LITCHFIELD HILLS RESEARCH

# Adial Pharmaceuticals, Inc. ADIL-$5.00 PT

## Action Summary – 29 June 2021

Analyst Theodore R. O'Neill ***is initiating coverage of Adial Pharmaceuticals, Inc.***

- **We are initiating coverage of Adial Pharmaceuticals, Inc. with a Buy rating and $5.00 price target.** Adial Pharmaceuticals is a clinical-stage biopharmaceutical company focused on developing therapies for the treatment and prevention of addiction and related disorders
- **Addressing an unmet medical need of millions.** According to the National Institute of Alcohol Abuse and Alcoholism and the Journal of the American Medical Association, in the United States alone, approximately 35 million people each year have Alcohol Use Disorder (AUD). These people have few options other than making public that they have AUD and need to stay sober.
- **Tapping a $250 billion market.** The Centers for Disease Control (the "CDC") has reported that AUD costs the U.S. economy about $250 billion annually.
- **Entering the genetic test market**. On June 22, 2021, the Company announced plans to enter the genetic testing market after it received a Notice of Allowance from the U.S. Patent and Trademark Office for its genetic diagnostic. We believe this could become a multi-billion-dollar market opportunity.
- **Potentially outstanding margins.** The active pharmaceutical agent in its lead investigational new drug product, is ondansetron and it has contracted with a U.S. manufacturer to acquire it at under $0.01 per dose.
- **Talented management team with a track record of success.** The majority of the management team are veteran biopharma executives with experience in research and product development.
- **Shares appear to be priced significantly below absolute and comparative metrics**: at the peers average 2022 sales multiple of 5.06, the implied price would be more than twice where it trades today.

| | | | |
|---|---|---|---|
| **6/28 Closing price: $2.73** | **Market cap: $48 million** | **Multiple of book: NMF** | **EV/2021 Sales: NMF** |
| **Shares outstanding: 16.7 million** | **Insider ownership: 16%** | **Avg. trading volume: 4,281,169** | **Dividend/Yield: NA/NA** |

## GAAP estimates (EPS in dollars – Revenue in millions)

| Period | EPS | Revenue | Op Margin |
|---|---|---|---|
| 1Q20A | ($0.22) | $0.00 | |
| 2Q20A | ($0.16) | $0.00 | |
| 3Q20A | ($0.24) | $0.00 | |
| 4Q20A | ($0.24) | $0.00 | |
| FY20A | ($0.87) | $0.00 | NMF |
| 1Q21A | ($0.30) | $0.00 | |
| 2Q21E | ($0.17) | $0.00 | |
| 3Q21E | ($0.19) | $0.00 | |
| 4Q21E | ($0.14) | $0.00 | |
| FY21E | ($0.77) | $0.00 | NMF |
| 1Q22E | ($0.17) | $0.00 | |
| 2Q22E | ($0.11) | $0.00 | |
| 3Q22E | ($0.15) | $0.00 | |
| 4Q22E | ($0.11) | $0.00 | |
| FY22E | ($0.54) | $0.00 | NMF |

Note: Numbers may not add due to rounding. See our full model in the back of this report.

### Cash balance (in millions)

| | |
|---|---|
| • 2019A | • $6.77 |
| • 2020A | • $4.40 |
| • 2021E | • $4.27 |
| • 2022E | • $4.86 |

### Debt (in millions)

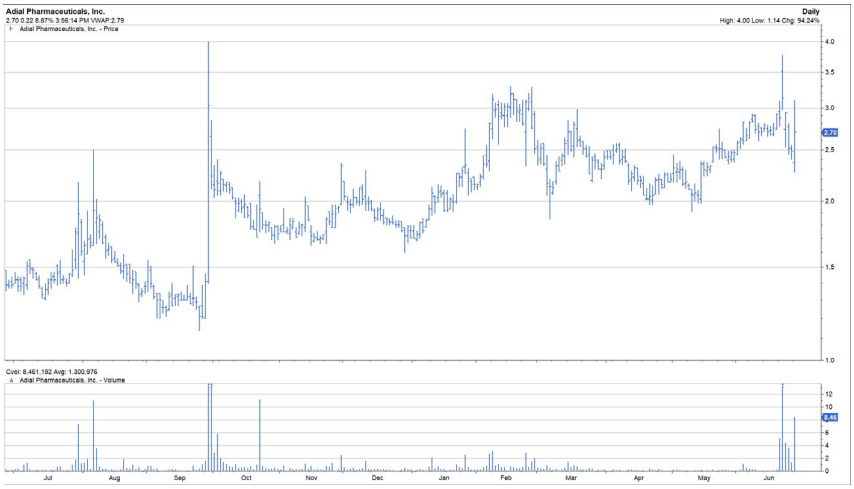
| | |
|---|---|
| • 2019A | • $0.00 |
| • 2020A | • $0.00 |
| • 2021E | • $0.00 |
| • 2022E | • $0.00 |

## Risks/Valuation

- Risks include: Highly regulated and competitive business, commercial development and marketing
- Our $5.00 target is derived using a discounted future earnings model

**Company description**: Adial Pharmaceuticals is a clinical-stage biopharmaceutical company focused on developing therapies for the treatment and prevention of addiction and related disorders.

