Cyclerion recognizes the tax benefit of tax positions to the extent that the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. It does not consider the likelihood of whether or not the IRS will review the position. Cyclerion evaluates uncertain tax positions on a quarterly basis and adjusts the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions. Any changes to these estimates, based on the actual results obtained and/or a change in assumptions, could affect Cyclerion's income tax provision in future periods. Interest and penalty charges, if any, related to unrecognized tax benefits would be classified as a provision for income tax in Cyclerion's combined statement of operations.

In general, the taxable loss of Cyclerion was included in Ironwood's U.S. consolidated and combined income tax returns, where applicable. As such, separate income tax returns were not prepared for Cyclerion prior to the Separation. Consequently, if applicable, income taxes currently payable were deemed to have been remitted to Ironwood in the period the liability arose and income taxes currently receivable were deemed to have been received from Ironwood in the period that a refund could have been recognized by Cyclerion, had Cyclerion been a separate taxpayer. In accordance with the tax matters agreement with Ironwood, Cyclerion is responsible for its own portion of income taxes beginning after the Separation date.

Patent Costs

The Company incurred and recorded as operating expense legal and other fees related to patents of approximately $0.8 million and $0.9 million for the years ended December 31, 2019 and 2018, respectively. These costs were charged to general and administrative expenses as incurred.

Interest and Other Income

For the year ended December 31, 2019, interest and other income consisted of $1.9 million of interest income related to interest generated from our cash and cash equivalents balances and $0.1 million of net sublease income.

Subsequent Events

The Company considers events or transactions that have occurred after the balance sheet date of December 31, 2019, but prior to the filing of the financial statements with the Securities and Exchange Commission, to provide additional evidence relative to certain estimates or to identify matters that require additional recognition or disclosure. Subsequent events have been evaluated through the filing of the financial statements accompanying this Annual Report on Form 10-K. See Note 14, *Subsequent Events*.

New Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that are adopted by the Company as of the specified effective date. Except as discussed elsewhere in the notes to the consolidated and combined financial statements, the Company did not adopt any new accounting pronouncements during the years ended December 31, 2019 and 2018, that had a material effect on its consolidated and combined financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"), which supersedes the lease accounting requirements in ASC Topic 840, *Leases*, and most industry-specific guidance with ASC Topic 842, *Leases*. ASU 2016-02 requires the identification of arrangements that should be accounted for as leases by lessees. In general, for lease arrangements exceeding a 12-month term, these arrangements must now be recognized as assets and liabilities on the balance sheet of the lessee. Under ASU 2016-02, a right-of-use asset and lease obligation will be recorded for all leases, whether operating or financing, while the income statement will reflect lease expense for operating leases and amortization and interest expense for financing leases. The balance sheet amount recorded for existing leases at the date of adoption of ASU 2016-02 must be calculated using the applicable incremental borrowing rate at the date of adoption. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. In July 2018, the FASB issued ASU No. 2018-10, *Leases (Topic 842)* ("ASU 2018-10"), *Codification Improvements* and ASU No. 2018-11, *Leases (Topic 842)* ("ASU 2018-11"), to provide additional guidance for the adoption of Topic 842. ASU 2018-10 clarifies certain provisions, and corrects unintended applications of the guidance, such as the rate implicit in a lease, impairment of the net investment in a lease, lessee reassessment of lease classifications, lessor reassessment of lease term and purchase options, variable payments that depend on an index or rate and certain transition adjustments. The amendments in ASU 2018-11 will allow for an additional transition method, whereby at the adoption date the entity recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, while the comparative period disclosures continue recognition under ASC Topic 840. Additionally, ASU 2018-11 includes a practical expedient for separating contract components for lessors. In December 2018, the FASB issued ASU No. 2018-20, *Leases (Topic 842)* ("ASU 2018-20"), *Narrow-Scope Improvements for Lessors*, which provided clarification for lessors on how to apply the new leases standard when accounting for sales taxes, certain lessor costs, and certain requirements related to variable payments in contracts. In March 2019, the FASB issued ASU No. 2019-01, *Leases (Topic 842)* ("ASU 2019-01"), *Codification Improvements*, which aligned the new leases guidance with existing guidance for fair value of the underlying asset by lessors that are not manufacturers or dealers. It also clarified an exemption for lessors and lessees from a certain interim disclosure requirement associated with adopting the board's new lease accounting standard. The Company's analysis includes, but is not limited to, reviewing existing leases, reviewing other service agreements for embedded leases, establishing policies and procedures, assessing potential disclosures and evaluating the impact of adoption on the Company's consolidated and combined financial statements. The Company adopted ASU 2016-02, ASU 2018-10, ASU 2018-11, ASU 2018-20, and ASU 2019-01 in the first quarter of 2019.

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). ASU 2016-13 will change how companies account for credit losses for most financial assets and certain other instruments. For trade receivables, loans and held-to-maturity debt securities, companies will be required to recognize an allowance for credit losses rather than reducing the carrying value of the asset. Subsequent to the issuance of ASU 2016-13, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments* ("ASU 2019-04"), ASU No. 2019-05, *Financial Instruments—Credit Losses (Topic 326): Targeted Transition Relief* ("ASU 2019-05") to provide additional guidance on the adoption of ASU 2016-13, ASU No. 2019-10, *Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842)* ("ASU 2019-10") and ASU No. 2019-11, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses* ("ASU 2019-11"). ASU 2019-04 added Topic 326, Financial Instruments—Credit Losses, and made several amendments to the codification and also modified the accounting for available-for-sale debt securities. ASU 2019-05 provides targeted transition relief by providing an option to irrevocably elect the fair value option for certain financial assets previously measured at amortized cost basis. ASU 2019-10 aligned the effective dates of certain major updates not yet effective to conform to the FASB's new philosophy of staggering major updates between large public companies and all other entities. ASU 2019-11's major provisions included additional clarifications and practical expedients related to expected recoveries for purchased assets with credit deterioration, troubled debt restructuring, accrued interest receivables, and other areas when adopting ASU 2016-13. ASU 2016-13, ASU 2019-04 and ASU 2019-05 are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the potential impact that the adoption of these ASUs will have on the Company's financial position and results of operations.

In October 2016, the FASB issued ASU No. 2016-16, *Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory* ("ASU 2016-16"). ASU 2016-16 eliminates the ability to defer the tax expense related to intra-entity asset transfers other than inventory. Under the new standard, entities should recognize the income tax consequences on an intra-entity transfer of an asset other than inventory when the transfer occurs. ASU 2016-16 is effective for fiscal periods beginning after December 15, 2018. The Company adopted this standard during the first quarter of 2019. Adoption of this standard did not have a material impact on the Company's financial position or results of operations.

