

Decibel Therapeutics, Inc.

COMMON STOCK VALUATION

As Of MAY 25, 2018

*Report Date: April 4, 2019*



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April 4, 2019

Mr. Ronald Vigliotta

Vice President, Finance

Decibel Therapeutics, Inc.

1325 Boylston Street, Suite 500

Boston, MA 02215

Dear Mr. Vigliotta:

In response to the engagement letter, RNA Advisors, LLC dba RNA Capital Advisors (“RNA” or “we”) has completed an analysis of Decibel Therapeutics, Inc. (“Decibel” or the “Company”) as of May 25, 2018 (the “Valuation Date”), to determine both the fair value and the fair market 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:

$0.49 (FORTY-NINE 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**

**

Sam Renwick, CFA

*Primary Valuation Analyst*

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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 ASC 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, 2017, and through May 31, 2018 which Management indicated was the latest available as of the Valuation Date;
4. Reviewed a copy of the license and collaboration agreement (the “Agreement”) between Regeneron Pharmaceuticals, Inc. (“Regeneron”) and 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 term “BDNF”, as used herein, refers to the protein, brain derived neurotrophic factor.

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

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

The term “GJB2”, as used herein, refers to the protein, gap junction protein beta 2.

The term “GLP”, as used herein, refers to good laboratory practices.

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

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

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

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

The term “NTF3” or “NT-3, as used herein, refers to the protein, neurotrophin 3.

The term “NTRK2/TRKB”, as used herein, refers to the protein, neurotrophic receptor tyrosine kinase 2.

The term “NTRK3/TRKC”, as used herein, refers to the protein, neurotrophic receptor tyrosine kinase 3.

The term “Previous Valuation”, as used herein, refers to the valuation of Common Stock performed by RNA as of January 1, 2018.

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

The term “RNA”, as used herein, refers to the ribonucleic acid or RNA Capital Advisors, as per the context.

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

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.

The term “WHO”, as used herein, refers to the World Health Organization.

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

Decibel, founded in late 2015, develops therapeutics for the treatment of otology-related disorders such as hearing loss. The Company has established drug discovery, development, and translational research platform for hearing and balance disorders. The Company is developing DB-020, designed to prevent hearing loss resulting from administration of cisplatin. The Company is headquartered in Boston, Massachusetts.[[3]](#footnote-4)

Product Pipeline

As of the Valuation Date, the Company is at the IND-enabling phase of development for its lead candidate DB-020.[[4]](#footnote-5) The Company’s primary product pipeline and development timelines are discussed below:

**DB-020:** DB-020 is the Company’s lead candidate in development for the treatment of cisplatin-induced ototoxicity and permanent hearing loss.[[5]](#footnote-6)

Cisplatin is used as a chemotherapeutic agent for the treatment of neuroblastoma, osteosarcoma, hepatoblastoma, germ cell tumors, medulloblastoma, and other pediatric cancers. However, cisplatin commonly causes sensorineural hearing loss that is bilateral, irreversible, and may progress over time. Furthermore, survivors with hearing aids still experience abnormal hearing, tinnitus, poor speech discrimination in noisy environments, social hardships, and substantial expense.[[6]](#footnote-7)

DB-020 is currently in preclinical development and the Company expects to schedule a pre-IND meeting with the FDA by the mid of 2018, and initiate a dose range finding study in guinea pigs in May 2018, and GLP ototoxicity study in guinea pigs in August 2018.[[7]](#footnote-8) The Company plans to meet with the FDA in the third quarter of 2018 to gain consensus on its development strategy to support the IND, including: chemistry, manufacturing, and control (“CMC”) plans, toxicology plans, design of Phase I clinical studies, and future clinical development. The Company anticipates an IND filing with the FDA in the first quarter of 2019 and beginning its Phase I clinical trials.[[8]](#footnote-9)

**Gene Therapy:** Pursuant to the Agreement (described below), the Company licensed a pipeline for gene-based targets from Regeneron, targeting otoprotection and monogenic diseases.[[9]](#footnote-10)

Relative to the Previous Valuation, the product development remained on track and there were no significant changes in the product pipeline.