*Figure 1 – Adial Pharmaceuticals, Inc. - Trading snapshot*




*Source: FactSet*

## Investment Thesis

**We are initiating coverage of Adial Pharmaceuticals, Inc. with a Buy rating and $5.00 price target.** Adial Pharmaceuticals is a clinical-stage biopharmaceutical company focused on developing therapies for the treatment and prevention of addiction and related disorders. The Company's lead investigational drug product, AD04, is a genetically targeted, serotonin-3 receptor antagonist, therapeutic agent for the treatment of Alcohol Use Disorder (AUD). The company hopes to create the world's leading addiction focused pharmaceutical company.

**Addressing an unmet medical need of millions.** According to the National Institute of Alcohol Abuse and Alcoholism (the "NIAAA") and the Journal of the American Medical Association ("JAMA"), in the United States alone, approximately 35 million people each year have AUD. These people have few options other than making public that they have AUD and need to stay sober. We estimate that the total number of people in the U.S. who are have taken that step is fewer than 5% of the target population, leaving open an enormous market for an alternative treatment that is simply between you and your doctor, like high blood pressure or cholesterol, and is nobody's business.

**Tapping a $250 billion market.** The Centers for Disease Control (the "CDC") has reported that AUD costs the U.S. economy about $250 billion annually.

**Entering the genetic test market**. On June 22, 2021, the Company announced plans to enter the genetic testing market after it received a Notice of Allowance from the U.S. Patent and Trademark Office related to use of the Company's genetic diagnostic panel in combination with the Company's lead product, AD04, for the treatment of Alcohol Use Disorder (AUD). The Company believes that there is a genetic component to AUD and we believe that such diagnosis by itself could become a multi-billion-dollar market opportunity.

**Potentially outstanding margins.** The active pharmaceutical agent in AD04, its lead investigational new drug product, is ondansetron and since ondansetron is already manufactured for generic sale, the active ingredient for AD04 is readily available from several manufacturers, and it has contracted with a U.S. manufacturer to acquire it at under $0.01 per dose.

**Talented management team with a track record of success.** The majority of the management team are veteran biopharma executives with experience in research and product development.

**Shares appear to be priced significantly below absolute and comparative metrics**: at the peers average 2022 sales multiple of 5.06, the implied price would be more than twice where it trades today.

## Valuation Methodology

We believe ADIL is undervalued and we support that belief with two valuation techniques; discounted future earnings and; sales metrics relative to peers. For the purposes of determining our price target we use a discounted future earnings model. Depending on the regulatory approval process, the timing of first revenues appears binary; it may make its first meaningful revenue in 2023 following swift regulatory approval or; it may be required to extend trials, in which case, first meaningful revenue may not occur until 2025. We take the average of discounted future earnings under those two scenarios to determine our price target. The following valuation techniques are being used:

1) The discounted value of all future earnings, used for our price target (see Figure 2 and 3)
2) Valuation based on peer sales metrics (see Figure 4)

### Discounted Future Earnings – Basis for Price Target

Our 12-month price target of $5.00 is based on the average of a two-scenario discounted earnings model. Figure 2 shows the implied value of all future earnings discounted at 15%. It is based on reaching breakeven in 2023 and implies a stock value of $6.00. Figure 3 shows the implied value of all future earnings at the same discount rate but not reaching breakeven until 2025. It implies a stock value of $4.14. The average of those two is $5.07 which we round down to $5.00.

*Figure 2 – Adial Pharmaceuticals, Inc. – Discounted Future Earnings Assuming B/E in 2023*

| **Discounted Earnings:** | | **$6.00** |
|---|---|---|
| Year | EPS | Discounted EPS |
| 2021 | (0.67) | (0.67) |
| 2022 | (0.54) | (0.47) |
| 2023 | 0.05 | 0.04 |
| 2024 | 0.45 | 0.30 |
| 2025 | 0.55 | 0.31 |
| 2026 | 0.68 | 0.34 |
| 2027 | 0.95 | 0.41 |
| 2028 | 1.43 | 0.54 |
| 2029 | 1.50 | 0.49 |
| 2030 | 1.75 | 0.50 |
| | **Terminal Value:** | 4.21 |