In June 2018, the FASB issued ASU No. 2018-07, *Improvements to Nonemployee Share-based Payments ("ASU 2018-07").* ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning with the accounting for share-based payments to employees, with certain exceptions. Measurement of equity-classified nonemployee awards issued in exchange for goods or services used or consumed in an entity's own operations will be fixed at the grant date, which may lower the cost and reduce volatility in the income statement. Entities also may use the expected term to measure nonemployee options or elect to use the contractual term as the expected term, on an award-by-award basis. ASU 2018-07 is effective for the fiscal periods beginning after December 15, 2018. The Company adopted this standard during the first quarter of 2019. Adoption of this standard did not have a material impact on the Company's financial position or results of operations.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement ("ASU 2018-13"): Disclosure Framework—Changes to the Disclosure Requirement for Fair Value Measurement* ("ASU 2018-13") which amends the disclosure requirements for fair value measurements. The amendments in ASU 2018-13 are effective for fiscal years beginning after December 15, 2019, with early adoption permitted. The Company is currently evaluating the potential impact of ASU 2018-13, but does not expect that the adoption of this guidance will have a significant impact on the Company's financial position and results of operations.

In August 2018, the FASB issued ASU No. 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract* ("ASU 2018-15"). ASU 2018-15 requires a customer in a cloud computing arrangement that is a service contract to follow the internal-use software guidance in ASC 350-40, *Intangibles—Goodwill and Other—Internal Use Software* (ASC 350-40), to determine which implementation costs to capitalize as assets or expense as incurred. The internal-use software guidance in ASC 350-40 requires that certain costs incurred during the application development stage be capitalized and other costs incurred during the preliminary project and post-implementation stages be expensed as they are incurred. A customer's accounting for the hosting component of the arrangement is not affected by this guidance. The amendments in ASU 2018-15 are effective for fiscal years beginning after December 15, 2019, with early adoption permitted. The Company is currently evaluating the potential impact that the adoption of ASU 2018-15 may have on the Company's financial position on a prospective basis, but does not expect that the adoption of this guidance will have a significant impact on the Company's financial position and results of operations.

No other accounting standards known by the Company to be applicable to it that have been issued by the FASB or other standard-setting bodies and that do not require adoption until a future date are expected to have a material impact on the Company's consolidated and combined financial statements upon adoption.

3. Related Party Transactions

Relationship with Ironwood

Ironwood became a related party when Mark Currie, Ironwood's former Chief Scientific Officer and the Company's President, joined Ironwood's board in April 2019 following the Separation.

Prior to April 1, 2019, the Company was managed and operated in the normal course of business under Ironwood. Accordingly, certain shared costs were allocated to the Company and reflected as expenses in the Company's stand-alone combined financial statements. The expenses reflected in the combined financial statements may not be indicative of expenses that will be incurred by the Company in the future.

(a)Corporate costs

Ironwood incurred significant corporate costs for services provided to Cyclerion. These costs included expenses for information systems, accounting, other financial services (such as treasury, audit and purchasing), human resources, legal, facilities and Separation-related costs.

A portion of these costs benefited Cyclerion and have been allocated to Cyclerion using a pro-rata method based on project related costs, headcount, or other measures that management believes are consistent and reasonable. This methodology is applied consistently between periods, however the magnitude of the allocation will vary based on the relationship of Cyclerion costs compared to those of Ironwood's other operations.

The corporate costs allocated to Cyclerion, prior to the Separation, and included in the combined statements of operations were approximately $6.8 million for the three months ended March 31, 2019 and $18.3 million for the year ended December 31, 2018, and were included in general and administrative expenses for both periods.

(b)Cash Management and Financing

Cyclerion participated in Ironwood's centralized cash management and financing programs prior to the Separation. Disbursements were made through centralized accounts payable systems operated by Ironwood. Cash receipts were transferred to centralized accounts, also maintained by Ironwood. As cash is disbursed and received by Ironwood, it was accounted for by Cyclerion through net parent investment. All obligations were financed by Ironwood and financing decisions were determined by central Ironwood treasury operations until the Separation.

Other Transactions with Ironwood

As part of the Separation from Ironwood, the Company entered into Transition Services Agreements and a Development Agreement with Ironwood.

Under the Transition Services Agreements, the Company provides certain services to Ironwood, and Ironwood provides certain services to the Company, each related to corporate functions such as finance, procurement, facilities and development for a period of up to two years from the date of the Separation, unless earlier terminated or extended by mutual agreement. These services are charged to and from Ironwood and are recorded as part of operating expenses. The Company recorded a net charge to operating expenses of approximately $0.2 million for activities related to the transition services agreements for the nine months ended December 31, 2019.

Under the Development Agreement, the Company provides certain research and development services to Ironwood at mutually agreed upon rates and the amounts earned are recorded as revenue from related party. Such research and development activities are governed by a joint steering committee composed of representatives of both Ironwood and the Company. The Company recorded approximately $4.5 million in revenue from related party for services provided under the Development Agreement for the nine months ended December 31, 2019.

In accordance with the Separation Agreement, there were certain other transactions and adjustments post-Separation between the Company and Ironwood. The total amount due from Ironwood at December 31, 2019 was approximately $1.5 million, primarily from the Development Agreement, and is reflected as related party accounts receivable. The total amount due to Ironwood at December 31, 2019 was approximately $0.1 million. During the year ended December 31, 2019, Cyclerion paid Ironwood approximately $1.3 million associated with tenant improvement reimbursement provisions in accordance with the Separation Agreement.

Ironwood has obtained health insurance services for its employees, including employees of Ironwood who became employees of Cyclerion, from an insurance provider whose President and Chief Executive Officer became a member of Ironwood's board in April 2016. Prior to the Separation, expenses related to insurance premiums were allocated to Cyclerion using a pro-rata method based on internal project assignments and headcount, that management believes are consistent and reasonable. Insurance premiums allocated to Cyclerion prior to the Separation amounted to approximately $0.5 million for the year ended December 31, 2019 and $2.1 million for the period ended December 31, 2018, respectively, and is reflected in the Company's consolidated and combined statements of operations. Accordingly, the amounts presented are not necessarily indicative of future expense and do not necessarily reflect the results that Cyclerion would have experienced as an independent company for the periods presented.

Peter Hecht, Ironwood's former Chief Executive Officer and the Chief Executive Officer and board member of Cyclerion, donated 2.5 million of his shares of Ironwood common stock to American Endowment Foundation for the creation of a donor advised fund that divested these shares to invest $34.0 million in Cyclerion as part of the financing transaction completed by Cyclerion on April 2, 2019. Mark Currie has invested $4.0 million in Cyclerion as part of this financing. Dr. Currie and certain other investors have funded a portion of their investment through sales of Ironwood common stock.