Recent Developments

1. On May 25, 2018, the Company closed Series C preferred financing of $55.1 million, led by S.R. One, Limited, GV (formerly Google Ventures), and Regeneron. The Company issued 27.5 million Series C preferred shares at an original issue price (“OIP”) of $2.00.[[10]](#footnote-11)
2. Based on discussions with Management, they were negotiating with Oricula Therapeutics LLC (“Oricula”) an agreement for developing therapeutics in collaboration for the treatment of hearing loss due to antibodies. Management anticipates closing the deal subsequent to the Valuation Date and will gain access to Oricula’s intellectual know-how and pipeline in accordance to the terms of the agreement they may settle upon.[[11]](#footnote-12)
3. On November 29, 2017, the Company announced the Agreement with Regeneron. Under the terms of the Agreement, the Company will receive access to Regeneron’s proprietary suite of technologies to aid in discovery of new medicines for hearing. Regeneron will also directly participate in and provide financial support for R&D efforts, both through R&D funding payments and a strategic equity investment in the Company. The Company retains worldwide development and commercialization rights to any products discovered in the collaboration and will pay Regeneron tiered royalties based on net sales.[[12]](#footnote-13)
4. On November 16, 2017, the Company closed Series B preferred financing of $25.0 million, led by Regeneron. The Company issued 12.5 million Series B preferred shares at an OIP of $2.00.[[13]](#footnote-14)

Agreement Summary[[14]](#footnote-15)

Under the terms of the Agreement, Regeneron provided a non-exclusive, non-transferrable, non-sublicensable, fully paid-up worldwide license for the following targets, and their intellectual know-how (“Regeneron Contributed IP”) for therapeutic development:

1. Otoprotection:
   1. BDNF;
   2. NTF3, NT-3;
   3. NTRK2/TRKB; and
   4. NTRK3/TRKC.
2. Monogenic Disease/Gene Therapy:
   1. SLC17A8/VGLUT3;
   2. TMC1; and
   3. GJB2.

Under the terms of the Agreement, Regeneron paid a one-time up-front payment of $25.0 million to the Company. Furthermore, Regeneron made an equity investment of 12,500,000 shares of Series B at $2.00 per share. The upfront payment and milestones are sized to approximate a 50.0%/50.0% split of costs for development of a product through the initiation of registration-enabling trials. Upon initiation of registration-enabling trials, the Company and Regeneron will share most development costs on a 50.0%/50.0% basis. The Company will pay royalties to Regeneron on net sales of each product it commercializes, with the level of those royalties dependent on the extent and value of technology contributed by Regeneron, how far into development Regeneron continues to co-fund development, and the net sales of each product. At various points throughout a product’s development, Regeneron can choose to opt out of supporting a product, in which case the downstream royalties payable by the Company on net sales of that product are reduced. The Company will own essentially all technology/IP developed and retains worldwide development and commercialization rights to all products that arise from the Agreement.

**Development Milestone Payments**

Upon achievement of each of the following Development Milestones set forth below, the Regeneron shall pay to the Company the following amounts for the product that Regeneron develops through commercialization (“Cost Share Product”):

*Table 1: Development Milestone Payments*

|  |  |  |
| --- | --- | --- |
| **Milestone Event** | **Milestone Payment** | |
|  | **Biologic Product** | **Molecule Product** |
| GLP Toxicology Study Manufacturing | $4.4 million | $1.4 million |
| GLP Toxicology Study Initiation | $1.1 million | $2.1 million |
| Phase I Initiation | $10.0 million | |
| Phase II Initiation | $20.0 million | |

Regeneron may opt-out of any collaboration product at one of three points:

1. Once the IND is submitted to the FDA;
2. Immediately prior to the initiation of a registration enabling trial or marketing authorization application; and
3. At any time after points (i) and (ii) upon 270 days’ notice.

**Royalties**

Royalties are payable on net sales of products and range from approximately 5.0% to 35.0%, with the exact royalty rate depending on several factors:

1. The extent to which Regeneron shared in the funding of the product;
2. The level of sales of the product;
3. The nature of any IP contributed by Regeneron included in the product; and
4. Whether the product is sold inside or outside the field.

For a Cost Share Product, the royalty rate ranges from 25.0% to 35.0% (depending on the level of sales).

Intellectual Property

Under the terms of the Agreement, Regeneron provided a non-exclusive, non-transferrable, non-sublicensable, fully paid-up worldwide license in the Regeneron Contributed IP. Furthermore, the Company is also working on patent application for DB-020.

