

Pliant Therapeutics, Inc.

COMMON STOCK VALUATION

AS OF March 31, 2019

*Report Date: May 10, 2019*



The information contained in this Report is confidential in nature and is intended for the exclusive use   
of the addressee. Any reproduction, publication or dissemination of any portion of this Report without the express written consent of RNA Capital Advisors is forbidden.

May 10, 2019

Keith Cummings, MD

Chief Financial Officer

Pliant Therapeutics, Inc.

260 Littlefield Avenue,

South San Francisco, CA 94080

Dear Dr. Cummings:

In response to the engagement letter, RNA Advisors, LLC dba RNA Capital Advisors (“RNA” or “we”) has completed an analysis of Pliant Therapeutics, Inc. (“Pliant Therapeutics” or the “Company”) as of March 31, 2019 (the “Valuation Date”), to determine both the fair market value and the fair value of the Company’s common stock (“Common Stock”) on a non-marketable, minority interest basis.

Please note that this letter along with the following report (the “Report”), exhibits (individually an “Exhibit” and collectively the “Exhibits”) and their conclusions (jointly, the “Valuation” or the “Opinion”) are intended for the use of the management and Board of Directors of the Company (“Management”). This analysis has been performed in recognition of Internal Revenue Code Section 409A (“IRC 409A”) and FASB Accounting Standards Codification Topic 718 – Stock Compensation (“ASC 718”) (formerly known as Statement of Financial Accounting Standards No. 123R, Accounting for Share-Based Payment (“FAS 123R”)). We make no representation as to the accuracy of this Valuation if it is used for any other purpose without the written consent of RNA. This Opinion should not be considered, in whole or in part, as investment advice by anyone. This valuation engagement was conducted in accordance with the Statement of Standards for Valuation Services No. 1 of the American Institute of Certified Public Accountants (“AICPA”).

This analysis uses the methods and techniques outlined in the AICPA Audit and Accounting Practice Aid entitled Valuation of Privately-Held-Company Equity Securities Issued as Compensation, second edition (the “Practice Aid”), which are relevant to the valuation of the Common Stock.

The definition of fair market value is predicated on IRS Revenue Ruling 59-60.

This cover letter provides an overview of the purpose and scope of the analysis and its conclusions. Please refer to the attached Report below for a discussion and presentation of the analysis performed in connection with this engagement.

SUMMARY OF FINDINGS:

Based upon the information and financial data provided, and representations made by Management, as well as the analyses performed, it is our opinion that the fair market value and the fair value of the Common Stock on a non-marketable, minority interest basis as of the Valuation Date is reasonably stated as follows:

$0.87 (EIGHTY-SEVEN CENTS) per Share

The conclusions and opinions expressed in this letter and the accompanying Report are contingent upon the qualifying factors set forth in the Statement of Limiting Conditions and throughout the completed Report.

If you have any questions concerning this Report, please contact me at 925.940.0220.

Sincerely,

**RNA Capital Advisors**

*DRAFT*

Sam Renwick, CFA

*Primary Valuation Analyst*

Table of Contents

[Engagement Overview 5](#_Toc7800708)

[Purpose 5](#_Toc7800709)

[Scope 5](#_Toc7800710)

[Key Definitions 6](#_Toc7800711)

[Standard of Value 8](#_Toc7800712)

[Definition of Fair Market Value 8](#_Toc7800713)

[Definition of Fair Value 8](#_Toc7800714)

[Company Overview 9](#_Toc7800715)

[Background 9](#_Toc7800716)

[Product Pipeline 9](#_Toc7800717)

[Recent Developments 11](#_Toc7800718)

[Intellectual Property 11](#_Toc7800719)

[Management Team 12](#_Toc7800720)

[Capitalization and Ownership 15](#_Toc7800721)

[Future Financing 16](#_Toc7800722)

[Stage of Development 16](#_Toc7800723)

[Industry Overview 18](#_Toc7800724)

[Overview 18](#_Toc7800725)

[Valuation Methodology Overview 20](#_Toc7800726)

[Business Enterprise Valuation Theory 20](#_Toc7800727)

[Allocation Methodology Theory 21](#_Toc7800728)

[Valuation Analysis 25](#_Toc7800729)

[Selected Valuation Approaches 25](#_Toc7800730)

[Allocation Analysis 30](#_Toc7800731)

[Discounts and Premiums 34](#_Toc7800732)

[Conclusion 37](#_Toc7800733)

[Statement of Limiting Conditions 38](#_Toc7800734)

[Qualifications 39](#_Toc7800735)

[Samuel Renwick, CFA 39](#_Toc7800736)

[Certification 41](#_Toc7800737)

[Exhibits 42](#_Toc7800738)

Engagement Overview

Purpose

RNA has completed an analysis of the Company as of the Valuation Date to determine both the fair market value and the fair value of the Common Stock on a non-marketable, minority interest basis. This analysis has been performed in recognition of IRC 409A and ACS 718. This analysis uses the methods and techniques outlined in the Practice Aid, which are relevant to the valuation of the Common Stock. The definition of fair market value is predicated on IRS Revenue Ruling 59-60.

Scope

RNA has based this Opinion on information provided and represented by Management. Our review and analysis included, but was not necessarily limited to, the following steps:

1. Reviewed the Previous Valuation report (defined below);
2. Discussed the expected operations, financial condition, and future prospects with Management in order to understand the performance of the Company;
3. Reviewed the Company’s financial statements for the years ended December 31, 2016 to December 31, 2018, and through the Valuation Date;
4. Reviewed consolidated forecasts and projections prepared by Management for the Company;
5. Reviewed a capitalization summary of the Company as prepared by Management;
6. Reviewed a copy of the Company's Articles of Incorporation;
7. Reviewed copies of certain documents pertaining to various securities underlying the Company's capital structure, such as preferred and common stock;
8. Reviewed certain publicly available financial data for companies that we deemed comparable to the Company;
9. Conducted research concerning the economic conditions and outlook for the US economy generally as of the Valuation Date; and
10. Conducted other studies, analyses, and inquiries, as we deemed appropriate.

RNA did not independently verify the information provided; therefore, the validity of our Opinion depends on the completeness and accuracy of the information provided to RNA by Management. Management warranted to RNA that the information supplied was complete and accurate to the best of its knowledge. Information furnished by the Company and others, upon which all or portions of our Opinion are based, is believed to be reliable and we have assumed that all facts and circumstances that would significantly affect the results of the Valuation have been disclosed to us. However, RNA provides no warranty as to the accuracy of such information. Our fee for this service is not contingent upon the Valuation expressed herein.

Key Definitions

The terms “αVβ1” and “αVβ6”, as used herein, refer to different types of integrin inhibitors being developed by the Company.

The term “CAGR”, as used herein, refers to the compound annual growth rate.

The term “CCl4”, as used herein, refers to carbon tetrachloride.

The term “DCF”, as used herein, refers to discounted cash flow method.

The term “DLOM”, as used herein, refers to discount for lack of marketability.

The term “DMD”, as used herein, refers to Duchenne muscular dystrophy.

The term “EMT”, as used herein, refers to the epithelial-to-mesenchymal transition.

The term “FDA”, as used herein, refers to the US Food and Drug Administration.

The term “IND”, as used herein, refers to an investigational new drug (usually in the context of a filing).

The term “IPF”, as used herein, refers to idiopathic pulmonary fibrosis.

The term “IP”, as used herein, refers to intellectual property.

The term “IPO”, as used herein, refers to an initial public offering.

The term “LAMEA”, as used herein, refers to countries like Latin America, Middle East and Africa collectively.

The term “M&A”, as used herein, refers to mergers and acquisitions.

The term “NASH”, as used herein, refers to non-alcoholic steatohepatitis.

The term “ob”, as used herein, refers to obese mouse.

The term “PCT”, as used herein, refers to patent cooperation treaty.

The term “PSC”, as used herein, refers to primary sclerosing cholangitis.

The term “Previous Valuation”, as used herein, refers to the valuation of Common Stock performed by RNA as of January 31, 2019.

The term “R&D”, as used herein, refers to research and development.

The term “rNPV”, as used herein, refers to risk-adjusted net present value.

The term “TGF-β”, as used herein, refers to transforming growth factor beta.

The term “UC”, as used herein, refers to the University of California.

The term “US”, as used herein, refers to the United States of America and its major territories.

The term “USD”, as used herein, refers to US Dollars. Unless otherwise noted, all currency figures in this Opinion are expressed in USD.

Standard of Value

Definition of Fair Market Value

For tax purposes, the appropriate standard of value is fair market value, which is defined as:

“The price, expressed in terms of cash equivalents, at which such property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arms’ length in an open and unrestricted market, when neither is under compulsion to buy or to sell, and when both have reasonable knowledge of relevant facts.”[[1]](#footnote-2)

Definition of Fair Value

For financial reporting purposes, the appropriate standard of value is fair value, which is defined as:

“The amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.”[[2]](#footnote-3)

According to the May 7, 2003, FASB Board meeting, the above definition of fair value may be consistent with the definition of fair market value in Internal Revenue Ruling 59-60. RNA is not aware of any facts that would cause a difference in the conclusions on a fair market value basis compared with fair value. As such, it is not unreasonable that the conclusion of fair value for financial reporting purposes ought to be consistent with fair market value for tax reporting purposes.

Company Overview

Background

The Company is a clinical-stage biotechnology company focused on discovering, developing and commercializing treatments for fibrotic diseases by harnessing the therapeutic potential of integrin biology and TGF-β modulation. The Company leverages its product discovery engine to develop novel therapeutics to halt and treat fibrotic diseases, eventually preserving organ functions. It leverages its expertise in TGF-β1 signaling and integrin biology, medicinal chemistry, translational screening technologies, and clinical insights to create tissue-specific inhibitors of fibrotic diseases. The Company is targeting fibrosis in a variety of organs and conditions.