Other Related Party Transactions

During the year ended December 31, 2019, the Company paid approximately $0.2 million to a related party which it engaged to provide research and development transaction support services. The entity became a related party when Mark Currie, the Company's President, joined its board in January 2020. There was a de minimis amount due to the related party at December 31, 2019. There were no amounts recorded in 2018.

4. Fair Value of Financial Instruments

The Company's cash equivalents are generally classified within Level 1 of the fair value hierarchy. The following tables presents information about the Company's financial assets measured at fair value on a recurring basis as of December 31, 2019 and indicate the level of the fair value hierarchy used to determine such fair values (in thousands):

	Fair Value Measurements as of December 31, 2019 Using:			
	Level 1	Level 2	Level 3	Total
Cash equivalents:				
Money market funds	$ 93,859	$ -	$ -	$ 93,859
Cash equivalents	$ 93,859	$ -	$ -	$ 93,859

The Company had no financial assets measured at fair value as of December 31, 2018.

5. Property and Equipment

Property and equipment, net consisted of the following (in thousands):

	December 31,	
	2019	2018
Laboratory equipment	$ 14,505	$ 17,753
Software	2,232	2,593
Construction in progress	915	741
Computer and office equipment	1,890	901
Leasehold improvements	13,673	-
Property and equipment, gross	33,215	21,988
Less: accumulated depreciation and amortization	(21,602)	(15,491)
Property and equipment, net	$ 11,613	$ 6,497

As of December 31, 2019, and 2018, the Company's property and equipment was primarily located in Cambridge, Massachusetts.

Depreciation and amortization expense of the Company's property and equipment was approximately $2.7 million and $1.5 million for the years ended December 31, 2019 and 2018, respectively. The Company had a disposal loss of $0.8 million of property and equipment, net for the year ended December 31, 2019, primarily related to leasehold improvements, recognized within operating expenses in the consolidated and combined statements of operations and comprehensive loss. Fixed asset purchases included in accounts payable and accrued expenses was approximately $0.8 million and $0.5 million at December 31, 2019 and 2018, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of the following (in thousands):

	December 31,	
	2019	2018
Accrued incentive compensation	$ 3,767	$ 4,889
Salaries	1,730	1,513
Accrued vacation	969	1,048
Professional fees	441	1,019
Accrued severance and benefit costs	2,009	565
Other	404	770
	$ 9,320	$ 9,804

7. Commitments and Contingencies

Other Funding Commitments

As of December 31, 2019 and 2018, the Company has several on-going studies in various clinical trial stages. The Company's most significant clinical trial expenditures are related to contract research organizations. These contracts are generally cancellable, with notice, at the Company's option and do not have any significant cancellation penalties.

Guarantees

On September 6, 2018, Cyclerion was incorporated in Massachusetts and its officers and directors are indemnified for certain events or occurrences while they are serving in such capacity. Prior to the Separation, the Company's officers and directors were similarly indemnified under Delaware law.

The Company enters into certain agreements with other parties in the ordinary course of business that contain indemnification provisions. These typically include agreements with directors and officers, business partners, contractors, clinical sites and customers. Under these provisions, the Company generally indemnifies and holds harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of the Company's activities. These indemnification provisions generally survive termination of the underlying agreements. The maximum potential amount of future payments the Company could be required to make under these indemnification provisions is unlimited. However, to date the Company has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As a result, the estimated fair value of these obligations is minimal. Accordingly, the Company did not have any liabilities recorded for these obligations as of December 31, 2019 or December 31, 2018.

8. Leases

The FASB issued ASU 2016-02, or the leasing standard or ASC 842, in February 2016. ASU 2016-02 requires lessees to recognize assets and liabilities on the balance sheet for the rights and obligations created by all leases with terms of more than 12 months. ASU 2016-02 also requires certain qualitative and quantitative disclosures designed to give financial statement users information on the amount, timing, and uncertainty of cash flows arising from leases.

On April 1, 2019, the Company entered into the Master Lease, a direct operating lease for its existing premises located at 301 Binney Street, Cambridge, MA consisting of approximately 114,000 rentable square feet of office and lab space on the first and second floors. The Master Lease is for a term of 123 months with two five-year extension options and certain expansion rights. The Master Lease includes a letter of credit of $7.7 million posted with the landlord as a security deposit, which is collateralized by a money market account recorded as restricted cash on the Company's consolidated balance sheet as of December 31, 2019. Cyclerion has also entered into customary non-disturbance arrangements with the building landlord's mortgagee and with the property ground lessor recognizing Cyclerion's leasehold interest in this property.

The Master Lease provides for annual base rent of approximately $11.0 million in the first year, which increases on a yearly basis by 3.0% (subject to an abatement of base rent of approximately $2.7 million in the first year of the lease). The Company is obligated to pay the landlord for certain costs, taxes and operating expenses related to the premises, subject to certain exclusions; however, the Company has concluded that these payments are not in-substance fixed payments and therefore are not included in the calculation of the related lease liability and asset under ASC 842. Additionally, the Company has made the policy election to adopt the practical expedient to not separate lease components from non-lease components for the right-to-use asset class of office and laboratory space. This policy election results in the Company accounting for the lease component, the use of the premises, and the non-lease components, which include a property management fee, as a single lease component.

The Company recorded the liability associated with the Master Lease at the present value of the lease payments not yet paid, discounted using the discount rate for the Master Lease established at the commencement date. As the Master Lease does not provide an implicit rate, the Company had to estimate the incremental borrowing rate, or IBR, as of the commencement date. The IBR is defined under ASC 842 as the rate of interest that the Company would have to pay to borrow on a collateralized basis over a similar term for an amount equal to the lease payments in a similar economic environment. The Company determined its IBR to be 10.9%, which was used to discount the remaining lease payments over the remaining lease term and recorded a lease liability of $71.3 million on April 1, 2019. This lease liability will be amortized over the remaining lease term in an amount equal to the difference between the cash rent paid and the monthly interest calculated on the remaining lease liability. As of December 31, 2019, the Company had a current lease liability of $3.4 million and a noncurrent lease liability of $70.5 million recorded in its consolidated balance sheets related to the Master Lease.

The Company has a tenant improvement allowance from the landlord of approximately $2.3 million for certain permitted costs related to the buildout of the premises. The Company is deemed to be the owner of these tenant improvements during the lease term. These $2.3 million of improvements are included in the Company's property, plant and equipment balances in its consolidated balance sheets as of December 31, 2019 and are depreciated over the shorter of their useful life or the related lease term. The Company received the payment for the tenant allowance in the third quarter of 2019.