*Source: Litchfield Hills Research LLC*

*Figure 3 – Adial Pharmaceuticals, Inc. – Discounted Future Earnings Assuming B/E in 2025*

| **Discounted Earnings:** | | | **$4.14** |
|---|---|---|---|
| Year | | EPS | Discounted EPS |
| 2021 | 0 | (0.67) | (0.67) |
| 2022 | 1 | (0.54) | (0.47) |
| 2023 | 2 | (0.60) | (0.45) |
| 2024 | 3 | (0.40) | (0.26) |
| 2025 | 4 | 0.05 | 0.03 |
| 2026 | 5 | 0.45 | 0.22 |
| 2027 | 6 | 0.68 | 0.29 |
| 2028 | 7 | 1.02 | 0.38 |
| 2029 | 8 | 1.07 | 0.35 |
| 2030 | 9 | 1.75 | 0.50 |
| | | **Terminal Value:** | 4.21 |

*Source: Litchfield Hills Research LLC*

## Valuation Relative to Peers

If we compare ADIL to a simple average of its peers (Figure 4), the shares sell at a significant discount on the one measure we can use for comparison: Sales multiple. For this analysis, we take the one-year out sales multiple (2022 peer average sales multiple of 5.06) and apply it as if it were 2022 and looking into 2023 when the company could reach breakeven. We assume the company will raise more capital and the share count rises to 27MM. The implied share price is $5.72. This supports our $5 price target. Details on the peers can be found in Figure 5 near the back of the report. The companies we used in Figure 5 are in similar lines of business although none of them are a perfect match.

*Figure 4 – Adial Pharmaceuticals, Inc. – Peer Driven Valuation*

| | |
|---|---|
| Average Out-year 2022 Sales Multiple for Peers | 5.06 |
| ADIL potential 2023 revenue | $30.5MM |
| Implied Market Cap in 2022 at the Average out-year sales multiple | $154.3MM |
| ADIL 2023 Estimated share count | 27MM |
| **Implied Share Price** | **$5.72** |

*Source: Litchfield Hills Research LLC and Refinitiv Eikon*

# Guidance and Financial Forecasts

Company provides no guidance. Our forecasts assume there are no revenues before 2023 and that the company will have a capital raise sometime in the next 12 months. As of the last filing, the cash balance was ~$5.6MM.

# Company Overview

## Summary

Adial Pharmaceuticals is a clinical-stage biopharmaceutical company focused on developing therapies for the treatment and prevention of addiction and related disorders. The Company's lead investigational drug product, AD04, is a genetically targeted, serotonin-3 receptor antagonist, therapeutic agent for the treatment of Alcohol Use Disorder (AUD). It is currently being investigated in the Company's landmark ONWARD™, pivotal Phase 3 clinical trial for the potential treatment of AUD in subjects with certain target genotypes, which are to be identified using the Company's proprietary companion diagnostic genetic test.

A Phase 2b clinical trial of AD04 for the treatment of AUD showed promising results in reducing frequency of drinking, quantity of drinking and heavy drinking (all with statistical significance), and no overt safety concerns (there were no statistically significant serious adverse events reported). AD04 is also believed to have the potential to treat other addictive disorders such as Opioid Use Disorder (OUD), gambling, and obesity. The Company develops adenosine analogs for the treatment of pain and other disorders.

In January 2021, ADIL expanded its portfolio in the field of addiction with the acquisition of Purnovate, LLC, and it continues to explore opportunities to expand its portfolio in the field of addiction and related disorders, both through internal development and through acquisitions. The company hopes to create the world's leading addiction focused pharmaceutical company.

On June 22, 2021, the company announced it had received a Notice of Allowance from the U.S. Patent and Trademark Office for its genetic diagnostic panel used in conjunction with its AD04 trial. The Company now plans to enter the genetic testing market.

## Details

According to the National Institute of Alcohol Abuse and Alcoholism (the "NIAAA") and the Journal of the American Medical Association ("JAMA"), in the United States alone, approximately 35 million people each year have AUD (such number is based upon the 2012 data provided in Grant et. al. the JAMA 2015 publication and has been adjusted to reflect a compound annual growth rate of 1.13%, which is the growth rate reported by U.S. Census Bureau for the general adult population from 2012-2017), resulting in significant health, social and financial costs with excessive alcohol use being the third leading cause of preventable death and is responsible for 31% of driving fatalities in the United States (NIAAA Alcohol Facts & Statistics). AUD contributes to over 200 different diseases and 10% of children live with a person that has an alcohol problem. According to the American Society of Clinical Oncologists, 5-6% of new cancers and cancer deaths globally are directly attributable to alcohol. And, *The Lancet* published that alcohol is the leading cause of death in people ages 15-49 globally. The Centers for Disease Control (the "CDC") has reported that AUD costs the U.S. economy about $250 billion annually, with heavy drinking accounting for greater than 75% of the social and health related costs. Despite this, according to the article in the JAMA 2015 publication, only 7.7% of patients (i.e., approximately 2.7 million people) with AUD are estimated to have been treated in any way and only 3.6% by a physician (i.e., approximately 1.3 million people). In addition, according to the JAMA 2017 publication, the problem in the United States appears to be growing with almost a 50% increase in AUD prevalence between 2002 and 2013.