The Company was founded by researchers from UC, San Francisco, with experience in fibrosis biology and small molecule chemistry.[[3]](#footnote-4)

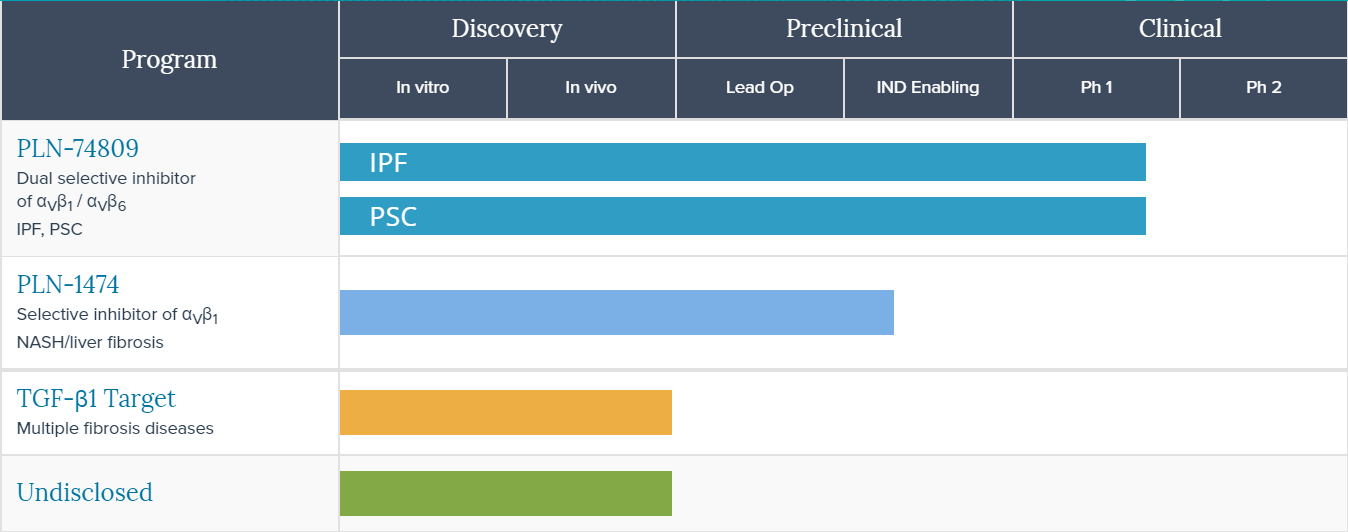
Product Pipeline

The Company combines its expertise in TGF-β1 signaling and integrin biology, medicinal chemistry, translational screening technology, and clinical insight to develop tissue-specific inhibitors of fibrotic diseases. Its product engine addresses patient needs by targeting fibrosis in a variety of organs and conditions, including lung (IPF), liver (NASH, cirrhosis, and PSC), kidney (renal fibrosis), skin (scleroderma), heart (cardiac fibrosis) and the gastrointestinal tract (stricturing Crohn’s disease).[[4]](#footnote-5)

The Company’s approach combines drug discovery and translational medicine with an understanding of the disease process. It examines pathological fibrotic human tissue to inform target selection and provide biological evidence for the indications. It uses fresh human fibrotic disease tissue to test compounds for antifibrotic activity. This differentiated approach de-risks clinical testing and fuels its discovery engine, which can generate at least one novel clinical drug candidate per year.[[5]](#footnote-6)

The Company has a library of more than 4,000 compounds targeting multiple integrins, developed using its integrin chemistry and screening platform. As of the Valuation Date, the Company has two lead programs targeting fibrotic indications in multiple organs:

1. **PLN-74809:** It is the Company’s lead program (the “Lead Program”) targeting IPF and PSC indication, currently being evaluated in Phase Ib clinical trials.[[6]](#footnote-7) PLN-74809 is a small-molecule, dual selective inhibitor of αVβ1/αVβ6 for IPF and PSC. These integrins cause upstream activation of TGF-β1 in actively fibrotic tissue. Inhibition of these integrins will block TGF-β1 activation, thereby preventing the growth of fibrotic tissue within the lung and bile ducts.[[7]](#footnote-8) As of the Valuation Date, the Company completed Phase I studies, confirming a favorable pharmacokinetic profile and initial findings. The Company also completed biological proof-of-concept study and biological mechanisms on monkey models. Based on the preliminary results, the Company plans to start Phase IIa study on human models in mid-June 2019;[[8]](#footnote-10)
2. **PLN-1474:** It is the second lead program (“Second Lead Program”) of the Company, a selective inhibitor of αVβ1 targeting NASH and liver fibrosis. [[9]](#footnote-11) On January 10, 2019, day 3 of JP Morgan Healthcare Conference, the Company announced preliminary results from its ongoing pre-IND enabling studies for PLN-1474. The Company reported efficacy in animal models of NASH-fibrosis and confirmed potent antifibrotic effects established in human NASH-F4 liver fibrosis tissue. Relative to the Previous Valuation, the Company did not find any reliable toxicology data, is repeating its mouse studies, expected to get results by the end of April 2019. The Company plans to complete its IND filing for PLN-1474 in the third quarter of 2019. The Company also plans to license the Second Program to raise additional capital;[[10]](#footnote-12)
3. **Other Programs:** The Company is also developing small molecules to selectively target transcriptional regulation of EMT, a process that is induced by TGF-β1. The Company aims to target multiple fibrotic diseases through novel mechanisms, by selectively targeting EMT;[[11]](#footnote-13)
4. **Undisclosed Pipeline:** The Company has additional programs in IPF leveraging a tissue-specific approach to modulating TGF-β1 activation. The Company noted that epithelial cells and fibroblasts have emerged as principal players in fibrosis pathophysiology. The Company’s animal models confirm that targeted TGF-β1 activation in epithelial cells may have therapeutic applications.[[12]](#footnote-14)

*Figure 1: Product Pipeline and Development Timeline*

Recent Developments

1. On March 28, 2019, the Company presented in vivo data highlighting PLN-1474 for fibrotic liver diseases in an oral presentation at The International Liver Congress™ 2019 hosted by the European Association for the Study of the Liver (“EASL”). The Company reported a prominent role of αvβ1 in TGF-β activation in liver fibrosis. The results from the preclinical studies demonstrate a significant reduction in SMAD3[[13]](#footnote-22) ( phosphorylation (a marker of TGF-β activation), fibrotic gene expression and liver collagen content. ;[[14]](#footnote-23)
2. On March 14, 2019, the Company appointed Mr. Smital Shah, to its board of directors as an independent director;[[15]](#footnote-24)

Intellectual Property

A summary of the Company’s IP portfolio for αVβ1 andαVβ6 is presented below[[16]](#footnote-25):

1. The patent titled “N-Acyl Amino acid compounds and methods of use”, application number 15/698435, filed on September 7, 2017;[[17]](#footnote-26)
2. Pending PCT application titled “Anti-αVβ1 Integrin Compounds and Methods” for worldwide rights, exclusively licensed for therapeutic and prophylactic use in humans and animals;
3. Pending PCT application titled “Anti-αVβ1 Integrin Inhibitors and Methods of Use” for worldwide rights, exclusively licensed for therapeutic and prophylactic use in humans and animals;
4. Provisional application pending, titled “N-Acyl Amino Acid Compounds and Methods of Use” for worldwide rights, exclusively owned in all fields; and
5. A provisional application under preparation, titled “Anti-αVβ6 Integrin Compounds and Methods” for worldwide rights, exclusively owned in all fields.

In addition to the above, the Company owns the domain name “pliantrx.com” and has filed for a trademark with the United States Patent Trademark Office, for “Pliant Therapeutics”.

Management Team[[18]](#footnote-27)

Key members of the Management team are:

**Bernard Coulie, M.D., Ph.D. –*Chief Executive Officer (“CEO”), President and Director[[19]](#footnote-28)***

Dr. Coulie has more than 15 years of senior leadership experience and drug development expertise. He joined the Company from ActoGeniX Therapeutics (“ActoGeniX”, acquired by Intrexon Corporation in February 2015), where he was CEO, CMO, and co-Founder. In these positions, Dr. Coulie played an integral role in advancing the ActoGeniX’s unique technology platform for oral delivery of biologics from the early discovery stage through Phase II clinical trials. Prior to ActoGeniX, Dr. Coulie held various positions with increasing responsibilities in drug discovery and clinical development at Johnson & Johnson (“J&J”) Pharmaceutical Research and Development Europe. At J&J, he served as Therapeutic Area Leader Internal Medicine, managing a portfolio of products in gastrointestinal, metabolic diseases and inflammation/immunology, ranging from early drug discovery through Phase II clinical trials. Dr. Coulie was a Staff Physician in the Department of Gastroenterology and Hepatology at Mayo Clinic (Rochester, State of Minnesota), Assistant Professor in Medicine at Mayo Medical School and a Mayo Foundation scholar.

Dr. Coulie holds an M.D. and a Ph.D. from the University of Leuven, Belgium. He is a board-certified internist and he holds a Master of Business Administration (“M.B.A.”) from the Vlerick Management School, Leuven, Belgium.

**Éric Lefebvre, M.D. – *CMO[[20]](#footnote-29)***

Dr. Lefebvre is responsible for leading the Company’s Clinical Development Strategy and Clinical Operations for its portfolio of product candidates. Prior to joining the Company, Dr. Lefebvre was Head of Clinical R&D for NASH at Allergan plc (“Allergan”), where he advanced cenicriviroc for the treatment of patients with NASH into Phase III clinical trials. Previously, he was CMO at Tobira Therapeutics, Inc., whose focus was the development and commercialization of therapies to treat liver disease, inflammation, fibrosis and human immunodeficiency virus (“HIV”), prior to the it being acquired by Allergan in 2016. Dr. Lefebvre also led Global Clinical Development, Global Medical Affairs and commercialization of novel treatments for HIV and hepatitis C at Janssen Pharmaceuticals, Inc. for 10 years prior to starting his pharmaceutical career at GlaxoSmithKline plc (“GSK”). This was preceded by 15 years of providing primary care and conducting clinical research in HIV and hepatitis at Clinique Medicale L’Actuel in Canada.

Dr. Lefebvre earned a Bachelor of Science (“B.S.”) from Edouard-Montpetit College and an M.D. from the University of Montreal.

**Eduard Gorina, M.D. –*VP of Clinical Development[[21]](#footnote-30)***

Dr. Gorina joined the Company in 2018, as the VP of clinical development. Wherein he is responsible for overseeing the execution of the Company’s clinical trials in multiple fibrotic diseases. Prior to the Company, he served as an executive director of clinical development at FibroGen, where he managed early and late-stage clinical programs for fibrotic diseases including IPF and DMD. Dr. Gorina also held senior director roles in clinical science at InterMune, where he played a key role in the development and filing of the NDA for the first therapy approved for patients with IPF (ESBRIET®, pirfenidone marketed by Roche), and at Portola Pharmaceuticals, where he was the clinical lead for the first-in-human study of a tyrosine kinase inhibitor. He started his pharmaceutical industry career at Bayer Biologicals, where he was a global clinical leader for coagulation products, and later clinical project leader at Bayer Healthcare.

Dr. Gorina earned his master’s in bioengineering from the Universitat Politècnica de Catalunya, his medical license from the Universitat Autònoma de Barcelona, and his training in clinical pharmacology at the pharmacology unit of Hospital Sant Pau in Barcelona.