On April 1, 2019, the Company recorded a right-of-use asset in the amount $71.3 million. The right-of-use asset is being amortized over the remaining lease term in an amount equal to the difference between the calculated straight-line expense of the total lease payments less the monthly interest calculated on the remaining lease liability. As of December 31, 2019, the Company had a long-term lease asset of $68.1 million recorded in its consolidated balance sheets related to the Master Lease.

Lease cost is recognized on a straight-line basis over the lease term. For the nine months ended December 31, 2019, the Company recognized a total of approximately $9.3 million of total lease costs. Variable lease costs not subject to an index or rate are recognized as incurred. For the nine months ended December 31, 2019, the Company recognized a total of approximately $1.8 million of variable lease costs related to the Master Lease.

Supplemental cash flow information related to leases for the periods reported is as follows:

	Year Ended December 31, 2019
Right-of-use assets obtained in exchange for new operating lease upon lease commencement (in thousands)	$ 71,266
Cash paid for amounts included in the measurement of lease liabilities (in thousands)	$ 3,288
Cash received for tenant improvements included in the measurement of lease liabilities (in thousands)	$ 2,289
Weighted-average remaining lease term of operating leases (in years)	9.5
Weighted-average discount rate of operating leases	10.9%

Future minimum lease payments under non-cancelable operating leases under ASC 842 as of December 31, 2019 are as follows (in thousands):

	Operating Lease Payments
2020	$ 11,212
2021	11,537
2022	11,872
2023	12,217
2024	12,573
2025 and thereafter	61,274
Total future minimum lease payments	120,685
Less: present value adjustment	46,765
Operating lease liabilities at December 31, 2019	73,920
Less: current portion of operating lease liabilities	3,420
Operating lease liabilities, net of current portion	$ 70,500

On March 31, 2019, the Company entered into a short-term sublease of approximately 24,000 rentable square feet with Ironwood to provide temporary working space for a portion of its workforce while the buildout of the Company's new premises was being completed. The sublease was for an initial one-month term with several one-month extension options. The Company subleased the space for approximately 1.5 months, vacating the space and terminating the sublease in mid-May 2019. The Company incurred approximately $0.2 million in rent expense related to the sublease, which is included in the total lease cost of $9.3 million, for the nine months ended December 31, 2019.

On October 18, 2019, the Company entered into an agreement with a third party to sublease 15,700 rentable square feet of its current lease premises under the Master Lease. The sublease will expire on June 30, 2029, unless earlier terminated in accordance with the sublease agreement, and has no extension options. The sublease provides for annual base rent of approximately $1.5 million in the first year, which increases on a yearly basis by 3.0% (subject to an abatement of base rent of approximately $0.7 million for the first six months of the sublease). The sublessee is responsible for its pro rata share of certain costs, taxes and operating expenses related to the subleased space, the consideration for which is variable and is based on the actual operating costs of the lessor. The variable consideration relates exclusively to nonlease components representing such services and will be recognized as incurred. The sublease includes an initial security deposit of $0.5 million, which was provided by the sublessee in the form of a letter of credit, and an additional security deposit of $0.4 million within nine months of the sublease commencement.

As part of the consideration for the sublease, the sublessee will provide licensed rooms within the sublease premises and licensed services to the Company over the sublease term free of charge. The licensed rooms have been excluded from the measurement of the sublease as control of the rooms reverts to the Company. The Company expects to receive the benefit of the licensed rooms and services beginning in late 2020. The Company estimated the fair value of the services to be approximately $4.2 million, which will be recorded on a gross basis as the services are received as a component of research and development costs in the consolidated and combined statements of operations and comprehensive loss.

The Company allocated the consideration in the sublease agreement between the lease and nonlease components based on their relative standalone prices. Gross sublease income of $0.4 million was recorded net of the related rent expense from the Master Lease. Net sublease income of approximately $0.1 million was recorded in interest and other income in the consolidated and combined statements of operations and comprehensive loss for the year ended December 31, 2019.

The total future minimum lease payments to be received under the sublease agreement as of December 31, 2019 are as follows:

	Total Sublease Payments
2020	$ 1,009
2021	1,636
2022	1,683
2023	1,733
2024	1,783
2025 and thereafter	8,693
Total future minimum lease payments	$ 16,537

At December 31, 2018, no leases were directly attributed to Cyclerion.

On February 28, 2020 we entered into an amendment to our Master Lease at 301 Binney Street in Cambridge, Massachusetts. The amendment provided for the partial termination of the Company's obligations with respect to a portion of the leased premises of approximately 40,000 rentable square feet. See Note 14, *Subsequent Events* for additional information.

9. Share-based Compensation Plans

Prior to the Separation, share-based compensation expense was allocated to Cyclerion using a combined specific identification and pro-rata method based on internal project related costs and headcount that management believed were consistent and reasonable.

In connection with the Separation, Cyclerion adopted its own share-based compensation plans. Specifically, Cyclerion adopted the 2019 Employee Stock Purchase Plan (“2019 ESPP”) and the 2019 Equity Incentive Plan (“2019 Equity Plan”). Under the 2019 ESPP, eligible employees may use payroll deductions to purchase shares of stock in offerings under the plan, and thereby acquire an interest in the future of the Company. Under the 2019 Equity Plan, new post-Separation awards, including stock options and restricted stock units (“RSUs”), may be granted to employees of the Company.

Cyclerion also mirrored two of Ironwood's existing plans, the Amended and Restated 2005 Stock Incentive Plan ("2005 Equity Plan") and the Amended and Restated 2010 Employee, Director and Consultant Equity Incentive Plan ("2010 Equity Plan). These mirror plans were adopted to facilitate the exchange of Ironwood equity awards for Cyclerion equity awards upon the Separation as part of the equity conversion. As a result of the Separation and in accordance with the EMA, employees of both companies retained their existing Ironwood vested options and received a pro-rata share of Cyclerion options, regardless of which company employed them post-Separation. For employees that were ultimately employed by Cyclerion, unvested Ironwood options and RSUs were converted to unvested Cyclerion options and RSUs.