AUD is characterized by an urge to consume alcohol and an inability to control the levels of consumption. The company has commenced the landmark ONWARD™ pivotal Phase 3 clinical trial using AD04 for the potential treatment of AUD in subjects with certain target genotypes. The ONWARD trial is a 24-week, multicenter, randomized, double-blind, placebo-controlled, parallel group, Phase 3 clinical study to evaluate the efficacy, safety and tolerability of AD04 in patients with AUD and selected polymorphisms in the serotonin transporter and receptor genes. Patients are genetically screened prior to enrollment in the ONWARD trial so that only genetically positive patients are enrolled. The primary endpoint for analysis of efficacy is the change from baseline in the monthly number of heavy drinking days during the last 8 weeks of the 24-week treatment period. ONWARD is currently being conducted in 25 clinical sites in seven countries in Scandinavia and Central and Eastern Europe (Sweden, Finland, Poland, Latvia, Estonia, Bulgaria and Croatia). The principal investigator is Professor Hannu E.R. Alho, Emeritus Professor of Addiction Medicine at the University of Helsinki. The trial is expected to be completed by the first quarter of 2022. We believe its genetic driven screen provides an individualized treatment approach that is gaining momentum in the medical community. Its screening approach is unique in that it targets the serotonin system and individualizes the treatment of AUD, through the use of genetic screening (i.e., a companion diagnostic genetic biomarker). The company has created an investigational companion diagnostic biomarker test for the genetic screening of patients with certain biomarkers that,

as reported in the American Journal of Psychiatry (Johnson, et. al. 2011 & 2013), are most likely to benefit from treatment with AD04. Its strategy is to integrate the pre-treatment genetic screening into AD04's label to create a patient-specific treatment in one integrated therapeutic offering with the goal to develop a genetically targeted, effective and safe product candidate to treat AUD by reducing or eliminating the patients' consumption of alcohol.

The company has a worldwide, exclusive license from the University of Virginia Patent Foundation (d.b.a. the Licensing & Venture Group) (UVA LVG), which is the licensing arm of the University of Virginia, to commercialize its investigational drug candidate, AD04, subject to Food and Drug Administration ("FDA") approval of the product, based upon three separate patent application families, with patents issued in over 40 jurisdictions, including seven issued patents in the U.S. Its investigational agent has been used in several investigator-sponsored trials and it possess or has the rights to use toxicology, pharmacokinetic and other preclinical and clinical data that supports its landmark ONWARD pivotal Phase 3 clinical trial. Its therapeutic agent was the product candidate used in a University of Virginia investigator sponsored Phase 2b clinical trial of 283 patients. In this Phase 2b clinical trial, ultra-low dose ondansetron, the active pharmaceutical agent in AD04, showed a statistically significant difference between ondansetron and placebo for both the primary endpoint and secondary endpoint, which were reduction in severity of drinking measured in drinks per drinking day (1.71 drinks/drinking day; p=0.0042), and reduction in frequency of drinking measured in days of abstinence/no drinking (11.56%; p=0.0352), respectively. Additionally, and importantly, the Phase 2b results showed a significant decrease in the percentage of heavy drinking days (11.08%; p=0.0445) with a "heavy drinking day" defined as a day with four (4) or more alcoholic drinks for women or five (5) or more alcoholic drinks for men consumed in the same day.

The active pharmaceutical agent in AD04, its lead investigational new drug product, is ondansetron, which is also the active ingredient in Zofran®, which was granted FDA approval in 1991 for nausea and vomiting post-operatively and after chemotherapy or radiation treatment and is now commercially available in generic form. In studies of Zofran®, conducted as part of its FDA review process, ondansetron was given acutely at dosages up to almost 100 times the dosage expected to be formulated in AD04 with the highest doses of Zofran® given intravenously (i.v.), which results in approximately 160% of the exposure level as oral dosing. Even at high doses given i.v. the studies found that ondansetron is well-tolerated and results in few adverse side effects at the currently marketed doses, which reach more than 80 times the AD04 dose and are given i.v. The formulation dosage of ondansetron used in its drug candidate has the potential advantage that it contains a much lower concentration of ondansetron than the generic formulation/dosage that has been used in prior clinical trials, is dosed orally, and is available with use of a companion diagnostic genetic biomarker. The company's development plan for AD04 is designed to demonstrate both the efficacy of AD04 in the genetically targeted population and the safety of ondansetron when administered chronically at the AD04 dosage. We believe that no comprehensive clinical study has been performed to date that has evaluated the safety profile of ondansetron at any dosage for long-term use as anticipated in its ongoing and planned clinical trials.

## Recent events

on January 26, 2021, it closed on the acquisition Purnovate, LLC ("Purnovate"), executing on its plan to create the world's leading addiction focused pharmaceutical company.