**Katerina Leftheris, Ph.D. –*VP of Chemistry[[22]](#footnote-31)***

Dr. Leftheris has over 20 years of small molecule drug discovery and development experience, primarily in immunology, oncology, metabolic disease, and neurodegeneration. Previously, Dr. Leftheris was site-head of Discovery Chemistry for Celgene Corporation (“Celgene”), San Diego, where she led the Chemistry team in advancing five novel clinical candidates in immunology and oncology. Prior to joining Celgene, Dr. Leftheris was the Senior Director of Vitae Pharmaceuticals, Inc. where she expanded the Chemistry team and led several small molecule programs in the metabolic disease area. Dr. Leftheris held positions of increasing responsibility in Discovery Chemistry at Bristol-Myers Squibb Company (“BMS”) and has over 110 publications and issued patents.

Dr. Leftheris received her Bachelor of Arts (“B.A.”) degree in Chemistry from Smith College, Ph.D. in Organic Chemistry from the UC, San Diego and completed postdoctoral studies at the University of Pennsylvania.

**Hans Hull, J.D. – *Chief Business Officer[[23]](#footnote-32)***

Mr. Hull is an accomplished biotechnology executive who has more than 15 years of experience in corporate development, legal and operational roles. Mr. Hull was previously the interim CEO of Avalanche Biotechnologies, Inc. (“Avalanche”), after serving as a Senior VP of Business Operations. During his tenure at Avalanche, he closed multiple transactions including an eight-product, $640.0 million collaboration with Regeneron Pharmaceuticals, Inc. and helped raise more than $300.0 million in private and public equity financing. Prior to Avalanche, Mr. Hull was the CEO of Orthobond Corp., following an earlier career as an IP Attorney at Heller Ehrman LLP and a Life Science Consultant at ZS Associates, Inc.

**Keith Cummings, M.D., M.B.A. – CFO*[[24]](#footnote-33)***

Dr. Cummings has an experience of 15 years in healthcare and financial services. Dr. Cummings joined the Company in December 2018 from Citigroup Global Markets where he served as a Director in the Investment Banking Healthcare Group focusing on West Coast small- and mid-cap life sciences companies. At Citigroup Global Markets, he specialized in public and private capital raising as well as M&A and executed a broad range of transactions for many of the leading life sciences companies on the West Coast. Prior to Citigroup, he worked in the Investment Banking Division at Lehman Brothers and Barclays in New York.

Dr. Cummings holds an M.D. from the Duke University School of Medicine, where he performed research in healthcare economics. He also holds an M.B.A. from the Fuqua School of Business.

**Scott Turner, Ph.D. – *VP of Translational Sciences[[25]](#footnote-34)***

Dr. Turner is a leader in the field of stable isotope R&D of novel tools for drug discovery and development. Prior to joining the Company, Dr. Turner was the VP of R&D at KineMed, Inc. where he led the technology development and biomarker discovery efforts in fibrosis, atherosclerosis, and metabolic disease. He has co-authored more than 50 publications and holds several patents in the areas of metabolic fluxes and stable isotopes methods. Dr. Turner has been awarded 3 National Institutes of Health (“NIH”) grants to fund his research into a novel in vivo for biomarker discovery and serves on the editorial board of Biomarker Insights.

Dr. Turner received his Ph.D. in 2002 in Nutritional Sciences and Toxicology from the UC, Berkeley. During graduation, his research focused on the development and application of stable isotope methodology to the study of adipose tissue dynamics in the leptin-deficient (ob/ob) mouse.

**Marzena Jurek, M.S. – *VP, Clinical Operations[[26]](#footnote-35)***

Ms. Jurek joined the Company in March 2019 as VP of clinical operations to oversee tactical implementation of the Company’s clinical programs. She brings 20 years broad experience in clinical development and pre-clinical research in mid and small/start-up companies. Prior to joining the Company, she managed early and late-stage global programs in several rare disease indications, including hepatic encephalopathy, idiopathic pulmonary fibrosis, and sickle cell disease. Previously, she held positions at Portola Pharmaceuticals, Hyperion Therapeutics, and most recently at Global Blood Therapeutics, among others, managing cross-functional teams and overseeing deployment of clinical programs.

**Eve-Irene Lepist, Ph.D. – *Senior Director, Non-Clinical Development[[27]](#footnote-36)***

Dr. Lepist brings over fifteen years of pharmaceutical industry experience in drug metabolism and pharmacokinetics in support of discovery research, translational research, and product development. Previously joining to the Company, she held positions at the Department of Drug Metabolism, Gilead Sciences, where she led a team supporting discovery and development programs in areas of drug absorption and transporter interactions.

Dr. Lepist started her career as a DMPK scientist at CV Therapeutics, where she established and worked with in vitro and in vivo models of brain penetration. Dr. Lepist has published over twenty peer-reviewed articles in areas of pharmacokinetics and pharmacodynamics, pro-drugs, and drug- transporter interactions related to absorption, distribution, and elimination with a focus on renal drug-drug interactions. She conducted her graduate research at Uppsala University, Sweden and at The Royal School of Pharmacy, Copenhagen, Denmark. She holds a Ph.D. in pharmaceutical sciences from University of Tartu, Estonia, and completed her postdoctoral research at State University of New York at Buffalo.

Capitalization and Ownership

The Company is authorized to issue common and preferred stock. As of the Valuation Date, the following

shares were issued and outstanding or anticipated to be issued and outstanding:

*Table 1: Capitalization Table*

|  |  |  |  |
| --- | --- | --- | --- |
| EQUITY CLASS | AUTHORIZED | OUTSTANDING | AS CONVERTED |
| **Series A** | 56,000,000 | 56,000,000 | 56,000,000 |
| **Series B Tranche I\*** | 58,109,973 | 45,142,960 | 45,142,960 |
| **Series B Tranche II** | - | 4,358,261 | 4,358,261 |
| **Common** | 147,682,655 | 14,937,607 | 14,937,607 |

*\*Series B Tranche I authorized share pool includes both Tranche I and Tranche II.*

As of the Valuation Date, the Company had 7,560,547 Common Stock options outstanding and 3,480,346 Common Stock options reserved for future grants as part of Company’s equity-based compensation plan (the “Options Available”). According to Management, 100.0% of the Options Available are expected to be granted in the near future and prior to a possible exit/liquidity event for the Company. As such, due to the dilutive impact of the option pool, we included these shares in our analysis.

Below is a summary of Common Stock options outstanding as of the Valuation Date:

*Table 2: Common Stock Options Summary*

|  |  |  |  |
| --- | --- | --- | --- |
| CLASS OF STOCK | EXERCISE PRICE | SHARES | |
| **Common Stock Options** | $0.01 | | 32,600 |
| **Common Stock Options** | $0.29 | | 7,527,947 |

Refer to Exhibit G.1 for further details on the Company’s capitalization.

Future Financing

Based on discussions with Management, we considered the timing and magnitude of future rounds of financing that would be necessary to reach the assumed exits. Management estimated that the Company would require the below mentioned additional funding prior to reaching a possible exit:

1. Series C Financing: Management estimated that the Company plans to raise $80.0 million in Series C round of financing at the end of second quarter of 2019, i.e. June 30, 2019. These investors have historically bolstered IPO pricing and performance. In addition, the crossover round would help the Company to fund its operations, support its Phase IIa clinical trials of PLN-74809, anticipated to begin in June 2019, and support development of its therapeutic pipeline for other indications as well. As such, we assumed $80.0 million of Series C financing at the end of May 2019.[[28]](#footnote-37)

Stage of Development

The Practice Aid defines six stages of development for start-up enterprises.

Stage 2 companies lack product revenue but have substantive expense history. Product development is underway and business challenges are thought to be understood. Stage 2 companies customarily have second or third round financing. Typical investors are venture capital firms; they may provide additional management or board of directors’ expertise. Generally, securities issued to those investors are in the form of preferred stock.

RNA classifies this Company as a Stage 2 company because it has successfully raised the second tranche round of its second round of preferred series, and nearing the completion of Phase I trials for its Lead Program. The Company has also made some incremental progress for its Second Lead Program. The Company has substantive expense history and a complete Management team.

Industry Overview

Overview

In valuing a business or its assets, it is important to consider the condition of, and the outlook for, the industry in which the enterprise operates. Depending upon the nature of the marketplace, industry conditions can significantly affect financial performance and, consequently, value. The following section provides a brief overview of the fibrotic diseases market with a focus on IPF, Cystic Fibrosis (“CF”) and NASH treatments as well as a discussion of the competitive environment in that space.

Fibrosis Market Overview (IPF, CF, and NASH)

Fibrosis, a pathologic feature of many diseases, is caused by a dysfunction in the body’s natural ability to repair damaged tissues which when left untreated, can result in scarring of vital organs causing irreparable damage and eventual organ failure. Patients diagnosed with IPF experience progressive breathlessness and eventually complete respiratory failure. IPF is chronic, progressive, lung disease of unknown cause affecting approximately one of every 200 adults over the age of 60 in the U.S. [[29]](#footnote-38) IPF currently affects approximately 130,000 people in the US, with 50,000 new cases reported every year and resulting in 40,000 deaths per year.[[30]](#footnote-39)

According to Research and Markets (“R&M”), the global IPF treatment market totaled $2.1 billion in 2018, is anticipated to rise to $4.0 billion by 2024, representing a CAGR of 11.52%. Growth in the prevalence of fibrotic disease coupled with the unavailability of proper treatment options will drive the market for the IPF therapies during the given time frame.[[31]](#footnote-40)

According to R&M, IPF is a specific form of chronic, progressive fibrosing interstitial pneumonia characterized by the formation of scar tissue within the lungs in the absence of any known cause. The scarring typically starts at the edges of the lungs and advances towards the center of the lungs. As the normal lung tissue is replaced by more heavily scarred lung tissue, which makes it difficult to breathe and deliver needed oxygen to the body. The disease initially manifests with symptoms of exercise-induced breathlessness and dry coughing. Diagnostic tests for IPF include chest imaging studies (X-Rays and CT scan), lung biopsy, pulmonary function tests, oxygen desaturation study and other tests such as autoantibody tests, full blood count, arterial blood gas, etc. Currently, there are only two FDA approved therapies for the treatment of IPF: nintedanib and pirfenidone. Both the drugs slow down the development of scar tissue in the lungs of people with IPF.[[32]](#footnote-41)

CF is a genetic disorder that generally affects the lungs and may also affect the pancreas, kidneys, liver, and intestine. Long-term repercussions associated with CF include difficulty in breathing and coughing as a result of recurrent lung infections. Some other signs and symptoms include sinus infections, poor growth, infertility in males, fatty stool, and a guild of the fingers and toes. CF is mainly inherited as an autosomal recessive gene, triggered by mutations in both the copies of the gene for cystic fibrosis transmembrane conductance regulator protein (“CFTR”).[[33]](#footnote-42)

Over the last few years, various developments in technology have resulted in a shift in R&D towards treatments targeting CFTR functions. Also, with an affinity towards licensing the products, various alliances have been formed by several biotechnology and pharmaceutical manufacturers, since the majority of the treatments for CF are developed by smaller manufacturers. Moreover, the increase in licensing activity along with the rise in the number of new partnerships encourages smaller companies to continue their research work thereby giving a positive momentum to the CF market.[[34]](#footnote-43)

According to the CF Foundation (“CFF”), more than 70,000 people are living with CF WW, of which in the US more than 30,000 people are living with CF. CFF also reports that approximately 1,000 new cases are diagnosed each year, with more than 75.0% of cases diagnosed by the age of 2 years. Currently, more than half of the CF population is aged 18 years or older.[[35]](#footnote-44)

The global CF market is anticipated to reach $12.2 billion by 2028 from the estimated value of $3.8 billion in 2018, growing at a CAGR of 12.3%. The market is primarily driven by increasing CF prevalence, rise in R&D expenditures by pharmaceutical companies and an increase in funding by government bodies. Whereas factors such as high cost of treatment, and limited availability of medicine for all mutation types are expected to restrict the market growth.