The conversion of equity awards resulting from the Separation impacted approximately 143 employees and was treated as a Type 1 modification under ASC Topic 718, *Share Based Payments,* as the awards are expected to vest under the original terms. Incremental compensation expense was measured as the excess, if any, of the fair value of the modified award over the fair value of the original award immediately before its terms were modified. The fair value of RSUs and restricted stock awards was measured using the fair value stock price immediately before and immediately after the modification date which resulted in no incremental compensation expense. The fair value of stock options was measured using the Black-Scholes option pricing method using the appropriate valuation assumptions immediately before and immediately after the modification date. As a result of the modification, Cyclerion recognized a one-time incremental expense of approximately $0.3 million for the vested stock options and will recognize an incremental expense of approximately $7.5 million for the unvested stock options over their remaining vesting period.

The following table provides share-based compensation reflected in the Company's consolidated and combined statements of operations and comprehensive loss for the years ended December 31, 2019 and 2018 (in thousands):

	Years Ended December 31,	
	2019	**2018**
Research and development	$ 8,729	$ 7,093
General and administrative	10,901	5,340
	$ 19,630	$ 12,433

Stock Options

Stock options granted under the Company's equity plans generally have a ten-year term and vest over a period of four years, provided the individual continues to serve at the Company through the vesting dates. Options granted under all equity plans are exercisable at a price per share not less than the fair market value of the underlying common stock on the date of grant. The estimated fair value of options, including the effect of estimated forfeitures, is recognized over the requisite service period, which is typically the vesting period of each option.

A summary of stock option activity for the year ended December 31, 2019 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Average Intrinsic Value (in thousands)
Outstanding as of December 31, 2018	-	$ -	-	-
Aggregate impact of conversion related to spin-off	6,456,982	14.90	-	-
Granted	1,687,029	8.17	-	-
Exercised	(47,580)	8.22	-	-
Cancelled or forfeited	(692,795)	13.50	-	-
Outstanding as of December 31, 2019	7,403,636	$ 13.54	7.5	$ 531
Exercisable at December 31, 2019	2,896,077	$ 14.76	5.3	$ 11

During the year ended December 31, 2019 the Company granted stock options to purchase an aggregate of 1,687,029 shares, at weighted average grant date fair values per option share of $4.97. The total grant date fair value of options granted during the year ended December 31, 2019 was $8.4 million.

As of December 31, 2019, the unrecognized share-based compensation expense, net of estimated forfeitures, related to all unvested stock options held by Cyclerion's employees is $25.6 million and the weighted average period over which that expense is expected to be recognized is 2.9 years.

The weighted-average Black-Scholes assumptions used in estimating the fair value of the stock options granted by Cyclerion following the Separation during the year ended December 31, 2019 were as follows:

	Year Ended December 31, 2019
Weighted average risk-free interest rate	1.77%
Expected dividend yield	-
Expected option term (in years)	6.3
Expected stock price volatility	65.20%

For the year ended December 31, 2019, expected volatility was estimated using an average of the historical volatility of the common stock of a group of similar companies that were publicly traded. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

Performance-based Stock Options

The Company has granted to certain employees performance-based options to purchase shares of common stock. These options are subject to performance-based milestone vesting. During the year ended December 31, 2019 there were no shares that vested as a result of performance milestone achievements. The Company recorded no share-based compensation expense related to these performance-based options for the year ended December 31, 2019.

The Company also has granted to certain employees stock options containing market conditions that vest upon the achievement of specified price targets of the Company's share price for a period through December 31, 2024. Vesting is measured based upon the average closing price of the Company's share price for any thirty consecutive trading days, subject to certain service requirements. Stock compensation cost is expensed on a straight-line basis over the derived service period for each stock price target within the award, ranging from approximately 4.0 to 4.6 years. The Company accelerates expense when a stock price target is achieved prior to the derived service period. The Company does not reverse expense recognized if the share price target(s) are ultimately not achieved but expense is reversed when a stock award recipient has a break in service prior to the completion of the derived service period. For the year ended December 31, 2019, the Company recorded a de minimis amount of share-based compensation expense related to these stock options containing market conditions. As of December 31, 2019, there was $0.4 million of unrecognized compensation costs related to stock options containing market conditions, which is expected to be recognized over a weighted-average period of 4.3 years.

A summary of stock awards containing market conditions activity for the year ended December 31, 2019 is as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2018	-	$ -	-	$ -
Granted	675,000	2.01		
Exercised	-	-		
Cancelled or forfeited	-	-		
Outstanding as of December 31, 2019	675,000	$ 2.01	9.9	$ 479
Exercisable at December 31, 2019	-	$ -	-	$ -

The fair value of stock options containing market conditions is estimated using Monte Carlo simulations. The range of assumptions used to determine the fair value of these awards during the year ended December 31, 2019 were as follows:

	Year Ended December 31, 2019
Weighted average risk-free interest rate	1.76%
Expected dividend yield	-
Derived service period (in years)	4.0 - 4.6
Expected stock price volatility	65.91%

The Company granted 675,000 stock awards containing market conditions during 2019, all of which remain unvested and outstanding at December 31, 2019.

Restricted Stock Units

The RSUs generally vest 25% per year on the approximate anniversary of the date of grant until fully vested, provided the employee remains continuously employed with the Company through each vesting date. Shares of the Company's common stock are delivered to the employee upon vesting, subject to payment of applicable withholding taxes. The fair value of all RSUs is based on the market value of the Company's common stock on the date of grant. Compensation expense, including the effect of estimated forfeitures, is recognized over the applicable service period.

A summary of RSU activity for the year ended December 31, 2019 is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2018	-	$ -
Aggregate impact of conversion related to spin-off	932,469	15.55
Granted	133,705	11.76
Vested	(64,223)	15.72
Forfeited	(275,476)	15.54
Unvested as of December 31, 2019	726,475	$ 14.85

As of December 31, 2019, the unrecognized share-based compensation expense, net of estimated forfeitures, related to all unvested restricted stock units by the Company's employees is $6.5 million and the weighted-average period over which that expense is expected to be recognized is 2.7 years.

Restricted Stock Awards

Any of the Company's non-employee directors who served as non-employee directors of Ironwood received shares of the Company's unvested restricted stock in respect of any outstanding unvested awards of Ironwood restricted stock they held. Such restricted stock awards were subject to the vesting schedule set forth in the original Ironwood restricted stock award. On April 1, 2019, the Company made grants of its restricted stock to its non-employee directors who did not hold Ironwood restricted stock prior to the distribution. Such restricted stock awards have an equivalent value to the shares of the Company's restricted stock granted to its non-employee directors who held Ironwood restricted stock prior to the distribution, and have been pro-rated to reflect each non-employee director's period of service with the Company from the date of the distribution to the anticipated date of the first annual grant. These restricted stock awards fully vested on May 30, 2019.