Management Team

Key members of the Management team are:

**Steven Holtzman – *Chief Executive Officer and President[[15]](#footnote-16)***

Steven Holtzman joined the Company as President and Chief Executive Officer (“CEO “) in 2016. Prior to the Company, he served as Executive Vice President (“EVP”) of Corporate Development at Biogen, Inc. (“Biogen”), where he led eight new drug approvals. Previously, Mr. Holtzman was the Founder, CEO and Board Chair of Infinity Pharmaceuticals, Inc. (“Infinity Pharmaceuticals”), a cancer drug discovery and development company. He was also an Early Leader and the Chief Business Officer of Millennium Pharmaceuticals (now Takeda Oncology), a pioneer in large-scale genetics and genomics, and was a Founder, Board Member and EVP of DNX Corporation, the first transgenic animal company. Mr. Holtzman is a director at Visterra, Warp Drive Bio and Molecular Partners and a Strategic Business Advisor to Humatics, Compugen and Marauder Therapeutics. In the not-for-profit arena, Mr. Holtzman is a trustee of the Berklee College of Music and served as Vice Chairman of the Board of Trustees of the Bioethics Research Institute, The Hastings Center.

Steven holds a Bachelor of Arts (“B.A.”) degree in Philosophy from Michigan State University and a Bachelor of Philosophy degree from Corpus Christi College at the University of Oxford, where he was a Rhodes Scholar.

**Paula Cobb – *Chief Operating Officer[[16]](#footnote-17)***

Paula Cobb joined the Company in September 2016 as the EVP of Corporate Development and was promoted to chief operating officer in 2019. Prior to the Company, she served as Senior Vice President (“SVP”) of the rare disease group at Biogen Inc. (“Biogen”). With nearly 20 years of experience in the biotechnology industry, Ms. Cobb has led teams to three new drug approvals and played key roles on four product launches. At Biogen, she served in various senior and global roles. As the SVP of the rare disease group, she was responsible for Biogen’s marketed hemophilia assets and Phase 3 programs in spinal muscular atrophy and neuropathic pain. Prior to this role, Ms. Cobb managed the multiple sclerosis franchise, led new product commercialization for early pipeline programs, served as the Chief of Staff to the CEO and held various operational managerial roles with Biogen in Europe. Before Biogen, she worked for various consulting groups in the Boston area. Ms. Cobb serves on the Board of Nightstar Therapeutics plc.

Ms. Cobb has a B.A. in Political Science and English from Amherst College and a Master of Business Administration (“M.B.A.”) degree from the Harvard University Graduate School of Business Administration.

**Shin-San Michael Su, Ph.D. – *Chief Scientific Officer[[17]](#footnote-18)***

Dr. Su joined the Company as the Chief Scientific Officer in August 2016. Previously, he served as co-founder and SVP of R&D at Agios Pharmaceuticals, Inc. (“Agios”) and has more than 25 years of experience in the biotechnology industry. During his time at Agios, he led the team responsible for identifying oncogenic causes for mutant isocitrate dehydrogenase programs and led the discovery of the resulting drug candidates, which are currently in late-stage clinical development. He also chaired the Agios-Celgene joint research collaboration from 2010 to 2013 and led drug discovery for rare genetic diseases. From 2004 to 2006, he served as General Director and VP of the Biomedical Engineering Research Laboratory at the Industrial Technology Research Institute in Taiwan. Prior to that, he spent 14 years in a number of scientific leadership roles at Vertex Pharmaceuticals, concluding his tenure as Program Executive and Vice President of the Novartis kinase collaboration.

Dr. Su holds a Ph.D. in biochemistry from Duke University and has completed postdoctoral work through the Helen Hay Whitney Foundation Fellowship in Biochemistry and Molecular Biology at Harvard University. He has been published over 50 times with more than 20 issued and pending patents.