The CF pipeline comprises of diverse sets of molecules with most products in early-stage of development. In total, 124 molecules are in development, either alone or in combination with other molecules. Most of these molecules are in the preclinical stage, followed by Phase II and Phase I. Currently, there are just three FDA-approved molecules targeting specific mutation types that are commercially available in the market.[[36]](#footnote-45) Recently in 2017, the FDA approved Kalydeco (ivacaftor) from Vertex Pharmaceuticals Incorporated (“Vertex”).[[37]](#footnote-46)

NASH is the most severe form of non-alcoholic fatty liver disease (“NAFLD”) and is characterized by the presence of an abnormal accumulation of fat in the liver which in some individuals can progress to liver cell injury (hepatocellular ballooning) and inflammation. As NASH evolves, over time it can result in excessive scarring in the liver (fibrosis), a natural response to injury which can lead to liver cirrhosis or liver cancer.[[38]](#footnote-47)

According to DelveInsight, increasing obesity, diabetes population significantly increase the prevalence of NAFLD is expected to drive the prevalence with the CAGR of 1.02%, during the period 2016 to 2027 across the 7MM[[39]](#footnote-48). Among all prevalent cases of NAFLD in the 7MM, nearly 19.0% of the population meets the criteria for NASH. These cases are expected to increase throughout the period 2016 to 2027, reaching an approximate 47.0 million in 2027. In terms of epidemiology for NASH, the US accounts for an approximate 50.0% of the total NAFLD cases.[[40]](#footnote-49)

According to Reports and Data, the global NASH market revenues totaled $0.41 billion in 2018 and is expected to reach $13.4 billion by 2026, growing at a CAGR of 54.6% from 2018 to 2026. Increasing consumption of fats globally is anticipated to be one of the drivers for the market growth. NAFFLD affects around 80.0 million to 100.0 million Americans. In the coming years NAFLD is anticipated to be one of the most common chronic liver conditions globally in relation to the obesity and type 2 diabetes. Furthermore, estimates indicate that the incidence of NASH is projected to witness an increase of around 63% between 2015 and 2030. Since the incidence of NASH is projected to rise significantly, if unchecked, the healthcare costs are anticipated shoot-up to $18.0 billion by 2030.[[41]](#footnote-50)

At present, there is no FDA-approved drug to treat NASH. Lifestyle interventions are the first-line approach to manage patients with NASH, and then vitamin E and pioglitazone are recommended as first-line drugs.[[42]](#footnote-51) NASH therapeutics exhibit a lucrative pipeline with more than 20 drug candidates undergoing Phase II clinical trials. The most promising drugs anticipated to enter the NASH market in future are Genfit SA’s (“Genfit”) Elafibranor and Intercept Pharmaceuticals, Inc.’s (“Intercept”) Obeticholic Acid (Ocaliva) which are in Phase III clinical trials. Many large pharma companies such as Gilead Sciences Inc. (“Gilead”), Novo Nordisk A/S (“Novo Nordisk”), and BMS are developing drugs for NASH.[[43]](#footnote-52)

Competition

The key players operating in the IPF market include MediciNova, Inc., Boehringer Ingelheim Corp., Roche, Promedior, Inc., Merck, Galapagos NV, Biogen Inc., BMS, Prometic Life Sciences Inc., FibroGen, Inc. and Cipla Inc.[[44]](#footnote-53)

Key players in the CF market are Vertex, Roche, Allergan, Novartis International AG (“Novartis”), AbbVie Inc., Aurora Biosciences, Bayer, EryDel, Pharmaxis Limited, Merck & Co. Inc., Advanced Inhalation Therapies (“AIT”) Ltd., Alaxia SAS, Teva Pharmaceutical Industries Ltd., AstraZeneca plc, and Gilead.[[45]](#footnote-54)

The key players in the NASH market include Genfit, Intercept Pharmaceuticals, Gilead Sciences, Galmed Pharmaceuticals Ltd., Inventiva, Allergan and Tobira Therapeutics. [[46]](#footnote-55) Others include Allergan, Cadila Healthcare Limited, Conatus Pharmaceuticals Inc., Gemphire Therapeutics Inc., Novartis, and Shire Plc.[[47]](#footnote-56)

Valuation Methodology Overview

The following section provides an overview of various valuation methodologies considered as part of this analysis.

Business Enterprise Valuation Theory

In summary, there are three generally accepted valuation approaches available when valuing the operating assets and liabilities of a closely held business:

1. Cost Approach (“Cost Approach”);
2. Income Approach (“Income Approach”); and
3. Market Approach (“Market Approach”).

Within each category, a variety of methodologies exists to assist in the estimate of value. They are discussed in further detail herein. In addition, there is the Hybrid Approach (“Hybrid Approach”), a methodology that combines two or more of these approaches.

Cost Approach

The Cost Approach relies upon separately valuing each sub-component of the company being valued. The discrete valuation of an asset using this approach is based upon the concept of replication or replacement as an indicator of value. In essence, this method answers the build approach when looking at a “buy versus build” approach to investment.

In the case of most IP-centric technologies with explicit patent protection and substantive and broad blocking rights to competitive entrants, the Cost Approach is not a reasonable proxy for value. By the time most products are commercial, the cost to recreate the existing asset is prohibitive in these circumstances given the demanding regulatory requirements. Furthermore, these costs should be considered sunk costs and, as such, other approaches to value should be considered.

Income Approach

The Income Approach is based on the earnings power, or the cash generating abilities of the company being valued. This approach focuses on determining a forecast benefit stream that is reflective of the subject company’s most likely future performance. The forecast benefit stream is then discounted to present value based on the appropriate risk‐adjusted discount rate or capitalization rate. The DCF is a commonly used Income Approach. In addition, in the life sciences, if clinical or regulatory risks remain, an rNPV is also common. For IP-centric rights interests, with reasonable patent protection and expectations for a significant decrease in market share upon patent expiration, the Income Approach is generally the favored approach by industry professionals.

Market Approach

In summary, the Market Approach references actual transactions involving (i) the subject being valued, or (ii) similar assets and/or enterprises. The Market Approach generally consists of two primary methodologies: the Guideline Comparables Method (“GCM”) and the Guideline Transaction Method (“GTM”). The GCM involves identifying and selecting publicly traded companies or guideline public companies (“Guideline Public Companies”) with financial and operating characteristics similar to the subject being valued, and subsequently deriving multiples and other metrics from such Guideline Public Companies to apply to the subject being valued. The GTM involves identifying and selecting actual transactions, such as mergers, acquisitions, investments, and licensing agreements, involving companies and/or assets with financial and operating characteristics similar to the subject being valued, and subsequently deriving multiples and other metrics from such guideline transactions (“Guideline Transactions”) to apply to the subject being valued.

The third method under the Market Approach that can provide an indication of value is the Option Pricing Model Backsolve Method (the “OPM Backsolve Method”). By considering the sale price of shares in a recent financing, the equity value can be “back-solved” using an option pricing model that gives consideration to the Company’s capitalization structure and the rights of the preferred and common shareholders. This methodology is most applicable when a valuation is conducted close to the date of a financing transaction, and when other methodologies are deemed less reliable.

Hybrid Approach

A Hybrid Approach combines two or more of the approaches above. Typically, this involves some combination of an Income Approach with a Market Approach. For example, a licensing transaction, which has definitive upfront payments, milestones and royalties, can be viewed as an Income Approach; however, the determination of reasonable consideration across the three major approaches can be based on comparable license arrangements for similar assets which can be viewed as a Market Approach.

Allocation Methodology Theory

In summary, there are four generally accepted allocation methodologies available when determining the value of various classes of securities underlying a company’s capital structure:

1. Current Value Method;
2. Option Pricing Method;
3. Probability-Weighted Expected Return Method; and
4. Hybrid Method.

Within each category, a variety of methodologies exists to assist in the estimation of value, as discussed in further detail herein.

Current Value Method (“CVM”)

The CVM is based on an allocation theory that shareholders with senior stock rights would attempt to maximize the value of their holdings based solely on the senior interest’s underlying liquidation preference, participation rights and conversion rights, as well as an imminent liquidity event. In essence, this approach determines the value of the enterprise at the Valuation Date, distributes said value through the existing capital structure waterfall and then applies discounts or premiums as may be appropriate to the varying security classes. It does not consider optionality or upside payoffs for those securities that may not receive value at the current valuation (e.g. value does not exceed preference) but may receive value if value increases over time (e.g. future value exceeds preference).

RNA noted that the CVM is appropriate under following circumstances:

1. When an imminent liquidity event in the form of an acquisition or dissolution of the enterprise is assumed and/or the expectations about the future of the enterprise as a going concern are effectively immaterial; and
2. When the enterprise is assumed to be at such an early stage of its development that:
   1. No material progress has been made on its business plan;
   2. No significant equity value has been created above the liquidation preference of the preferred stock; and
   3. There is no reasonable basis for estimating the timing and magnitude of any common equity value above the liquidation preference that might be created in the future.

Option Pricing Method (“OPM”)

The OPM relies on financial option theory to allocate value among different classes of members’ equity based upon a future option “claim” on value. Under the OPM, the values of the various classes of stock are estimated as the net value of a series of call options, representing the present value of the expected future returns to the shareholders.

Essentially, the equity claims of a shareholder class are equivalent to a call option on the stock’s participation in the value of the subject company at or above the respective preferred shareholders’ liquidation preferences. Thus, an equity class can be valued by estimating the value of its share in each of these call option rights.