A summary of the restricted stock for the year ended December 31, 2019 is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2018	-	$ -
Granted	21,942	14.81
Vested	(21,942)	14.81
Unvested as of December 31, 2019	-	$ -

10. Loss per share

Basic and diluted net loss per common share is computed by dividing net loss by the weighted average number of common shares outstanding during the period. Prior to April 1, 2019, there were no Cyclerion shares outstanding, as such, the shares outstanding immediately after the distribution and the private placement were used to calculate the basic and diluted net loss per share for all periods presented.

Basic and diluted earnings per share are calculated as follows:

	Year Ended December 31,	
	2019	2018
Numerator:		
Net loss (in thousands)	$ (123,008)	$ (115,252)
Denominator:		
Number of common shares used in net loss per share — basic and diluted (in thousands)	27,380	27,380
Net loss per share — basic and diluted	$ (4.49)	$ (4.21)

11. Income Taxes

Prior to the Separation, the Company operated as part of Ironwood and not as a stand-alone company. The consolidated and combined financial statements reflect Cyclerion's financial position, results of operations, and cash flows as if its business was operated as part of Ironwood prior to the Separation, in conformity with U.S. GAAP. Under this approach, the Company determines its current taxes, deferred tax assets and liabilities and related tax expense as if it were filing separate tax returns in each jurisdiction.

In general, Cyclerion has not recorded a provision for federal or state income taxes as it has had cumulative net operating losses since inception.

A reconciliation of income taxes computed using the U.S. federal statutory rate to that reflected in operations follows (in thousands):

	Year Ended December 31,	
	2019	2018
U.S.	$ (122,437)	$ (115,252)
International	31	-
Loss before benefit from income taxes	$ (122,406)	$ (115,252)
Income tax benefit using U.S. federal statutory rate	$ (25,705)	$ (24,203)
State income taxes, net of federal benefit	(7,548)	(7,301)
Non-deductible share based compensation	55	(111)
Share-based compensation - shortfalls/(windfalls)	273	(106)
Permanent differences	1,528	40
Tax credits	(4,875)	(4,888)
Separation related adjustments	9,800	-
Other	(6)	-
Change in valuation allowance	26,478	36,569
	$ -	$ -

The effective income tax rate is based upon the income for the year, the composition of the income in different countries, and adjustments, if any, for the potential tax consequences, benefits or resolutions of audits or other tax contingencies. Our income tax rate in foreign jurisdictions is lower than our income tax rate in the United States.

Deferred tax assets (liabilities) consist of the following as of December 31, 2019 and 2018 (in thousands):

	Year Ended December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	$ 17,228	$ 97,049
Tax credit carryforwards	3,733	15,529
Property and equipment	1,954	-
Share-based compensation	3,593	1,546
Operating lease - liability	20,195	-
Capitalized research and development costs	-	6,169
Accruals and reserves	1,561	1,639
Total deferred tax assets	$ 48,264	$ 121,932
Deferred tax liabilities:		
Operating lease - right of use asset	(18,615)	-
Property and equipment	-	(556)
Total deferred tax liabilities	(18,615)	(556)
Net deferred tax assets	29,649	121,376
Valuation allowance	(29,649)	(121,376)
Net deferred tax assets	-	-

For the year ended December 31, 2018, deferred assets and liabilities are a result of the separate return calculation presentation and may not represent deferred assets and liability balances after the Separation. Certain deferred items may not have existed due to utilization by the Ironwood group prior to the Separation or may hold no future value subsequent to the Separation due to the Company’s future jurisdictional income projections. Federal net operating losses and research and development credit carryforwards are examples of deferred items that have been previously utilized or will have no future value to the Company as the Separation did not result in the transfer of loss carryforwards or tax credit carryforwards to the Company.

Management of Cyclerion has evaluated the positive and negative evidence bearing upon the possible realization of its deferred tax assets. Management has considered the Company's history of operating losses, both in the separate return method and as a standalone entity, in addition to the expected timing of the reversal of existing temporary differences and concluded, in accordance with the applicable accounting standards, that it is more likely than not that the Company will not realize the benefit of its deferred tax assets. Accordingly, the net deferred tax assets have been fully reserved at December 31, 2019 and December 31, 2018. Management reevaluates the positive and negative evidence on a quarterly basis.

The valuation allowance increased by approximately $26.5 million during the year ended December 31, 2019 primarily due to an increase in net operating losses, tax credit carryforwards and deferred tax assets related to equity compensation.

Cyclerion did not generate net operating loss carryforwards or tax credit carryforwards available for its use until its inception and operation as a standalone legal entity. At December 31, 2019, Cyclerion has federal and state net operating loss carryforwards of approximately $63.1 million to offset future federal and state taxable income. The federal net operating losses were generated after January 1, 2018 and will be carried forward indefinitely as they do not expire. The state net operating losses expire beginning in 2039. Cyclerion also had tax credit carryforwards of approximately $3.8 million as of December 31, 2019 to offset future federal and state income taxes, which expire beginning in 2039.

The Company's ability to use its net operating loss carryforwards and tax credits to offset future taxable income could be subject to restrictions under Section 382 of the U.S. Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"). These potential restrictions may limit the future use of the operating loss carryforwards and tax credits if certain ownership changes described in the Internal Revenue Code occur. Changes in stock ownership may occur that would create these limitations on the Company's use of the operating loss carryforwards and tax credits. In such a situation, the Company may be required to pay income taxes, even though significant operating loss carryforwards and tax credits exist.

The Company has not as yet conducted a study of its research and development credit carry forwards. This study may result in an adjustment to the Company's research and development credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. A full valuation allowance has been provided against the Company's research and development credits, and if an adjustment is required, this adjustment would be offset by an adjustment to the valuation allowance. Thus, there would be no impact to the consolidated balance sheets or statements of operations if an adjustment were required.

Upon audit, taxing authorities may challenge all or part of an uncertain income tax position. While Cyclerion has no history of tax audits on a standalone basis, Ironwood has been audited by federal and state taxing authorities in the past. Cyclerion may be subject to tax audits by federal and state taxing authorities. Accordingly, Cyclerion regularly assesses the outcome of potential examinations in each of the taxing jurisdictions when determining the adequacy of the amount of unrecognized tax benefit recorded. Cyclerion had no unrecognized tax benefits as of December 31, 2019 and 2018. Cyclerion will recognize interest and penalties, if any, related to uncertain tax positions in income tax expense. As of December 31, 2019 and 2018, no interest or penalties have been accrued.

Cyclerion has not yet filed any tax returns. Therefore, there are no current statute of limitations for assessment by the Internal Revenue Service or state tax authorities on Cyclerion's tax returns. Additionally, there are currently no federal or state income tax audits in progress.