**John Keilty – *Chief Data Sciences Officer[[18]](#footnote-19)***

Mr. Keilty joined the Company from Third Rock Ventures, where he served as the General Manager of Platform Operations, responsible for the development and implementation of technology roadmaps for companies across the portfolio. Prior to this role, Mr. Keilty was the VP of Information Technology and Informatics at Infinity Pharmaceuticals, where he owned information systems, software development, computational science, biostatistics, clinical data management and clinical informatics. Before joining Infinity Pharmaceuticals in 2002, Mr. Keilty was an early member of Millennium Pharmaceuticals, where he held various roles of increasing responsibility, with broad ownership for the creation, management, implementation and transfer of many of the company’s core genomic technologies. Before Millennium Pharmaceuticals, Mr. Keilty worked in the Howard Hughes lab of Dr. Michael Green at the University of Massachusetts Medical School, focusing on basic research in transcription and gene splicing.

Mr. Keilty received his B.A. in Biology from Clark University and his Master of Arts (“M.S.”) in Bioinformatics from Brandeis University.

**Anna Trask – *Chief People, Community, and Culture Officer[[19]](#footnote-20)***

Ms. Trask joined the Company as Chief People, Community, and Culture Officer in January 2018, bringing with her nearly 30 years of experience in the field of human resources. Prior to the Company, Ms. Trask served as Senior Director, Human Resources at the Dana-Farber Cancer Institute, as Chief Human Resource Officer at Boston Medical Center HealthNet Plan and in leadership positions at Neighborhood Health Plan, Pine Manor College, and Harvard Pilgrim Health Care/Harvard Community Health Plan. Across these roles, she was responsible for creating and implementing innovative organizational design and development programs to improve critical areas such as transparency, efficiency, and effectiveness; professional development and organizational diversity.

Ms. Trask graduated with a B.A. in Politics from Mount Holyoke College and has a Master’s degree in Psychology from Boston University.

**John Lee – *EVP, Pharmaceutical Development[[20]](#footnote-21)***

John Lee joined the Company in September 2016 as the EVP of Pharmaceutical Development and brings over 20 years of experience in the biotechnology industry. Prior to the Company, he served as the SVP of Pharmaceutical Development at Infinity Pharmaceuticals. Throughout his 15 years at Infinity Pharmaceuticals, Mr. Lee held roles of increasing responsibility and leadership. Most recently, he was responsible for CMC, analytical sciences, formulation sciences and clinical supply and distribution for the company’s drug candidates across all phases of global clinical development. He was also Co-Chair of Infinity Pharmaceuticals’ operational leadership team. Previously, Mr. Lee was a new Product Manager at Corning Life Sciences (“Corning”), where he was responsible for developing new life science products. Before Corning, Mr. Lee was an early member of Millennium Pharmaceuticals and played a key role in the successful positional cloning of the mouse obesity gene tubby, before becoming project lead for an ovarian cancer diagnostic program. Prior to Millennium Pharmaceuticals, Mr. Lee worked in the developmental chronobiology lab of Steven Reppert at Massachusetts General Hospital, where he focused on cloning G-protein coupled receptors and circadian biology.

Mr. Lee received his Bachelor’s degree in Materials Science and Engineering from the Massachusetts Institute of Technology.

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** | 57,758,734 | 57,758,734 | 57,758,734 |
| **Series B** | 12,500,000 | 12,500,000 | 12,500,000 |
| **Series C** | 27,528,581 | 27,528,581 | 27,528,581 |
| **Common** | 130,000,000 | 27,759,431 | 27,759,431 |

As of the Valuation Date, the Company had 2,454,542 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.

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 D: Management indicated that the Company expects to raise $50.0 to $75.0 million in Series D preferred financing by the end of 2019.[[21]](#footnote-22)

Notwithstanding, we did not consider the future financing in our analysis considering the methodology applied.

Stage of Development

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

Stage 1 companies have no product revenue and limited expense history. Typically, there is an incomplete Management team with an idea, a plan, and possibly some initial product development. Seed capital or first-round of financing is provided during this stage by friends and family, angels or venture-capital firms and the securities issued to these investors are in the form of common stock or preferred stock.

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 between Stage 1 and 2 because its products are currently in IND-enabling/ preclinical stage of development and has raised three rounds of equity financing. Furthermore, considering the proximity between the Previous Valuation and the Valuation Date, the Company hasn’t made any material progress on the product development. As such, the Company does not expect to generate revenue for many years considering the stage of product development.

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 an overview on hearing impairment, along with a brief overview of the market for otology therapies targeting hearing loss as well as a discussion of the competitive environment in that space.