The OPM involves estimating the value of the call options using the Black-Scholes option pricing model (“Black-Scholes”)[[48]](#footnote-57) a lattice model (“Lattice”)[[49]](#footnote-58) or a risk-neutral Monte Carlo simulation at a series of exercise prices that coincide with the liquidation and conversion preferences of the holders of preferred and common shareholders. The Black-Scholes model and most Lattice models assume that a company’s or an asset’s potential return distribution follow a log-normal path and that the period to period movement in price follow a geometric Brownian motion (meaning that prices fluctuate smoothly from period to period and do not essentially jump). Furthermore, closed form models like Black-Scholes do not allow for certain types of liquidity events, like structured sales, which may have some contingent consideration component as part of the exit value. Simulation techniques can capture the reality of most assets noting that companies and asset values usually “jump” on data, that returns can be bi-modal for development stage assets, and that a license or structured exit on the back-end can be simulated. That said, simulation techniques can be costly to develop, can have limited transparency, and can be understood by a much smaller audience than the other techniques.

RNA also noted that the OPM may be used to determine the equity value of a company by using the OPM Backsolve Method. In an OPM framework, the equity value is inferred from a recent financing transaction. It involves making assumptions for the time to liquidity, volatility, and risk-free rate and then solving for the value of equity such that value for the most recent financing equals the amount paid.

In general, while simple in its application, especially for Black Scholes OPM techniques, RNA does not typically apply these approaches when considering allocation techniques for the valuation of equity interests in early stage, privately held life science companies. In doing so, we would violate the major assumptions of both the Black Scholes and the Lattice approaches. Additionally, the simulation approach can generally be reasonably approximated by a scenario-based approach like the PWERM as described below.

Probability-Weighted Expected Return Method (“PWERM”)

Under the PWERM, the value of a company’s particular equity class is estimated based upon an analysis of future values for the entire enterprise assuming various future outcomes. Share value is based upon the probability-weighted present value of these expected outcomes, as well as the rights of each class of preferred and common stock.

The PWERM is well suited for capturing potentially dramatic increases or decreases in value that may result from potential future events that are not log-normally distributed that have the potential for structured exits with contingent consideration. It can take into account elements that apply when considering real-world, risk-adjusted decision frameworks. Candidly, it is the framework most business development, private equity and other transactional professionals consider when thinking through the potential outcomes for an enterprise (i.e. a decision tree or a scenario analysis). We noted that the application of the PWERM is reasonable under circumstances where there is a broad range of possible future outcomes for the enterprise noting that the likelihood of such outcomes and the resulting valuation indications are not assumed to be log-normally distributed as under the OPM. RNA also noted that the PWERM may be used to determine the enterprise value of a company given the contemplation of future values for the entire enterprise assuming various future outcomes in a back-solve type of methodology as is noted above for the OPM, albeit a bit more complex with many more inputs to balance. For privately held companies with complex capital structures in the life sciences, it is generally reasonable to use a PWERM construct to allocate value across the various security classes.

Hybrid Method

The Hybrid Method is a cross between the PWERM and OPM. It is performed by first estimating the probability-weighted value across multiple scenarios then use the OPM to estimate the allocation of value within one or more of those scenarios. The Hybrid Method can be a useful alternative to explicitly modeling all PWERM scenarios in situations when the company has transparency into one or more near-term exits but is unsure about what will occur if the current plans fall through.

An advantage of this method is that it utilizes the conceptual framework of option pricing theory to model a continuous distribution of future outcomes and to capture the option-like payoffs of the various share classes while also explicitly considering future scenarios and the discontinuities in outcomes that early-stage companies experience. A disadvantage is that these models require a number of assumptions and may be overly complex. In addition, there may be many potential issues surrounding the integration of risk-adjusted and risk-neutral modeling frameworks.

Valuation Analysis

Selected Valuation Approaches

The allocation determination herein has been developed primarily on the basis of the Hybrid Method to allocate the equity value of the Company across the Company’s capital structure. We relied on the Hybrid Method as our primary and only allocation methodology as we believe this methodology is better suited to addressing the outcomes associated with the Company. Refer to Exhibit B.1 for details on the Hybrid Method.

Income Approach

The DCF method aggregates the present value of all future cash flows available to the investment holder to determine the valuation indication as of the Valuation Date. The DCF methodology involves the following key steps:

1. Determination of cash flow forecasts (“Representative Level Projections”); and
2. Selection of a range of comparative investment risk-adjusted discount rates to apply against the Representative Level Projections.

For purposes of this analysis, as detailed above, RNA did not rely on the DCF in determining a valuation indication for the Company. The Company is at an early stage of development and does not expect to generate product revenue for many years. As such, revenue and cash flow projections were not considered in this analysis. Notwithstanding, RNA did consider discount rates, a key component of the IPO Scenario-based Waterfall Analysis (the “IPO Waterfall Analysis”), used as an input in the Hybrid Method.

**Discount Rate**

A discount rate represents the rate of return an investor requires to justify investment in a company while giving consideration to the risk associated with the investment. Discount rates are determined based on market expectations of the total rate of return and the rate at which capital will be attracted to a company. One of the most important considerations in determining an appropriate discount rate is the level of risk inherent within a company. Therefore, due consideration is given to the rates of return available on alternative, comparable investments available to a hypothetical buyer.

Numerous factors influence the choice of an appropriate discount rate including those factors external (potentially systematic) and internal (potentially unsystematic) to the potential investment. External factors include, but are not limited to, (i) current general economic conditions, (ii) expectations regarding future economic conditions as of the analysis date, (iii) sources of capital available to a company and (iv) competitiveness of the markets served by the company. Internal factors include but are not limited to (i) the financial situation of the Company, (ii) the ability to generate positive cash flows, (iii) the likelihood of the Company facing difficulty in procuring raw inputs and (iv) the ability to deliver products to an available market.[[50]](#footnote-59)

Three studies in the Practice Aid outline estimated return requirements for companies at various stages of development.

*Table 4: Required Rates of Return by Stage of Development*

|  |  |  |  |
| --- | --- | --- | --- |
| **RATE OF RETURN ANALYSIS** | | | |
| **Stage of Development** | **Plummer** | **Scherlis and Sahlman** | **Sahlman and Others** |
| **Start Up** | 50% to 70% | 50% to 70% | 50% to 100% |
| **Early Development** | 40% to 60% | 40% to 60% | 40% to 60% |
| **Expansion** | 35% to 50% | 30% to 50% | 30% to 40% |
| **Bridge / IPO** | 25% to 35% | 20% to 35% | 20% to 30% |

Source: AICPA Valuation Guide, Appendix B (Venture Capital Rates of Return)

The Practice Aid task force defined each stage of development as the following:

**Start-Up (“Start-Up”):** Start-up-stage investments are typically made in enterprises that are less than a year old. The venture funding is to be used substantially for product development, prototype testing, and test marketing.

**Early Development (“Early Development”):** Early-development-stage investments are typically made in enterprises that have developed prototypes that appear viable and for which further technical risk is deemed minimal, although commercial risk may be significant.

**Expansion (“Expansion”):** Enterprises in the expansion stage usually have shipped some product to consumers (including beta versions).

**Bridge/IPO (“Bridge/IPO”):** Bridge/IPO-stage financing covers such activities as pilot plant construction, production design, and production testing, as well as bridge financing in anticipation of a later initial public offering.

Notwithstanding, these rates of return are not inclusive of the probabilities associated with achieving such returns. As such, RNA considered the probabilities of success (as contemplated under the IPO Waterfall) in determining the appropriate cost of capital for the Company’s different classes of securities, as discussed below.

For the purposes of determining discount rates under the IPO Waterfall Analysis, RNA noted the following:

1. **Preferred:**
2. The preferred portion of the Company’s capital structure was bifurcated into debt-like and equity-like components. The debt-like piece reflects liquidation preferences (or the equivalent value to the extent preferred converts) while the equity-like segment reflects value over and above such liquidation preferences;
3. The values for both were calculated as the probability-weighted present value of each relevant component under the IPO Waterfall Analysis;
4. The cost of capital for the debt-like portion was based on rates for venture debt based on RNA’s observations of such markets; and
5. The cost of capital for the equity-like component was a back solve in order to achieve approximately 15.0% to 20.0% VC portfolio returns (across the total preferred investment). Such VC portfolio returns are generally consistent with observations of historical and expected VC returns.
6. **Equity:**
7. The share count included outstanding Common Stock with consideration of issued warrants, options and other securities, as appropriate;
8. The price was generally in line with the concluded fair market value and fair value of the Common Stock; and
9. The rate reflects a return to Common Stock, equal to the return to equity-like component of preferred stock, considering that risk profile of Common Stock would be similar to preferred stock equity-like component for the IPO Waterfall Analysis.

Because private enterprises like the Company often seek financing from private equity investors, including VC firms, the VC arena provides an observable market for the cost of capital for privately held enterprises. The following table illustrates the dollar weighted internal rate of return on vintage year investments in the life sciences by VC firms, as published by Cambridge Associates and the National Venture Capital Association (“NVCA”):

*Table 5: Venture Capital Weighted IRR*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VENTURE CAPITAL DOLLAR WEIGHTED INTERNAL RATE** | | | | | | | | | | | | |
| **OF RETURN ON VINTAGE YEAR COMPANIES** | | | | | | | | | | | | |
| **Industry** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| Biotechnology/ Biopharma/R&D | 14.81 | 7.25 | 17.79 | 11.47 | 27.05 | 30.07 | 36.96 | 60.58 | 98.81 | 51.77 | 48.73 | 44.34 |
| Healthcare Devices | 8.94 | 2.88 | 4.62 | 4.19 | 0.99 | 11.78 | 15.04 | 13.42 | 1.78 | 5.14 | 25.88 | 24.76 |
| Healthcare Services | 12.31 | 6.34 | 17.04 | 7.48 | 26.17 | 6.51 | 26.31 | 28.94 | 41.74 | 28.44 | 28.46 | 18.15 |
| Healthcare Software/Systems | 9.18 | 7.11 | 17.01 | 49.45 | 7.76 | 12.97 | 30.55 | 9.77 | 9.66 | 18.37 | 22.02 | 12.89 |
| Pharmaceuticals | 4.12 | 5.74 | 21.74 | 9.42 | 26.68 | 30.12 | 14.76 | 63.78 | 21.27 | 39.04 | 26.12 | 26.5 |

*Source: Cambridge Associates LLC US Venture Capital Index® and Selected Benchmark Statistics, September 30, 2018*

These rates of return illustrate the pooled gross IRR to investors in venture capital funds. The returns on investments in the biotechnology and pharmaceutical sectors have been strong since 2010; however, over a longer duration (and a full business cycle), return expectations would be significantly less than recent performance and expected return thresholds would be more consistent with an average historical performance range of 15.0% to 25.0%, especially if the industry sectors go out of favor.