12. Defined Contribution Plan

Prior to the Separation, Ironwood maintained a defined contribution 401(k) Savings Plan in the form of a qualified 401(k) plan for the benefit of substantially all of its employees, which included Ironwood employees who became Cyclerion employees. Compensation expense related to the 401(k) match was allocated to Cyclerion using a pro-rata method based on project-related costs and headcount that management believes are consistent and reasonable.

Subsequent to the Separation, Cyclerion adopted a defined contribution 401(k) Savings Plan similar to the plan in place at Ironwood. The plan assets under the Ironwood defined contribution 401(k) Savings Plan were transferred to the Cyclerion plan. Subject to certain IRS limits, eligible employees may elect to contribute from 1% to 100% of their compensation. Cyclerion contributions to the plan are at the sole discretion of the board of directors. Currently, Cyclerion provides a matching contribution of 75% of the employee's contributions, up to $6,000 annually.

Included in compensation expense for employees that are directly attributable to Cyclerion is approximately $0.6 million and $0.4 million for years ended December 31, 2019 and 2018, respectively.

13. Workforce Reduction

On October 30, 2019, the Company began a reduction of its current workforce by approximately thirty (30) full-time employees in order to align its resources with its ongoing clinical and preclinical programs, innovation strategy and partnering efforts.

The Company estimates total costs related to the workforce reduction to be approximately $3.0 million. The workforce reduction was substantially completed during the year ended December 31, 2019, in which the Company recorded approximately $2.8 million of severance and benefits costs.

The following table summarizes the accrued liabilities activity recorded in connection with the reduction in workforce for the year ended December 31, 2019 (in thousands):

	Amounts accrued at December 31, 2018	Charges	Amount paid	Adjustments	Amounts accrued at December 31, 2019
October 2019 Workforce Reduction	$ -	$ 2,807	$ 798	$ -	$ 2,009
Total	$ -	$ 2,807	$ 798	$ -	$ 2,009

Ironwood Workforce Reduction

On June 27, 2018, as part of its plans to separate its sGC business from its commercial and gastrointestinal business, Ironwood initiated a reduction in its headquarters-based workforce by approximately 40 employees and substantially completed the reduction in its workforce during the year ending December 31, 2018.

On February 7, 2019, following further analysis of its strategy and core business needs, Ironwood commenced another reduction in its workforce by 35 employees, primarily based in its headquarters. Ironwood completed the reduction in its workforce during the first quarter of 2019. Even though employees expected to go to Cyclerion were excluded from the workforce reduction, certain charges associated with the reduction were allocated to Cyclerion.

Prior to the Separation, expenses related to these workforce reductions were allocated to Cyclerion using a pro rata method based on internal project assignments and headcount that management believes are consistent and reasonable. Pursuant to the terms of the Separation Agreement entered into between the Company and Ironwood on March 30, 2019, the accrued liability related to these workforce reductions remained with Ironwood.

The following table summarizes the accrued liabilities activity allocated to Cyclerion in connection with the Ironwood workforce reduction for the year ended December 31, 2019 (in thousands):

	Amounts Accrued at December 31, 2018	Charges	Amount Paid	Balance Assumed by Ironwood	Amounts Accrued at December 31, 2019
June 2018 Ironwood Reduction	$ 565	$ -	$ (268)	$ (297)	$ -
February 2019 Ironwood Reduction	-	580	(90)	$ (490)	-
Total	$ 565	$ 580	$ (358)	$ (787)	$ -

14. Subsequent Events

On February 28, 2020, the Company entered into an amendment to the Master Lease at 301 Binney Street in Cambridge, Massachusetts. The amendment provided for the partial termination of the Company's obligations with respect to a portion of the leased premises of approximately 40,000 rentable square feet. The Company will continue to lease approximately 74,000 rentable square feet under terms of the amended lease. The Company paid a termination fee of approximately $6.3 million upon execution of the lease amendment and reduced its remaining lease payments through June 2029 by approximately $41.9 million. As part of the lease amendment, the Company’s security deposit was reduced by approximately $2.7 million and as such, this amount is reflected as short-term restricted cash as a component of other current assets on the Company’s consolidated balance sheet as of December 31, 2019. The remaining impact on this lease modification will be reflected in the Company’s financial results for the year ending December 31, 2020.

Exhibit 4.1

DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934

General

The following description of our capital stock is intended as a summary only and is qualified in its entirety by reference to our articles of organization and bylaws, the Annual Report on Form 10-K to which this description is an exhibit, any and all of which may be amended from time to time, and to the applicable provisions of the Massachusetts Business Corporation Act ("MBCA").

Our authorized capital stock consists of 400,000,000 shares of our common stock and 100,000,000 shares of our preferred stock, all of which preferred stock is undesignated. As of March 5, 2020, there were 27,754,894 shares of common stock outstanding and no shares of preferred stock outstanding.

Common Stock

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding, holders of outstanding shares of common stock are entitled to receive dividends out of assets legally available at the times and in the amounts as our board of directors may from time to time determine.

Voting Rights

Each outstanding share of common stock is entitled to one vote on all matters submitted to a vote of shareholders. Holders of shares of our common stock have no cumulative voting rights.

Preemptive Rights.

Our common stock is not entitled to preemptive or other similar subscription rights to purchase any of our securities.

Conversion or Redemption Rights

Our common stock is neither convertible nor redeemable.

Liquidation Rights

Upon our liquidation, the holders of our common stock will be entitled to receive pro rata our assets which are legally available for distribution, after payment of all debts and other liabilities and subject to the prior rights of any holders of preferred stock then outstanding.

Listing

Our common stock is listed on the Nasdaq Global Select Market under the trading symbol "CYCN."

Anti-takeover Effects of Our Articles of Organization and Our Bylaws

Our articles of organization and bylaws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors but which may have the effect of delaying, deferring or preventing a future takeover or change in control of us unless such takeover or change in control is approved by our board of directors. These provisions include:

Action by Written Consent and Special Meetings of Shareholders

Our articles of organization provide that shareholder action can be taken only at an annual or special meeting of shareholders or by the unanimous written consent of all shareholders in lieu of such a meeting. Our articles of organization and the bylaws also provide that, except as otherwise required by law, special meetings of the shareholders can only be called pursuant to a resolution adopted by a majority of our board of directors or holders of at least 40% of our then outstanding common stock. Except as described above, shareholders are not permitted to call a special meeting or to require our board of directors to call a special meeting.

