

# ENTERPRISE

## BetterLife Pharma Inc.

---

Jeff Crane | Sales & Trading | 416-860-8681 | [jcrane@researchcapital.com](mailto:jcrane@researchcapital.com)  
Doug Van Peteghem | Sales & Trading | 416-860-7755 | [dvp@researchcapital.com](mailto:dvp@researchcapital.com)  
Jamie Riff | Sales & Trading | 416-860-7755 | 6849 | [jriff@researchcapital.com](mailto:jriff@researchcapital.com)  
David Keating | Equity Capital Markets | 416-860-8643 | [dkeating@researchcapital.com](mailto:dkeating@researchcapital.com)  
André Uddin | Research Analyst | 416-860-8675 | [auddin@researchcapital.com](mailto:auddin@researchcapital.com)  
Yue Ma | Research Analyst | 902-367-4786 | [yma@researchcapital.com](mailto:yma@researchcapital.com)

*At Research Capital Corporation, our mandate is to add value to the services we offer our clients with new and creative ideas. **The Enterprise** publication provides valuable insight into companies that have distinguished themselves among their peers or within their sector, are bringing innovative ideas into action and that embody add value for investors.*

*This publication is not research and any companies mentioned are not rated.*

## BetterLife Pharma Inc.

### *Experienced Management Team to Advance Unique Pipeline of Psychedelic & COVID-19 Drug Candidates*

**Betterlife Pharma (BETR-CSE)** is a clinical-stage drug development company that is developing: (i) 2-Bromo-LSD (TD-0148A), which is similar in structure to LSD (a psychedelic compound) - its novel chemical backbone yields a candidate with unique therapeutic properties and with a very clean safety profile (no hallucinogenic side effects) and (ii) a proprietary, nebulized (delivered to the lung) formulation of interferon  $\alpha$ -2b (IFN $\alpha$ 2b) - for treating early-stage COVID-19 patients.

**Experienced Management Team with Extensive Pharma Experience:** CEO Dr. Ahmad Doroudian has over 20 years of specialty pharma experience - he was previously the founder and former CEO of Merus Labs International (a public specialty pharma in Canada), as well as the CEO of PanGeo (a generic drug manufacturer). It should be noted that Norgine acquired Merus Labs for C\$342M in 2017. CFO Ms. Moira Ong was the former CFO of Merus Labs. COO Dr. Hooshmand Sheshbaradaran has over 30 years of experience as a senior executive in drug development, marketing, and business development.

### Recent News/Opportunities

**There has been growing investor and medical interest in the field of psychedelic medicines:** Most institutional investors that are focused on investing in the field of psychedelic medicine are pursuing companies with compounds that have hallucinogenic side effects. Historically, 2-bromo-LSD (same compound as TD-0148A) has shown nice clinical efficacy in treating cluster headaches in pilot studies. What is unique about TD-0148A is it does not have any hallucinogenic side effects (thus patients would not need to be treated in clinics) and more importantly due to its very clean safety profile it is a non-scheduled drug. This neurological program for major depressive disorder can be viewed as a potential out of the money call option - it could provide considerable upside to the stock if the results for TD-0148A pan out well.

**Promising Evidence For Using IFN $\alpha$ 2b (AP-003) To Treat COVID-19 Patients - Synairgen's Stock Soared After Its COVID-19 Results Were Released - Helping to Validate Use of Interferon:** The effectiveness of IFN $\alpha$ 2b in treating hospitalized COVID-19 patients was previously explored in a retrospective Chinese study conducted in Wuhan (the epicenter of the outbreak). A total of 77 subjects were treated with either nebulized IFN $\alpha$ 2b (5mU b.i.d.) or arbidol (an approved antiviral against influenza, 200mg t.i.d.) or a combination of the two drugs. These Chinese clinical results showed that IFN $\alpha$ 2b with or without arbidol significantly reduced the duration of detectable virus in the upper respiratory tract and in parallel reduced the duration of elevated blood levels of inflammatory markers (IL-6 and C-reactive protein (CRP)). Investors should also take note that a UK biotech company called Synairgen PLC (SNG-LSE) soared over 300% after the company released its COVID-19 trial results using its nebulized form of interferon  $\beta$ -1a (IFN $\beta$ 1a) (known as SNG001). Synairgen now has a market cap of C\$500+M, whereas Betterlife's current market cap is below C\$25M - a significant valuation discrepancy particularly given the choice of interferon being utilized. We should note that companies and the FDA are still figuring out how to best run COVID-19 trials. Betterlife is currently running a Phase I/II trial in Chile with a total of 150 subjects - it is a randomized placebo Phase I portion in healthy subjects followed by a randomized placebo-controlled Phase 2 portion in early-stage COVID-19 patients (<5 days of diagnosis of COVID-19). The IFN- $\alpha$ 2b treatment arms in this Chile trial will receive AP-003, administered via nebulizer, twice daily for 10 days. In parallel, an Australian Phase I trial in healthy subjects is to use BetterLife's proprietary IFN $\alpha$ 2b clone and formulation.