Purnovate is a drug development company with a platform focused on developing drug candidates for non-opioid pain reduction and other diseases and disorders potentially targeted with adenosine analogs that are selective, potent, stable, and soluble. Purines are a class of chemical structures that include adenosine, an important neurotransmitter. Purnovate uses innovative methods and technologies to enhance the drug properties of purines, which are a class of chemical structures that include adenosine, an important neurotransmitter. Adenosine receptors are hypothesized to be involved in the mediation of nociception (i.e., pain) and blocking the receptor is proposed as an anti-nociceptive. Additionally, selective adenosine analogs may be useful to treat pain while avoiding the tolerability problems (i.e., wakefulness, gastrointestinal) and safety issues (e.g., cardiac block and vasodilation) and therefore have the potential to provide a meaningful non-opioid treatment for pain without the side effects of earlier generations of adenosine compounds or certain other pain products. These adenosine analogs may also be useful in a number of other diseases and disorders such as cocaine addiction, infectious disease, inflammation, cancer, asthma, and diabetes. Purnovate's portfolio of pre-clinical technologies may also offer opportunities to improve the characteristics of other classes of molecules outside of the adenosine chemistry space and maybe even outside the purine chemistry space. All drug candidates developed using Purnovate's platform technologies are expected to be patently distinct new chemical entities (i.e., patentable compositions of matter). Purnovate operates a chemistry and analytics laboratory in its 4,175

square feet leased laboratory and office space. Purnovate has been synthesizing new adenosine analog chemical entities with promising potency, selectivity, stability, and solubility characteristics.

Dr. Thompson, Purnovate's Chief Executive Officer who continued his employment with Purnovate and joined the company as its Vice President of Chemistry after the Acquisition, is a distinguished adenosine chemist that has been working in the field for over 35 years. He is an inventor on over 20 adenosine analog patents covering tens of thousands of novel molecules and has authored dozens of scientific publications.

## Genetic Testing Market

On June 22, 2021, the company announced it had received a Notice of Allowance from the U.S. Patent and Trademark Office for its genetic diagnostic panel used in conjunction with its AD04 trial. The Company now plans to enter the genetic testing market. The patent covered by the Notice of Allowance also pertains to the Company's use of its genetic diagnostic panel in combination with AD04 for the treatment of AUD and OUD.

The new patent related to the use of its genetic diagnostic panel in combination with AD04 for the treatment of AUD and OUD is a major milestone. We believe genetic evaluation of patients can be used to identify individuals that may benefit from AD04 and is part of a growing trend in medicine towards tailoring medication based on genetics. The company has been utilizing the genetic panel covered by this patent in its ongoing ONWARD™ Phase 3 trial, and, given this patent allowance, it anticipates that genetic diagnostics will become an important segment of its commercial strategy going forward.

The recently allowed patent is expected to provide market exclusivity for the AD04 genetic diagnostic test, creating a possibly significant profit center for the Company and we estimate a larger than $1B market.

## Manufacturing

Since ondansetron is already manufactured for generic sale, the active ingredient for AD04 is readily available from several manufacturers, and it has contracted with a U.S. manufacturer to acquire ondansetron at a cost expected to be under $0.01 per dose. Clinical trial material ("CTM") has already been manufactured for the ONWARD Phase 3 trial. According to the company, the CTM has demonstrated good stability after four years with the stability studies to date.

The company has also developed the manufacturing process at a third-party vendor to produce tablets at what it expects will serve for commercial scale production (i.e., greater than 1 million tablets per batch), also at a cost expected to be less than $0.01 per dose. A proprietary packaging process has been developed, which may extend the stability of the drug product. Packaging costs are expected to be less than $0.05 per dose.

Methods for the companion diagnostic genetic test have been developed as a blood test, and it has established the test with a third-party vendor capable of supporting the ONWARD Phase 3 clinical trial. Additionally, it has built validation and possible approval of the companion diagnostic into the Phase 3 program, including that it plans to store blood samples for all patients in the event additional genetic testing is required by regulatory authorities.

## Competition

Adial Pharmaceutical, operates in highly competitive segments of the biotechnology and biopharmaceutical markets and there is no clear competitor with the same product portfolio. To develop peer comparisons, we used the companies in Figure 5.

# Management

## Chief Executive Officer

William B. Stilley has served as Chief Executive Officer since co-founding the company in December 2010. Prior to joining Adial Pharmaceuticals, he was the Vice President, Business Development & Strategic Projects at Clinical Data, Inc. (acquired by Forest Labs in 2011), where he worked on licensing and M&A transactions and was involved in management of Phase 3 clinical trials, production of Viibryd® for initial commercial launch of the product, and sourcing drug product and drug substance for the Phase 3 clinical trials of the Company's vasodilator drug for myocardial stress imaging. Before entering the business community, Mr. Stilley served as Captain in the U.S. Marine Corps.