Based on the considerations herein, RNA estimated an enterprise-level WACC of 17.0% as the discount rate, consistent with the Previous Valuation, which has been calculated as a blended rate of all the components of capital structure. Refer to Exhibit D.1 for further details.

RNA noted that the selected discount rates were reasonable given the “portfolio” or scenario approach of the IPO scenario under the Hybrid OPM. Given that we are already accounting for the likelihood of the successful IPO Waterfall Analysis, we were comfortable using a discount rate that aligned with VC rates of return rather than the much higher stage of development discount rates as summarized in Table 5.

Market Approach – GCM

The GCM involves the determination of a valuation indication by multiplying a representative level of earnings, cash flows or other measure against an appropriate risk‐adjusted multiple. This approach provides an indication of value for a company or asset that corresponds with the particular earnings figure being capitalized on a controlling or non‐controlling basis dependent on the underlying levels of multiples applied.

For purposes of this analysis, RNA did not rely upon the GCM in determining the enterprise value of the Company since it is a pre-revenue company. Notwithstanding, RNA did consider Guideline Public Companies deemed comparable to the Company, a key element of the Market Approach. Refer to Exhibits E.1, E.2 and E.3 for details on enterprise value, projections, operating metrics, market capitalization, business descriptions, and other metrics for the selected Guideline Public Companies.

For purposes of this analysis, RNA considered the following Guideline Public Companies.

1. Vertex Pharmaceuticals Incorporated;
2. FibroGen, Inc.;
3. Intercept Pharmaceuticals, Inc.;
4. Insmed Incorporated;
5. Madrigal Pharmaceuticals, Inc.;
6. Genfit SA;
7. ProQR Therapeutics N.V.;
8. Corbus Pharmaceuticals Holdings, Inc.;
9. MediciNova, Inc.;
10. Galectin Therapeutics, Inc.;
11. Savara Inc.;
12. Galmed Pharmaceuticals Ltd.;
13. Immuron Limited;
14. AdAlta Limited;
15. ;
16. AmpliPhi Biosciences Corporation; and
17. Conatus Pharmaceuticals Inc.

RNA acknowledged the characteristics of the Company that differ from the characteristics of the Guideline Public Companies, detailed as follows:

1. The Company's operations focus primarily on discovering and developing treatments for fibrotic diseases, which is generally different from and/or less diversified than the businesses of the selected Guideline Public Companies;
2. The Company must raise financing in order to develop certain assets (noting that the Guideline Public Companies generally have easier access to capital to develop their programs);
3. The Company is generally smaller and at an earlier development stage than the Guideline Public Companies;
4. The range of WACC observed for the Guideline Public Companies represent the growth and risk profile associated with each of the selected Guideline Public Companies. In general, the strategies and prospects of the Company represent a higher risk profile than the Guideline Public Companies; and
5. The Company is not a publicly traded company and relies on private sources of equity. Public companies typically have lower costs of equity since the public equity markets typically demand lower levels of return compared to private sources of equity. Investments in public companies provide a liquid investment that may compensate for the minority level interest typically involved.

As noted above, RNA did not develop an enterprise value indication based on the application of market multiples.

Market Approach – GTM

RNA did not rely upon the GTM because the Company is still operating at a loss. Furthermore, it is relatively difficult to identify market transactions that are reasonably similar to the Company with respect to stage of development, underlying economic fundamentals, products (i.e., potential product pipeline) and prospects for success. Notwithstanding, we did consider Guideline Transactions deemed comparable to the Company, which is a key element of the Market Approach, since M&A was considered to be one of the non-IPO scenarios for the OPM considered as an input to the Hybrid Method.

RNA reviewed the M&A transactions in recent years in similar industries and considered various transactions that were comparable to the Company. RNA acknowledged the characteristics of the target companies underlying the Guideline Transactions, detailed as follows:

1. The Company’s operations focus primarily on the discovering and developing treatments for fibrotic diseases, which are generally different from and/or less diversified than the businesses of the target companies;
2. The Company is generally smaller in size than the target companies underlying the Guideline Transactions, and as such, does not benefit from the leverage over suppliers and customers and certain economies of scale to which the target companies may be privileged; and
3. The strategies and prospects of the Company generally represent a higher risk profile relative to most of the target companies since the Company is currently at an earlier stage/smaller than when some of the target companies were acquired.

As noted above, RNA did not develop an enterprise value indication based on the application of market multiples.

Allocation Analysis

Considering the above, the allocation determination herein has been developed primarily on the basis of the Hybrid OPM to allocate the equity value of the Company across the Company’s capital structure.

Current Value Method

Based on the considerations detailed above, RNA noted that since the Company is not expecting an imminent liquidity event and is not at a very early stage of development, circumstances do not meet the appropriate criteria for the application of the CVM. As such, RNA has elected not to rely upon the CVM as a primary allocation methodology.

Option Pricing Method

We constructed an OPM analysis as part of the Hybrid Method analysis, as explained in the section below. Refer to Exhibit B.3 and B.4 for further details.

Probability Weighted Expected Return Method

Since Management had limited visibility into the future exit scenarios for the Company, RNA did not rely on the PWERM as a primary allocation methodology.

Notwithstanding, as part of the Hybrid OPM, Management contemplated an early IPO exit (“IPO Early”) in September 2019 and a late IPO exit (“IPO Late”) in March 2020. Refer to the Hybrid Method section below for further details.

Hybrid Method

Under the Hybrid Method, we computed the probability-weighted value across two scenarios: the IPO and the non-IPO scenarios (estimated using the OPM). As part of this analysis, we constructed an OPM analysis, which is very similar to that outlined in the Practice Aid, to estimate the value for the non-IPO scenarios. In essence, w Refer to Exhibit B.3 for the calculation of breakpoints. The value differential (tranche) between sequential options was then allocated to the shareholders based on their respective interest in the allocation between the sequential breakpoints. A “Discounts and Premiums” section below and

**Exit Scenario**

The following scenarios were forecast as part of the Hybrid Method:

1. **OPM**: Considers a blend of non-IPO scenarios in which the allocation of value was based on the liquidation and participation rights of the preferred stock. We considered the following elements for the purpose of performing the OPM for the Hybrid Method:
2. Time to Liquidity (“Time to Liquidity”): Reflects the number of years to a hypothetical exit or liquidity event for investors in the Company. Time to Liquidity most closely resembles the expiration date in terms of Black-Scholes. RNA estimated Time to Liquidity based on discussions with Management;
3. through Exhibit
4. Risk-Free Rate (“Risk-Free Rate”): Reflects the assumed interest rate obtained by investing in financial instruments with no default risk. The Risk-Free Rate is generally consistent with the definition used under Black-Scholes. RNA estimated the Risk-Free Rate by considering yields on US Treasuries as of the Valuation Date with maturities generally in line with the Time to Liquidity;
5. Dividend Yield (“Dividend Yield”): Reflects the level of dividends paid to shareholders of the Company relative to the Company’s equity value. The Dividend Yield is generally consistent with the definition used under Black-Scholes. RNA noted that the Company does not pay dividends, and as such, has applied a 0.0% Dividend Yield; and
6. Securities Breakpoints (“Breakpoints”): Reflects various value inflection points, which represent changes in the allocation of proceeds to investors based on their respective interest between such breakpoints. The Breakpoints most closely resemble various exercise prices as they pertain to Black-Scholes. RNA determined the Breakpoints based on discussions with and information provided by Management, such as the liquidation preferences and conversion rights of various classes of securities underlying the capital structure.
7. **IPO:** The IPO scenario reflects an exit or liquidity event by means of a sale of stock by the Company to the public. Based on discussions with the Management, there were four possible IPO exit Scenarios: IPO Early - Low, IPO Early - High, IPO Late - Low, and IPO Late - High. Refer to Exhibit B.2 for details of the scenario identified. The exit values for the IPO scenarios were based on discussions with Management, review of recent IPO information, and RNA’s best estimates. Refer to Exhibit H.9 for further details on the comparable IPO transactions. RNA considered the following elements for the purpose of performing the IPO Waterfall Analysis. Refer to Exhibit B.2 for details on the IPO Waterfall Analysis:
8. Exit Date: Based on discussions with Management, RNA considered IPO Early scenarios at the end of September 2019 and IPO Late scenarios at the end of March 2020. Relative to the previous Valuation, this represents a lead of three months for all four IPO scenarios, considering the positive results and incremental progress from the Company’s clinical pipeline. The Early IPO exit timing was in line with the Phase IIa clinical trial initiation for the Lead Program, anticipated to begin in June 2019. Relative to the Previous Valuation, the Management anticipates an earlier date for the IPO, given the progress made on the development of its two lead programs and the positive results from the Phase I trials for the Lead Program. The Management anticipates data from Phase IIa clinical trials for its Lead Program by the first quarter of 2020, which is in line with the Late IPO Exit scenarios.
9. Exit Value: The selected exit value was $260.0 million for IPO Early-Low scenario, $325.0 million for both IPO Early-High and IPO Late-Low scenario, $400.0 million for IPO Late-High scenario which is close to the median and mean ranges of the pre-IPO equity values of recent biopharma IPOs of companies similar to the Company with respect to the stage of development (Phase I/IIa IPOs). Furthermore, given the Company’s strong product pipeline, the selected exit value is reasonable. Refer to Exhibit H.8 for further details on the recent IPO transactions in the industry.

**Probability Weighting**

Based on the discussions with Management, 50.0% probability was assigned to the IPO scenarios and the residual probability was assigned to the OPM scenario.

Probabilities weighting for the IPO scenarios were based on discussion with Management. The Company may go public in September 2019 based on Management’s expectations. If the Company does not exit by September 2019, another window for the IPO exit at the end of March 2020 is expected. The selected probabilities reflect Management’s anticipation about future exits. We assigned 30% and 10.0% probabilities to the IPO Early for High and Low scenarios, and 5.0% probabilities to the IPO Late for both High and Low scenarios respectively. Relative to the Previous Valuation, we increased the overall probability weighting of the IPO scenarios by 15.0%, given the progress made in terms of product development, positive preliminary results from the Lead Program’s Phase I clinical trials. As a result, RNA believed that the increase in probability for the IPO scenarios was reasonable relative to the Previous Valuation.

**Equity Value**

Equity Value for the OPM scenario in the Hybrid Method was determined using a step-up 6.5% (the “Step-Up”) considering progress in product development and market trends of early-stage biopharma companies. To determine the reasonability of the Step-Up, we reviewed the change in market capitalization since the Previous Valuation for preclinical/early clinical biopharma companies and noted that they remained adverse with a decline of 2.3% in the median of the range. Notwithstanding, the Company has made progress with the development of its Lead Program nearing the completion of Phase I trials.