Hearing Impairment

According to the WHO, over 5.0% of the world’s population (466.0 million people) has disabling hearing loss, of which adults account for 432.0 million and children account for 34.0 million. It is estimated that by 2050 over 900.0 million people, nearly one in every ten people will have disabling hearing loss. Hearing loss may result from genetic causes, complications at birth, certain infectious diseases, chronic ear infections, the use of certain drugs (e.g. cisplatin), exposure to excessive noise, and ageing.[[22]](#footnote-23)

It is estimated that up to five out of every thousand babies are born with hearing loss or acquire it soon after birth. In children 30.0% of the hearing loss is caused by diseases such as measles, mumps, rubella, meningitis, and ear infections. Globally, an estimated 330.0 million people suffer with chronic ear infections or chronic otitis media. Left untreated chronic ear infections can lead to hearing loss and even life-threatening complications.[[23]](#footnote-24) Unaddressed hearing loss poses an annual global cost of $750.0 million, impacting health, education, and employment sectors.[[24]](#footnote-25)

Hearing loss treatment paradigm:

1. Generally caused by a condition in the outer or middle inner ear, conductive hearing loss is usually temporary. Conductive hearing loss can result from earwax build-up, fluid in the middle ear or a perforated eardrum. Conductive hearing loss treatment options usually involve medical intervention to address the specific cause, such as cleaning and use of assistive listening devices, hearing aids, and implants; and
2. Sensorineural hearing loss is permanent and, because it's not possible to restore the lost hearing, the most widely used and effective treatment is hearing aids. Sensorineural hearing loss originates in the inner ear and/or auditory nerve and is generally caused by damage to the inner ear hair cells. Since, hair cells do not repair themselves and cannot be medically treated once damaged, sensorineural hearing loss is the most prevalent form of permanent hearing loss. Most cases of sensorineural hearing loss can be improved using hearing aids or cochlear implants.[[25]](#footnote-26)

**Otology Therapy Market**

In the US, 15.0% of adults suffer from hearing loss. While hearing therapies such as hearing aids and implants that amplify sounds enhance hearing capabilities, they have limited effect. According to the statistics by the National Institutes of Health, about 3 of every 1,000 children in the US are born with a detectable level of hearing loss in one or both ears. Every 1 in 8 Americans (30.0 million) aged 12 years or older has hearing loss in both ears. Close to 38.0 million Americans age 18 and over report some trouble hearing.[[26]](#footnote-27)

According to the WHO, 60.0% of the hearing loss cases in children under 15 years of age is due to preventable causes. The figure is higher in low- and middle-income countries (75.0%) as compared to high-income countries (49.0%). Hearing loss among children is due to preventable causes, which include: infections such as mumps, measles, rubella, meningitis, cytomegalovirus infections, and chronic otitis media, birth complications, use of ototoxic medications and others. Thus, early detection and intervention are crucial to minimizing the impact of hearing loss on a child’s development and educational achievements.[[27]](#footnote-28)

Currently, the treatment paradigm for hearing loss includes devices such as hearing aids and cochlear implants. The global market for hearing aids totaled $6.2 billion in 2016, and is estimated to reach $9.7 billion by 2023, representing a CAGR of 6.1%.[[28]](#footnote-29) The global market for cochlear implants was valued at $1.4 billion in 2017, and is forecast to grow with a CAGR of 9.6% between 2017 and 2024, to reach a total value of $2.6 billion in 2024.[[29]](#footnote-30) Currently there are no approved therapeutic treatments available for hearing loss and there exists unmet need for such therapies. Some companies described below in the “Competition” section are developing therapies that cater to tinnitus, hearing loss, ear infections, and other ear-related diseases.