Mr. Stilley has an MBA with honors from the Darden School of Business and a B.S. in Commerce/Marketing from the McIntire School of Commerce at the University of Virginia. Until recently, he guest lectured at the Darden School of Business in two courses on the management of life science companies. He currently serves on the Board of Virginia BIO, the statewide biotechnology organization. He also holds a patent for Stedivaze®, which is currently in Phase 3 clinical development.

## Chief Medical Officer

Dr. Bankole Johnson has been Chief Medical Officer since March 24, 2019, after having served as the Chairman of the Board since November 2010. Dr. Johnson is a world-leading neuroscientist and a pioneer in the development of medications for the treatment of alcohol abuse and is the inventor of all patents covering AD04. Prior to accepting his appointment as Chief Medical Officer, he was Chair of the Department of Psychiatry at the University of Maryland School of Medicine and led the Brain Science Research Consortium Unit at the University of Maryland. Previously, from 2004 until August 2013, he served as Alumni Dr. and Chairman of the Department of Psychiatry and Neurobehavioral Sciences at the University of Virginia.

Dr. Johnson graduated in Medicine from Glasgow University in 1982 and trained in Psychiatry at the Royal London and Maudsley and Bethlem Royal Hospitals. Additional to his medical degree, he trained in research at the Institute of Psychiatry (University of London) and conducted studies in neuropsychopharmacology for his doctoral thesis (degree from Glasgow University) on the Medical Research Council unit at Oxford University. More recently, in 2004, Dr. Johnson earned his Doctor of Science degree in Medicine from Glasgow University—the highest degree that can be granted in science by a British university. His primary area of research expertise is the neuropsychopharmacology of medications for treating addictions.

Dr. Johnson is a licensed physician and board-certified psychiatrist throughout Europe and in the U.S. He is the Principal Investigator on National Institutes of Health (NIH)-funded research studies utilizing neuroimaging, neuropharmacology, and molecular genetics techniques. Dr. Johnson's clinical expertise is in the fields of addiction, biological, and forensic psychiatry. Honors include service on numerous NIH review and other committees including special panels.

Dr. Johnson was the 2001 recipient of the Dan Anderson Research Award for his "distinguished contribution as a researcher who has advanced the scientific knowledge of addiction recovery." He received the Distinguished Senior Scholar of Distinction Award in 2002 from the National Medical Association. Dr. Johnson also was an inductee of the Texas Hall of Fame in 2003 for contributions to science, mathematics, and technology, and in 2006 he received the American Psychiatric Association's (APA's) Distinguished Psychiatrist Lecturer Award. In 2007, he was named as a Fellow in the Royal College of Psychiatrists, and in 2008 he was elected to the status of Distinguished Fellow of the APA. In 2009, he received the APA's Solomon Carter Fuller Award, honoring an individual who has pioneered in an area that has benefited significantly the quality of life for Black people. In 2010, he was named as a Fellow in the American College of Neuropsychopharmacology. In 2013, Dr. Johnson was honored by the NIH as a recipient of the Jack Mendelson Award for work that has "transformed our understanding of how abnormalities of the brain promote addiction". And, in 2019, he is the recipient of the R. Brinkley Smithers Distinguished Scientist Award from the American Society for Addiction Medicine, which "recognizes and honors an individual who has made highly meritorious contributions in advancing the scientific understanding of alcoholism an, its prevention and treatment"

Dr. Johnson was Field Editor-in-Chief of Frontiers in Psychiatry, serves on the Editorial Board of The American Journal of Psychiatry, and reviews for over 30 journals in pharmacology, neuroscience, and the addictions. He has over 200 publications and 15,459 citations (h-index = 56; see http://en.wikipedia.org/wiki/H-index). Dr. Johnson also has edited three books: Drug Addiction and Its Treatment: Nexus of Neuroscience and Behavior, Handbook of Clinical Alcoholism Treatment, and Addiction Medicine: Science and Practice, one of the foremost reference textbooks in the field. The second edition of Addiction Medicine: Science and Practice is scheduled to be released in 2019.

Dr. Johnson has served as a consultant to Johnson & Johnson (Ortho-McNeil Janssen Scientific Affairs, LLC), Transcept Pharmaceuticals, Inc., D&A Pharma, Organon, Psychological Education Publishing Company (PEPCo LLC), and Eli Lilly and Company. He also has served on the Extramural Advisory Board for the National Institute of Alcoholism and Alcohol Abuse (NIAAA) (2004-present), the National Advisory Council for the National Institute of Drug Addictions (NIDA) (2004-2007), the Medications Development Subcommittee of NIDA's Advisory Council on Drug Abuse (2004-2007), and the Medications Development Scientific Advisory Board for NIDA (2005-2009). In addition, he has been the recipient of research grant support from both NIAAA and NIDA.