**DLOM**

In addition to the considerations above, RNA determined a DLOM as a necessary consideration in the analysis since the minority common stock holders of the Company, unlike the shareholders of the Guideline Public Companies, do not have access to an active public market for their securities. Furthermore, the Company’s common stock holders do not possess the rights to force the Company to register with the Securities and Exchange Commission in order to sell their shares. The lack of marketability of Common Stock may materially limit a shareholder’s ability to liquidate the investment into cash without the risk of loss in value. Accordingly, RNA considered a Finnerty and an Asian Put analysis to calculate the DLOM, as described in the DLOM section below. We applied the DLOM to the value of the Common Stock as estimated by the OPM and the IPO Waterfall scenarios.

Discounts and Premiums

Discount for Lack of Marketability

The holder of a nonmarketable investment is subject to the risk that the investment’s value will decline before the investment can be sold to another investor in a private transaction. Conversely, the holder of an investment that is identical but for the fact that there exists an active public market is not subject to the same risk. Therefore, the holder of the nonmarketable investment will have a higher required rate of return on the investment than the holder of the marketable investment. Consequently, the nonmarketable investment will sell at a discount to the marketable investment. RNA determined a DLOM as a necessary consideration in the analysis since the minority common stock holders of the Company, unlike the shareholders of the Guideline Public Companies, do not have access to an active public market for their securities. Further, the Company’s common stock holders do not possess the rights to force the Company to register with the Securities and Exchange Commission in order to sell their shares. The lack of marketability of common stock may materially limit a shareholder’s ability to liquidate the investment into cash without the risk of loss in value.

Factors that impact the size of the DLOM fall into two categories: (1) factors that affect the duration of the holding period necessary to locate a buyer and negotiate a sale, and (2) factors that affect the degree of risk faced per unit of time during this holding period. Risk per unit of time, according to modern investment theory, is the volatility of an investment’s total return (i.e., both dividends and capital appreciation), or the propensity for an investment’s actual return to differ from its expected return. Factors that either increase the duration of the holding period or increase the expected volatility of an investment’s total return result in higher DLOM. These factors and their directional impact (all else equal) on the size of the DLOM include the following, among others:

1. Presence/absence of a public market for the investment interest: Presence of a public market eliminates the discount;
2. Availability of information on the underlying business and its financial condition: More information reduces the discount because it is easier for prospective investors to perform valuation analyses of the investment;
3. Complexity of the underlying business and business strategy: Greater complexity increases the discount by making it more difficult for prospective investors to evaluate the business’ opportunities and threats, thus making it more difficult to perform valuation analyses of the investment;
4. Access to Management of the underlying business: Greater access to Management reduces the discount by making it easier for prospective investors to understand the business and evaluate the talent of the business’s management;
5. Information tracking by security/business analysts: Some large private companies release financial and other data and are followed by analysts tracking their publicly traded competitors. The presence of such a following reduces the discount by making it easier for prospective investors to perform valuation analyses of the investment;
6. Potential for a sale of the business or an IPO of stock: Such potential scenarios decrease the discount by reducing the expected total costs to an investor exiting the investment and decreasing the expected time until exit;
7. Variability of the business’s operating profit: Greater variability increases the discount since it increases the degree of risk per unit of time during the holding period (by affecting the outlook for future dividends and also, therefore, the valuation of the investment);
8. Financial leverage in the business: Higher leverage increases the discount since it increases the degree of risk per unit of time during the holding period (by affecting the outlook for future dividends and also, therefore, the valuation of the investment);
9. Size of the business as measured by sales or total assets: Small size, which has been associated empirically with greater overall business risk, increases the discount and vice versa; and
10. Regularity of distributions to equity holders: The expectation of regular future distributions monetized for equity holders in a flow through company and the potential for insufficient cash distributions to satisfy their tax liabilities (attributable to such company’s income) increase the discount.

With respect to a DLOM, empirical observations exist that show that, when investors consider alternative investments in either a freely traded security or a security whose marketability is limited, they will price the security with limited marketability at a discount to its freely traded counterpart. Market evidence of the DLOM can be found in two types of transactions, among others: (1) private placements of restricted stock by public companies, and (2) private placements of stock by private companies that later undergo initial public offerings of their stock.

**Finnerty Analysis**

In particular, John Finnerty proposed a model that assumes the investor does not possess special market timing ability and would be equally likely to exercise the hypothetical liquid security at any given point of time. The value of marketability was modeled as the present value of cash flows, similar to an average-strike put option. The Finnerty method addresses the issue of assuming perfect market timing in Longstaff’s look-back option method and the issue of assuming protection on the downside while still realizing appreciation on the upside in the protective put method. Finnerty also performed a regression analysis to restricted stock studies, adjusting to remove other significant factors, such as concentration of ownership and information effects, and found that after isolating the marketability-related factors, the discounts predicted by his method are consistent with the data. Finnerty presented an updated version of his model at the American Society of Appraisers’ Advanced Business Valuation conference in October 2009. Based on this analysis, RNA determined a DLOM of 33.4% for the OPM scenario and 18.2% and 25.1% for the IPO Early and IPO Late scenarios respectively. Refer to Exhibit H.1 for further details.

**Asian Put Analysis**

The Finnerty average-strike put option model, also called an Asian put option, assumes that the put option is struck at the average price of the stock over the period from valuation date to expiration date. The seller is not assumed to have any special market timing ability. Based on this analysis, RNA determined a DLOM of 41.2% for the OPM scenario and 19.3% and 28.0% for the IPO Early and IPO Late scenarios respectively. Refer to Exhibit H.1 for further details.

**DLOM Conclusion**

Based on the quantitative and qualitative analysis above, RNA concluded a DLOM of 37.5% for the OPM scenario, 15.0% for the IPO Early (“High and Low”) scenarios and 26.5% for the IPO Late (“High and Low”) scenarios to be applied to the Common Stock. For calculating DLOM for the OPM scenario, we considered an additional 1-year term, since majority of the cash flows to common shareholders accrue over a period of time from the date of exit. Refer to Exhibit H.1 through Exhibit H.3 for further details.

**Hybrid Method Conclusion**

Based on the methodology outlined above, we concluded the value of Common Stock to be $0.87/share on a non-marketable, minority basis. Refer to Exhibit B.1 through B.4 for further details. The implied Series B value was $1.61 per share, slightly higher than the Series B implied value of $1.56 per share in the Previous Valuation. We determined that this was reasonable considering the Company’s progress towards the IPO scenario.

Conclusion

The overall equity value is $180.0 million (rounded) as shown in Exhibit A.1, was inferred from the assumptions used in the Hybrid OPM Method.

Based on our analysis, it is our opinion that the fair market value of the Common Stock of the Company on a non-marketable, minority interest basis as of the Valuation Date is **$0.87 (EIGHTY-SEVEN CENTS) per Share**.

*Table 6: Valuation Summary*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **VALUATION SUMMARY** |  |  | **(USD IN THOUSANDS  EXCEPT PER SHARE PRICE)** | | | |  |
| **Allocation of Value** |  |  | **Common Stock** | **Equity Value** | | **Selected Approach** |  |
| Hybrid Option Pricing Model |  |  | $0.87 | $180,000 | | Primary |  |
| **Concluded fair market value of Common  Stock (non-marketable, minority basis)** | | | | | **$0.87** | |  |

The conclusions and opinions expressed in this letter and the accompanying Report are contingent upon the qualifying factors set forth in the Statement of Limiting Conditions attached to the completed Report.

Statement of Limiting Conditions

This Opinion has been prepared pursuant to the following general assumptions and general limiting conditions:

* We assume no responsibility for the legal description of real property or matters including legal or title considerations. For real property included in this appraisal, we were not furnished legal descriptions or other detailed site and improvement drawings. Title to the subject assets, properties, or business interests is assumed to be good and marketable unless otherwise stated.
* The subject assets, properties, or business interests are appraised free and clear of any or all liens or encumbrances unless otherwise stated.
* We assume responsible ownership and competent management with respect to the subject assets, properties, or business interests.
* The information furnished by management is believed to be reliable. However, we issue no warranty or other form of assurance regarding its accuracy.
* We assume that there is full compliance with all applicable Federal, state, and local regulations and laws unless noncompliance is stated, defined, and considered in the appraisal Report.
* We assume that all required licenses, certificates of occupancy, consents, or legislative or administrative authority from any local, state, or national government, private company or organization have been or can be obtained or renewed for any use on which the valuation opinion contained in this Report is based.
* Possession of this valuation Report, or a copy thereof, does not carry with it the right of publication. It may not be used, without our written consent, for any purpose by any person other than the party to whom it is addressed and, in any event, only with proper written qualifications and only in its entirety.
* We, by reason of this valuation, are neither required to give testimony nor to be in attendance in court with reference to the assets, properties, or business interests in question unless arrangements have been previously made.
* This valuation Report has been prepared in conformity with, and is subject to, the requirements of the code of professional ethics and standards of professional conduct of the professional appraisal organizations of which we are members.
* Disclosure of the contents of this valuation Report is governed by the bylaws and regulations of the CFA Institute.
* No part of the contents of this Report, especially any conclusions of value, the identity of the appraisers, or the firm with which the appraisers are associated, shall be disseminated to the public through advertising, public relations, news, sales, or other media without our prior written consent and approval.
* We assume no responsibility for any financial reporting judgments, which are appropriately those of Management. Management accepts the responsibility for any related financial reporting with respect to the assets, properties, or business interests encompassed by this appraisal.

Qualifications

Samuel Renwick, CFA

Sam Renwick provides valuation and advisory services to biopharmaceutical, medical device and equipment, diagnostic companies, and clinical research and manufacturing organizations, as well as other IP-centric technology companies. His experience includes buy-side and sell-side advisory engagements for licensing, financing, and mergers and acquisitions, as well as for tax and financial reporting matters for large public companies to small venture-backed enterprises. Whether developing dynamic, patient flow models for late-clinical therapeutic assets or developing an opinion of value for a security for compliance purposes, Mr. Renwick combines his breadth of industry knowledge with deep expertise in finance and financial models to create compelling communications regarding the value proposition of an asset, portfolio of assets or a company. Mr. Renwick has worked with well over 600 life sciences and technology companies in his career.