**Cisplatin-Induced Hearing Loss**

Cisplatin is a platinum-based chemotherapy drug widely used for the treatment of solid tumors ranging from ovarian, lung, head, and neck to testicular cancer. However, it has several side effects, such as ototoxicity, neurotoxicity, and nephrotoxicity. Among these, ototoxicity occurs due to the cisplatin accumulated in the inner-ear (cochlea), which damages the cochlea, leaving 40.0 to 80.0% of the adults and almost 50.0% of the children with significant hearing loss. Unlike other organs in the body, cisplatin lodged in the inner-ear isn’t eliminated or removed automatically by the body, thus accumulating and causing damage to the cochlea. Cisplatin-induced hearing loss is bilateral and permanent and severely affects the quality of life for cancer patients. Currently there is no approved therapy for ototoxicity. Research suggests that children are more susceptible to cisplatin induces toxicity.[[30]](#footnote-31) Hearing loss among children receiving platinum-based chemotherapy is frequent, permanent, and often severely disabling. The incidence of hearing loss in these children depends upon the dose and duration of chemotherapy.[[31]](#footnote-32)

Competition

Key competitors of the Company include Auris Medical Holding AG, Fennec Pharmaceuticals, Inc., Novus Therapeutics, Inc., Otonomy, Inc., and Sensorion SA.[[32]](#footnote-33)

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 as of 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”)[[33]](#footnote-34) a lattice model (“Lattice”)[[34]](#footnote-35) 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.

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

Given the proximity of Series C financing to the Valuation Date, the OPM Backsolve method was deemed an appropriate methodology to use in estimating the value of the Common Stock. This Method sets the price of the most recent round of financing to its implied price and then uses the solver function in Microsoft Excel to calculate the implied equity value of the Company using the OPM allocation methodology. The premise of this method is that the transaction implied a market price of the Series C preferred which, in turn, implied values for the other classes of equity based on relative claims on equity value.

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.

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 D.1 and D.2 for details on enterprise value, projections, operating metrics, market capitalization, business descriptions, and other metrics for the selected Guideline Public Companies.

1. Editas Medicine, Inc.;
2. Oxford BioMedica plc;
3. Fennec Pharmaceuticals Inc.;
4. ProQR Therapeutics N.V.;
5. Genkyotex SA;
6. Novus Therapeutics, Inc.;
7. Sensorion SA;
8. Otonomy, Inc.; and
9. Auris Medical Holding AG.

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 developing therapies for the treatment of cisplatin-induced hearing loss, 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 pre-revenue. 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.

RNA reviewed the M&A transactions in recent years in similar industries and considered various transactions that were comparable to the Company. Refer to Exhibit D.1 and D.2 for further details.

RNA acknowledged the characteristics of the target companies underlying the Guideline Transactions, detailed as follows:

1. The Company’s operations focus primarily on developing therapies for cisplatin-induced hearing loss, which is 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 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.

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.

Option Pricing Method

We constructed an OPM analysis, which is very similar to that outlined in the Practice Aid. In essence, we performed a series of call-option value calculations using the Black-Scholes option pricing model. These option calculations were established at different breakpoints (value inflection points, which represent changes in the allocation or proceeds to the investors in the Company’s capital structure). Refer to Exhibit B.1 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 DLOM was then applied to the Common Stock. Refer to Exhibit F.1 for further details.

RNA also considered the following elements for purposes of performing the OPM:

1. 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 and/or the expected timing of exits under the OPM;
2. Implied Equity Volatility (“Volatility”): Reflects the expected tendency of the Company’s enterprise value to change over time. Equity volatility would be considered the standard deviation of a stock’s return in terms of Black-Scholes. RNA estimated Volatility based primarily on the historical changes in stock prices of the Guideline Public Companies over a period similar to the Time to Liquidity. Refer to Exhibits F.2 and F.3;
3. 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;
4. 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
5. 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.

**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 stockholders 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, Protective Put 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 Backsolve. Refer to “Discounts and Premiums” section below for further details.

**OPM Conclusion**

Based on our analysis, the value of Common Stock was $0.49/share on a non-marketable, minority basis. Refer to Exhibits B.1 and B.2 for the results and calculations underlying the OPM.

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 35.2%.

**Protective Put Analysis**

If a common stockholder were able to lock in the estimated price of the investment until the expected liquidity date, the cost of locking in that price could be studied through put option analysis. A put on the allocated value would lock in the common shareholder’s price by providing protection from downside risk. If the stock price were lower than the allocated value over the term, the put would protect the investor from this downside risk since the common stock holder would be able to sell his/her shares at the put strike price.

In practice, creating a market for the puts would be expensive and the banking fees associated with the creation of these derivatives would be high. As a result, the protective put option only captures part of the equation. The protective put would need to be adjusted upward to reflect banking costs associated with creating a market for the transaction to take place. Based on this analysis, RNA determined a DLOM of 51.6%.