## Chief Operating Officer and CFO

Joseph Truluck was appointed Chief Operating Officer and CFO in 2017 and, since May 2016, has been VP Operations and Finance. Since January 2013, Mr. Truluck has served as the VP Operations and Finance at Adenosine Therapeutics, after the company reacquired its major drug development program. As VP, Operations & Finance, at Adenosine Therapeutics, Mr. Truluck has overseen the operations of the business, including seeing to completion a project to merge and analyze two partially completed Phase 3 trials to constitute a single trial. Previously, Mr. Truluck served as the Operations Manager of Adenosine Therapeutics until its purchase by Clinical Data, Inc. He is the co-founder and former VP Operations and Finance for Beonten, Inc., a software development company. Beonten's goal was the creation of a software platform for knowledge management and sharing. Beonten was a Semi-Finalist in the prestigious MIT 100K business plan competition. Mr. Truluck has an MBA from Tulane University with a concentration in Finance and an MA in Philosophy at the University of Virginia, with a thesis in the area of modal semantics.

*Figure 5 – Adial Pharmaceuticals, Inc. – Comp Table*

| Ticker | Company Name | 6/25 Close | Market Cap $MM | EV $MM | 2022 Sales Multiple | 2022 EV / Revenue | 2022 EV / EBITDA |
|---|---|---|---|---|---|---|---|
| BIIB.O | Biogen Inc | $347.93 | 52,383 | 57,093 | 4.69 | 5.12 | 13.36 |
| EXAS.O | Exact Sciences Corp | $128.57 | 22,056 | 22,877 | 10.37 | 10.76 | |
| ALKS.OQ | Alkermes Plc | $24.13 | 3,872 | 3,628 | 3.09 | 2.90 | 110.29 |
| EBS | Emergent BioSolutions Inc | $63.37 | 3,396 | 3,707 | 2.29 | 2.50 | 8.30 |
| INDV.L | Indivior PLC | $2.08 | 1,478 | 815 | 1.99 | 1.10 | 4.07 |
| ALT.O | Altimmune Inc | $16.08 | 617 | 391 | 7.22 | 4.57 | |
| TRVN.O | Trevena Inc | $1.96 | 321 | 223 | 11.03 | 7.67 | |
| MNOV.O | MediciNova Inc | $4.12 | 201 | 125 | | | |
| ACRX.O | AcelRx Pharmaceuticals Inc | $1.42 | 169 | 122 | 2.45 | 1.76 | |
| ANEB.O | Anebulo Pharmaceuticals Inc | $7.19 | 168 | 168 | | | |
| OPNT.O | Opiant Pharmaceuticals Inc | $13.02 | 56 | 27 | 2.37 | 1.14 | |
| TTNP.O | Titan Pharmaceuticals Inc | $2.77 | 27 | 16 | | | |
| | **AVERAGE** | | | | **5.06** | **4.17** | **34.00** |

*Source: Litchfield Hills Research LLC and Refinitiv Eikon (formerly Thomson Reuters Eikon)*

*Figure 6 – Adial Pharmaceuticals, Inc. – Income Statement*

| December ending year | 2018 Year | 2019A Year | 2020A Q1A | 2020A Q2A | 2020A Q3A | 2020A Q4A | 2020A Year | 2021E Q1A | 2021E Q2E | 2021E Q3E | 2021E Q4E | 2021E Year | 2022E Q1E | 2022E Q2E | 2022E Q3E | 2022E Q4E | 2022E Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total revenue** | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Cost of Goods | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Gross Profit** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| R&D | 368 | 3,966 | 1,060 | 888 | 1,847 | 2,059 | 5,853 | 2,052 | 1,000 | 2,000 | 1,000 | 6,052 | 2,000 | 1,000 | 2,000 | 1,000 | 6,000 |
| SG&A | 6,619 | 4,279 | 1,241 | 931 | 1,491 | 1,412 | 5,075 | 2,789 | 2,000 | 1,800 | 2,000 | 8,589 | 2,000 | 2,000 | 2,000 | 2,000 | 8,000 |
| Total Operating Expenses | 6,987 | 8,245 | 2,300 | 1,819 | 3,338 | 3,471 | 10,928 | 4,840 | 3,000 | 3,800 | 3,000 | 14,640 | 4,000 | 3,000 | 4,000 | 3,000 | 14,000 |
| **Operating Income** | **(6,987)** | **(8,245)** | **(2,300)** | **(1,819)** | **(3,338)** | **(3,471)** | **(10,928)** | **(4,840)** | **(3,000)** | **(3,800)** | **(3,000)** | **(14,640)** | **(4,000)** | **(3,000)** | **(4,000)** | **(3,000)** | **(14,000)** |
| Total Other Items | (4,644) | (347) | 23 | 8 | 3 | 1 | 35 | 7 | (1) | (1) | (1) | 5 | (1) | (1) | (1) | (1) | (2) |
| **Pre-Tax Income** | **(11,631)** | **(8,591)** | **(2,277)** | **(1,811)** | **(3,336)** | **(3,469)** | **(10,893)** | **(4,834)** | **(3,001)** | **(3,801)** | **(3,001)** | **(14,635)** | **(4,001)** | **(3,001)** | **(4,001)** | **(3,001)** | **(14,002)** |
| Taxes (benefit) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tax Rate | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Net Income (loss)** | **($11,631)** | **($8,591)** | **($2,277)** | **($1,811)** | **($3,336)** | **($3,469)** | **($10,893)** | **($4,834)** | **($3,001)** | **($3,801)** | **($3,001)** | **($14,635)** | **($4,001)** | **($3,001)** | **($4,001)** | **($3,001)** | **($14,002)** |
| **EPS** | **($2.44)** | **($0.87)** | **($0.22)** | **($0.16)** | **($0.24)** | **($0.24)** | **($0.87)** | **($0.30)** | **($0.17)** | **($0.19)** | **($0.14)** | **($0.77)** | **($0.17)** | **($0.11)** | **($0.15)** | **($0.11)** | **($0.54)** |
| Diluted Shares Outstanding | 4,759 | 9,852 | 10,497 | 11,292 | 13,646 | 14,415 | 12,463 | 15,912 | 18,000 | 20,000 | 22,000 | 18,978 | 23,000 | 27,000 | 27,000 | 27,000 | 26,000 |