Advance Notice Procedures

Our bylaws contain an advance notice procedure for shareholder proposals to be brought before an annual meeting of our shareholders, including proposed nominations of persons for election to the board of directors. Shareholders at an annual meeting will only be able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors or by a shareholder who was a shareholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the shareholder's intention to bring that business before the meeting. Although our bylaws do not give our board of directors the power to approve or disapprove shareholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, the bylaws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of us.

Proxy Access

Our bylaws provide that a shareholder or a group of shareholders meeting certain conditions may nominate candidates for election as a director at an annual meeting of our shareholders using "proxy access" provisions. These provisions allow one or more shareholders (up to 20, collectively), owning at least 3% of our outstanding common stock continuously for at least three years, to nominate for election to our board of directors and to be included in our proxy materials up to the greater of two individuals or 20% of our board of directors, subject to the provisions included in our bylaws, including the provision of timely written notice to our Secretary.

Number of Directors and Filling Vacancies and Election of Directors

Our articles of organization provide that the number of directors is established by the board of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office. The ability of our board of directors to increase the number of directors and fill any vacancies may make it more difficult for our shareholders to change the composition of our board of directors. Our bylaws provide that a majority of the votes properly cast for the election of a director shall effect such election unless there are more nominees than directorships, in which case a plurality standard shall apply.

Authorized and Unissued Shares

Our authorized but unissued shares of common stock and preferred stock are available for future issuance without shareholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Exclusive Forum.

Our articles of organization require, to the fullest extent permitted by law, that derivative actions brought in the name of Cyclerion, actions against our directors, officers and employees for breach of a fiduciary duty and other similar actions may be brought only in specified courts in the Commonwealth of Massachusetts. Although we believe this provision benefits us by providing increased consistency in the application of Massachusetts law in the types of lawsuits to which it applies, the provision may have the effect of discouraging lawsuits against our directors and officers.

Anti-Takeover Provisions under Massachusetts Law

Provisions Regarding Business Combinations

We are subject to the provisions of Chapter 110F of the MBCA. In general, Chapter 110F prohibits a publicly held Massachusetts corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, five percent or more of the corporation's voting stock.

Under Chapter 110F, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions: before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder; upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 90% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or at or after the time the stockholder became interested, the business combination was approved by our board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Massachusetts corporation may "opt out" of these provisions with an express provision in its original articles of organization or an express provision in its articles of organization or bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Provisions Regarding a Classified Board of Directors

Section 8.06(b) of the MBCA provides that, unless a company opts out of such provision, the terms of directors of a public Massachusetts company shall be staggered by dividing the directors into three groups, as nearly equal in number as possible, with only one group of directors being elected each year. We plan to opt out of this default requirement for a classified board of directors, and expect that all of our directors serve for one-year terms and will be elected annually.

Pursuant to Section 8.06(c)(2) of the MBCA, however, our board of directors may unilaterally opt back into default requirements under Section 8.06(b) of the MBCA and become a classified board of directors without the approval of our stockholders. Sections 8.06(d) and (e) of the MBCA provide that when a board of directors is so classified, (i) stockholders may remove directors only for cause, (ii) the number of directors shall be fixed only by the vote of the board of directors, (iii) vacancies and newly created directorships shall be filled solely by the affirmative vote of a majority of the remaining directors and (iv) a decrease in the number of directors will not shorten the term of any incumbent director. If our board of directors opts into this classified structure in the future, these provisions are likely to increase the time required for stockholders to change the composition of our board of directors. For example, at least two annual meetings would generally be necessary for stockholders to effect a change in a majority of the members of our board of directors. As a result, the ability of our board of directors to adopt a classified structure in the future without the approval of our stockholders could have the effect of discouraging a potential acquirer from making a tender offer for a majority of the outstanding voting interest of our capital stock or otherwise attempting to obtain control of Cyclerion.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Indemnification of Directors and Officers

Our articles of organization provide that the liability of our directors for damages for any breach of fiduciary duty shall be limited to the fullest extent permitted by law. Our bylaws also provide that we will indemnify, and advance funds to and reimburse expenses of, our directors and officers that have been appointed by our board of directors to the fullest extent permitted by law, and that we may indemnify, and advance funds to and reimburse expenses of, such other officers and employees as determined by our board of directors. The right of indemnification provided under our bylaws is in addition to and not exclusive of any other rights to which any of our directors, officers or any other persons may otherwise be lawfully entitled. We have also entered, or expect to enter, into indemnification agreements with our directors and officers, and we carry insurance policies insuring our directors and officers against certain liabilities that they may incur in their capacity as directors and officers.

Part 8 of the MBCA authorizes the provisions, described above, that is contained in our articles of organization and bylaws. In addition, Sections 8.30 and 8.42 of the MBCA provide that if an officer or director discharges his or her duties in good faith and with the care that a person in a like position would reasonably exercise under similar circumstances and in a manner the officer or director reasonably believes to be in the best interests of the corporation, he or she will not be liable for such action.

Exhibit 21.1

List of Registrant's Subsidiaries

Cyclerion Securities Corporation, incorporated in Massachusetts, a wholly owned subsidiary.

Cyclerion GmbH, incorporated in Switzerland, a wholly owned subsidiary.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 333-230615) pertaining to 2019 Equity Incentive Plan, 2019 Employee Stock Purchase Plan, Amended and Restated 2010 Employee, Director and Consultant Equity Incentive Plan, and Amended and Restated 2005 Stock Incentive Plan of Cyclerion Therapeutics, Inc. of our report dated March 12, 2020, with respect to the consolidated financial statements of Cyclerion Therapeutics, Inc included in this Annual Report (Form 10-K) for the year ended December 31, 2019.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 12, 2020

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Peter M. Hecht, certify that:

1. I have reviewed this annual report on Form 10-K of Cyclerion Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 12, 2020

By: /s/ Peter M. Hecht
Name: Peter M. Hecht
Title: Chief Executive Officer (Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, William Huyett, certify that:

1. I have reviewed this annual report on Form 10-K of Cyclerion Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 12, 2020

By: /s/ William Huyett
Name: William Huyett
Title: Chief Financial Officer (Principal Financial And Accounting Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Peter M. Hecht, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Annual Report on Form 10-K of Cyclerion Therapeutics, Inc. for the period ended December 31, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and the information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Cyclerion Therapeutics, Inc.

Date: March 12, 2020

By: /s/ Peter M. Hecht
Name: Peter M. Hecht
Title: Chief Executive Officer (Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, William Huyett, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Annual Report on Form 10-K of Cyclerion Therapeutics, Inc. for the period ended December 31, 2019 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and the information contained in such Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Cyclerion Therapeutics, Inc.

Date: March 12, 2020

By: /s/ William Huyett
Name: William Huyett
Title: Chief Financial Officer (Principal Financial and Accounting Officer)