Professional Affiliations

* UCLA Anderson Business Honor Society
* CFA Institute
* Chartered Financial Analyst Society of San Francisco
* Member, Fair Value Forum
* Licensing Executive Society

Education

* BA/Economics & Business – Westmont College, Honors
* MBA/Finance – UCLA Anderson, Honors, J. Fred Weston award for Academic Excellence in Finance
* Chartered Financial Analyst (CFA)

Publications

* 409A Administration Handbook Valuation Section – Thomson Reuters, 2014
* Why Your 409A Valuation is Too High – Dis-Incentive Stock Compensation in the Life Sciences – BPM White Paper, May 2013
* Modeling and Forecasting to Communicate the Biotherapeutic Value Proposition – BayBio White Paper, May 2010
* Common Stock Valuation – Tips from the Trade, BayBio NOTES, April 2010
* Defensible Equity Incentive Valuation Opinions Under IRC 409A, Company Newsletter, December 2009
* What is the IRS Doing with IRC 409A, Silicon Valley Bank Newsletter, December 2008
* Eleven of the Top Ten Mistakes to Avoid in Your Options Program, Atlanta CEO Connexions, August 2007

Instruction and Seminars

* Presentation on Life Science Valuation at Advanced Business Valuation Conference Mumbai, April 2019
* Presentation on Fair Market Value and Fair Value Dynamics in Early Stage Companies at Fair Value Forum, February 2019
* Presentation on Valuation and Funding Strategies for Digital Health Companies at the Cedars Sinai Techstars Accelerator, October 2017
* Panelist on Valuation Issues in Early Stage Company Valuations – Fair Value Summit November 2015
* Presentation on Funding Technology Innovation to Caltech Science and Entrepreneurship Group, Pasadena, March 2015
* Presentation to accelerator programs/technology transfer group on Financing Early Stage Technologies – Navigating Valuation Discussions, UC Berkeley, October 2014
* Panelist, Funding Early Stage Ventures, Sand Hill Angels, September 2013
* Panelist on Communicating the Biotech Value Proposition, BayBio Annual Event, South San Francisco, May 2011
* Presentation on the Use of Discount Rates in the PWERM, Fair Value Forum, Palo Alto, November 2008
* Panelist on the Valuation of Biotechnology Companies, Biocom, San Diego, May 2008

Certification

I certify that, to the best of my knowledge and belief:

* The statements of fact contained in this Report are true and correct.
* The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
* We have no present or prospective interest in the property that is the subject of this Report, and we have no personal interest with respect to the parties involved.
* We have no bias with respect to the property that is the subject of this Report or to the parties involved with this assignment.
* Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
* Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value of direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
* Our analyses, opinions and conclusions were developed, and this Report has been prepared, in conformity with the American Institute of Certified Public Accountants Statement on Standards for Valuation Services.

Sincerely,

*DRAFT*

Samuel Renwick, CFA

Exhibits

1. IRS Revenue Ruling 59-60. [↑](#footnote-ref-2)
2. Accounting Standards Codification Topic 718 – *Stock Compensation* (formerly Statement of Financial Accounting Standards No. 123R, *Accounting for Share-Based Payment*). [↑](#footnote-ref-3)
3. Source: Company website, https://pliantrx.com/about/. [↑](#footnote-ref-4)
4. Ibid. [↑](#footnote-ref-5)
5. Source: Company website, https://pliantrx.com/our-science/. [↑](#footnote-ref-6)
6. Source: Information provided by Management. [↑](#footnote-ref-7)
7. Source: Company website, https://pliantrx.com/pipeline/. [↑](#footnote-ref-8)
8. Source: Information provided by Management. [↑](#footnote-ref-10)
9. Ibid. [↑](#footnote-ref-11)
10. Source: http://sci.ucoz.net/JP\_Morgan\_2019-Day\_3.pdf, Page 57. [↑](#footnote-ref-12)
11. Ibid. [↑](#footnote-ref-13)
12. Ibid. [↑](#footnote-ref-14)
13. SMAD3: refers to Mothers against decapentaplegic homolog 3 gene. [↑](#footnote-ref-22)
14. Source: Company website, https://pliantrx.com/pliant-therapeutics-presents-data-in-human-nash-liver-tissue-at-the-international-liver-congress-2019-hosted-by-the-european-association-for-the-study-of-the-liver-easl/. [↑](#footnote-ref-23)
15. Source: Company website, https://pliantrx.com/pliant-therapeutics-appoints-smital-shah-to-its-board-of-directors/. [↑](#footnote-ref-24)
16. Source: Information provided by the Management. [↑](#footnote-ref-25)
17. Source: http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=/netahtml/PTO/srchnum.html&r=1&f=G&l=50&s1=20180093984. [↑](#footnote-ref-26)
18. Source: Company website, https://pliantrx.com/our-team/#leadership. [↑](#footnote-ref-27)
19. Source: Company website, https://pliantrx.com/our-team/bernard-coulie-m-d-ph-d/. [↑](#footnote-ref-28)
20. Source: Company website, https://pliantrx.com/our-team/eric-lefebvre/. [↑](#footnote-ref-29)
21. Source: Company website, https://pliantrx.com/our-team/eduard-gorina-m-d/. [↑](#footnote-ref-30)
22. Source: Company website, https://pliantrx.com/our-team/katerina-leftheris-ph-d/. [↑](#footnote-ref-31)
23. Source: Company website, https://pliantrx.com/our-team/hans-hull-j-d/. [↑](#footnote-ref-32)
24. Source: Company website, https://pliantrx.com/our-team/keith-cummings-m-d-mba/. [↑](#footnote-ref-33)
25. Source: Company website, https://pliantrx.com/our-team/scott-turner-ph-d/. [↑](#footnote-ref-34)
26. Source: Company website, https://pliantrx.com/our-team/marzena-jurek-m-s/. [↑](#footnote-ref-35)
27. Source: Company website, https://pliantrx.com/our-team/eve-irene-lepist-ph-d/. [↑](#footnote-ref-36)
28. Source: Information provided by Management. [↑](#footnote-ref-37)
29. Company website, https://pliantrx.com/our-science/. [↑](#footnote-ref-38)
30. Source: Information provided by Management. [↑](#footnote-ref-39)
31. Source: Report, January 2019, “Idiopathic Pulmonary Fibrosis Treatment Market - Forecasts from 2019 to 2024”, https://www.researchandmarkets.com/reports/4756648/idiopathic-pulmonary-fibrosis-treatment-market. [↑](#footnote-ref-40)
32. Ibid. [↑](#footnote-ref-41)
33. Source: Report, October 2018, “Cystic Fibrosis Market Future Growth 2018-2026 by Global Top Players…”, https://www.openpr.com/news/1315153/Cystic-Fibrosis-Market-Future-Growth-2018-2026-by-Global-Top-Players-AbbVie-Aurora-Biosciences-Bayer-EryDel-Genentech-Novartis-Polydex-Pharmaceuticals-and-Roche-AG.html [↑](#footnote-ref-42)
34. Ibid. [↑](#footnote-ref-43)
35. Source: https://www.cff.org/What-is-CF/About-Cystic-Fibrosis/. [↑](#footnote-ref-44)
36. Source: Report, April 2018, “Global Cystic Fibrosis Market Report: 2028”, http://www.effemarket.com/global-cystic-fibrosis-market-report-2028.php. [↑](#footnote-ref-45)
37. Source: https://www.fda.gov/downloads/AboutFDA/CentersOffices/OfficeofMedicalProductsandTobacco/CDER/ReportsBudgets/UCM591976.pdf. [↑](#footnote-ref-46)
38. Source: https://www.the-nash-education-program.com/what-is-nash/. [↑](#footnote-ref-47)
39. 7MM = US, Germany, France, Italy, Spain, the UK, and Japan. [↑](#footnote-ref-48)
40. Source: https://www.prnewswire.com/news-releases/nonalcoholic-steatohepatitis-nash-market-analysis-market-size-epidemiology-leading-companies-and-competitive-analysis-by-delveinsight-831263698.html. [↑](#footnote-ref-49)
41. Source: Report, February 2019, “Non-Alcoholic Steatohepatitis (NASH) Market To Reach USD 13.38 Billion…”, https://www.globenewswire.com/news-release/2019/02/27/1743425/0/en/Non-Alcoholic-Steatohepatitis-NASH-Market-To-Reach-USD-13-38-Billion-By-2026-Reports-And-Data.html. [↑](#footnote-ref-50)
42. Source: Report, June 2018, “Non-Alcoholic Steatohepatitis (NASH) Market by Drug Type, and Sales Channel - Global Opportunity Analysis and Industry Forecast, 2021-2025”, https://www.alliedmarketresearch.com/nonalcoholic-steatohepatitis-NASH-market. [↑](#footnote-ref-51)
43. Source: Report, February 2018, “Global Non-Alcoholic Steatohepatitis (NASH) Market 2017-2025…”, https://www.businesswire.com/news/home/20180212005608/en/Global-Non-Alcoholic-Steatohepatitis-NASH-Market-2017-2025--. [↑](#footnote-ref-52)
44. Source: https://www.businesswire.com/news/home/20180608005345/en/Global-Idiopathic-Pulmonary-Fibrosis-Market-Analysis-Industry. [↑](#footnote-ref-53)
45. Source: https://www.marketwatch.com/press-release/global-cystic-fibrosis-cf-therapeutics-market-2019-by-top-manufactures-product-types-and-applications-2019-01-25. [↑](#footnote-ref-54)
46. Source: Report, February 2019, “Non-Alcoholic Steatohepatitis (NASH) Market To Reach USD 13.38 Billion…”, https://www.globenewswire.com/news-release/2019/02/27/1743425/0/en/Non-Alcoholic-Steatohepatitis-NASH-Market-To-Reach-USD-13-38-Billion-By-2026-Reports-And-Data.html. [↑](#footnote-ref-55)
47. Source: Report, June 2018, “Non-Alcoholic Steatohepatitis (NASH) Market by Drug Type, and Sales Channel - Global Opportunity Analysis and Industry Forecast, 2021-2025”, https://www.alliedmarketresearch.com/nonalcoholic-steatohepatitis-NASH-market. [↑](#footnote-ref-56)
48. Originally created in 1973, the Black‐Scholes option pricing model attempts to calculate the price of an option by considering several key factors, such as the underlying security price, exercise price, expiration date, risk‐free rate and the standard deviation of a stock’s return. Numerous assumptions underlie Black‐Scholes, including but not limited to, the log‐normal distribution of returns, and static risk‐free rates and volatility. [↑](#footnote-ref-57)
49. The binomial model was first proposed by Cox, Ross and Rubinstein in 1979, and essentially uses a “discrete-time” (lattice based) model of the varying price over time of the underlying financial instrument. In general, such models do not have closed-form solutions. [↑](#footnote-ref-58)
50. Gary R. Trugman, Understanding Business Valuation, (American Institute of Certified Public Accounts, 2002), pg 325. [↑](#footnote-ref-59)