*Source: Company reports and Litchfield Hills Research LLC*

*Figure 7 – Adial Pharmaceuticals, Inc. – Balance Sheet*

| December ending year | FY2022E | FY2021E | FY2020A | FY2019A |
|---|---|---|---|---|
| | | | | |
| | | | | |
| **Balance sheet** | | | | |
| Current Assets | | | | |
| Cash and S.T.I. | $4,863 | $4,265 | $4,401 | $6,777 |
| Accounts receivable | 0 | 0 | 0 | 0 |
| Inventories | 0 | 0 | 0 | 0 |
| Other assets | 1,000 | 750 | 735 | 896 |
| **Total Current Assets** | **5,863** | **5,015** | **5,136** | **7,673** |
| | | | | |
| Net PP&E | 0 | 0 | 0 | 0 |
| Other non-current assets | 3,000 | 2,500 | 356 | 6 |
| **Total Assets** | **$8,863** | **$7,515** | **$5,491** | **$7,680** |
| | | | | |
| Current Liabilities | | | | |
| Accounts payable | $1,000 | $700 | $649 | $190 |
| Accrued expenses | 2,000 | 2,000 | 857 | 349 |
| Other current liabilities | 0 | 0 | 0 | 0 |
| **Total current liabilities** | **3,000** | **2,700** | **1,505** | **539** |
| | | | | |
| Conv. and Long Term Debt | 0 | 0 | 0 | 0 |
| Other non-current | 1,000 | 950 | 0 | 0 |
| **Total Liabilities** | **4,000** | **3,650** | **1,505** | **539** |
| | | | | |
| Stockholders' Equity | | | | |
| Preferred stock | 0 | 0 | 0 | 0 |
| Common stock | 20 | 20 | 14 | 10 |
| Additional paid-in-capital | 65,000 | 50,000 | 35,491 | 27,757 |
| Retained earnings | (60,157) | (46,155) | (31,520) | (20,627) |
| Cum. trans. adj. and treasury stock | 0 | 0 | 0 | 0 |
| Total stockholders' equity | 4,863 | 3,865 | 3,986 | 7,141 |
| **Total Liabilities and equity** | **$8,863** | **$7,515** | **$5,491** | **$7,680** |

*Source: Company reports and Litchfield Hills Research LLC*

*Figure 8 – Adial Pharmaceuticals, Inc. – Cash Flow*

| | 2022E | 2021E | 2020A |
|---|---|---|---|
| Net Income | ($14,002) | ($14,635) | ($10,893) |
| Accounts receivable | 0 | 0 | 0 |
| Inventories | 0 | 0 | 0 |
| Other assets | (250) | (15) | 162 |
| PP&E | 0 | 0 | 0 |
| Other non-current | (500) | (2,144) | (349) |
| | | | |
| Accounts payable | 300 | 51 | 459 |
| Accrued expenses | 0 | 1,143 | 508 |
| | | | |
| Other current liabilities | 0 | 0 | 0 |
| Conv. and Long Term Debt | 0 | 0 | 0 |
| Other non-current | 50 | 950 | 0 |
| | | | |
| Preferred stock | 0 | 0 | 0 |
| Common stock | 0 | 6 | 4 |
| Additional paid-in-capital | 15,000 | 14,509 | 7,734 |
| Stock subscription receivable | 0 | 0 | 0 |
| Other | | | |
| Total Cash Flow | $598 | ($136) | ($2,376) |

*Source: Litchfield Hills Research LLC*

**Disclosures:**

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We, the Litchfield Hills Research Department, hereby certify that the views expressed in this research report accurately reflect our personal views about the subject company and the underlying securities.

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