**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 40.0%.

**DLOM Conclusion**

Based on the quantitative and qualitative analysis above, RNA concluded a DLOM of 40.0% to be applied to the Common Stock. Refer to Exhibit F.1 for further details. Relative to the Previous Valuation, we reduced the DLOM by 5.0% considering the lower Time to Liquidity.

Conclusion

Based on our analysis, our opinion of the fair market value and the fair value of the Common Stock of the Company, on a non-marketable, minority interest basis as of the Valuation Date is **$0.49 (FORTY-NINE CENTS) per Share**.

*Table 2: Valuation Summary*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **VALUATION SUMMARY** |  |  | **(USD IN THOUSANDS  EXCEPT PER SHARE PRICE)** | | | |
| **Allocation of Value** |  |  | **Common Stock** | **Equity Value** | | **Selected Approach** |
| Option Pricing Model |  |  | $0.49 | $161,440 | | Primary |
| **Concluded fair market value of Common  Stock (non-marketable, minority basis)** | | | | | **$0.49** | |

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 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,

**

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: https://www.businesswire.com/news/home/20190205005103/en/Decibel-Therapeutics-Bolsters-Leadership-Team-Appointments-Chief. [↑](#footnote-ref-4)
4. Source: Information provided by Management. [↑](#footnote-ref-5)
5. Ibid. [↑](#footnote-ref-6)
6. Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6051159/. [↑](#footnote-ref-7)
7. Ibid. [↑](#footnote-ref-8)
8. Source: Information provided by Management, May 2018 BOD – DB-020.pdf. [↑](#footnote-ref-9)
9. Source: Information provided by Management, Regeneron License and Collaboration Agreement [Executed].pdf. [↑](#footnote-ref-10)
10. Source: Information Provided by the Management, Series C Cap Table - Final for May 25th.xlsx. [↑](#footnote-ref-11)
11. Source: Information Provided by the Management. [↑](#footnote-ref-12)
12. Source: Company website, https://www.decibeltx.com/regeneron-and-decibel-therapeutics-announce-strategic-collaboration-to-discover-and-develop-therapeutics-for-hearing-loss-and-tinnitus/. [↑](#footnote-ref-13)
13. Source: Information provided by Management. [↑](#footnote-ref-14)
14. Source: Information provided by Management, Regeneron License and Collaboration Agreement [Executed].pdf. [↑](#footnote-ref-15)
15. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-16)
16. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-17)
17. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-18)
18. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-19)
19. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-20)
20. Source: Company website: https://www.decibeltx.com/about/. [↑](#footnote-ref-21)
21. Source: Information provided by Management. [↑](#footnote-ref-22)
22. Source: https://www.who.int/en/news-room/fact-sheets/detail/deafness-and-hearing-loss. [↑](#footnote-ref-23)
23. Source: Ibid, https://www.who.int/features/factfiles/deafness/en/. [↑](#footnote-ref-24)
24. Source: https://www.who.int/en/news-room/fact-sheets/detail/deafness-and-hearing-loss. [↑](#footnote-ref-25)
25. Source: https://www.healthyhearing.com/help/hearing-loss/treatment. [↑](#footnote-ref-26)
26. Source: https://www.cnbc.com/2018/01/02/hearing-loss-drug-breakthroughs-attract-big-pharma-venture-capital.html. [↑](#footnote-ref-27)
27. Source: https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss. [↑](#footnote-ref-28)
28. Source: https://www.alliedmarketresearch.com/hearing-care-devices-market. [↑](#footnote-ref-29)
29. Source: https://globenewswire.com/news-release/2018/12/05/1662170/0/en/Global-Cochlear-Implants-Market-Expected-to-Reach-USD-2-6-Billion-By-2024-Zion-Market-Research.html. [↑](#footnote-ref-30)
30. Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5663723/, https://www.cancer.gov/news-events/cancer-currents-blog/2018/cisplatin-hearing-loss [↑](#footnote-ref-31)
31. Source: Fennec Pharmaceuticals, SEC 10-Q filing, September 30, 2017. [↑](#footnote-ref-32)
32. Source: Information provided by the Management. [↑](#footnote-ref-33)
33. 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-34)
34. 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-35)