### Capital Structure (C\$)

**BETR** **\$0.30**

### Share Data

Basic Shares O/S (mm) 84.1  
Fully Diluted (mm) 107.0  
Market Cap (basic) (\$mm) \$24.8

### Financial Data

Enterprise Value (\$mm) \$16.3  
Cash (\$mm) \$8.5  
Debt (\$mm) \$0.0

### THOMSON CHART - ONE YEAR



Source: Thomson



Betterlife Pharma (BETR-CSE) is an attractively valued, clinical-stage drug development company that is developing a proprietary, nebulized (delivered to the lung) formulation of interferon  $\alpha$ -2b (IFN $\alpha$ 2b) for treating early-stage COVID-19 patients. Intron A (IFN $\alpha$ 2b) is an FDA-approved drug that has well-established anti-viral activity and has a clean safety profile. Betterlife's key upcoming catalyst is the Phase 2 trial results involving 150 early stage COVID-19 patients (trial is being run in Chile) - data is expected in H2 2021. BETR's COVID-19 drug candidate should start a Phase 2 trial in the US in Q1 2022. BETR also has 2-Bromo-LSD (TD-0148A) in development which is unique and has a very clean safety profile - it is expected to enter Phase I trials for major depressive disorder in Q1 2022.

### KEY COMPANY CONTACTS

Ahmad Doroudian, Ph.D. | CEO |  
Moira Ong, CPA, CA | CFO |  
Hooshmand Sheshbaradaran, Ph.D. | COO |

Figure 1: BetterLife Pharma Pipeline.

Product	Delivery	Indication	Current Status	Next Clinical Development Milestone Projected	
<b>NEURO-PSYCHIATRY</b>					
TD-0148A	2-bromo-LSD	Oral	Major Depressive Disorder	Preclinical IND-enabling studies	IND filing Q1 2022 Start Ph 1 Q1 2022
			Other Neuro-Psychiatric Disorders	Early Preclinical	TBD after IND filing
TD-010	Dihydrohonkioi	Oral	Benzodiazepine Dependency	Preclinical IND-enabling studies	IND filing Q1 2022 Start Ph 1 Q1 2022
			Other Neuro-Psychiatric Disorders	Early Preclinical	TBD after IND filing
<b>ANTI-VIRAL</b>					
AP-003	IFNa2b	Inhalation (nebulizer)	Treatment Early Stage Covid-19	Preclinical IND-enabling studies	IND filing Dec 2021 Start Ph 2 Q1 2022

Source: BetterLife Pharma Inc Presentation

Figure 2: Why AP-003 (IFN-α2b)

- o SARS-CoV-2 coronavirus causes COVID-19
- o SARS-CoV viruses block interferon production in infected cells, allowing the virus to continue replicating unabated<sup>1</sup>
- o Treatment with interferon may overcome that block, restoring cells normal anti-viral activity
- o Interferon alpha 2b (IFNa2b) is a potential treatment for COVID-19<sup>2</sup>
  - IFNa2b (inhaled) has been used in China on COVID-19 patients

AP-003 may be given by inhalation at the first signs of COVID-19 with following projected outcomes according to Altum Clin Protocol ALT-003-COV-01 2020-05-04 rationale:

- AP-003 inhalation applies INFa2b directly to the lungs which may enable infected cells to halt viral replication
- AP-003 inhalation may help to restore the initial immune response to COVID-19
- AP-003 inhalation 1st proposed target indication: people at higher risk to develop severe COVID-19 disease
- **Potential Result: Reduction of the overall hospitalization rate, long term tissue damage and death by reducing the severity of the disease**

1. SARS-CoV inhibition of interferon production: Spiegel et al 2005; Chen et al 2014; Hu et al 2017  
2. IFNa2b effective against COVID-19: Dong et al, 2020; Lu, 2020; Shen & Yang, 2020; Zhou et al, 2020

Source: BetterLife Pharma Inc Presentation

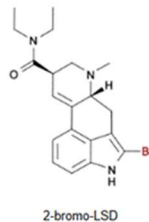
Figure 3: TD-0148A (Proprietary 2-bromo-LSD)

**BOL-148 (2-bromo-LSD)**

- o Currently made by brominating LSD
- o **BOL-148 is not a controlled substance, but due to its synthesis from LSD, its manufacturing is regulated as for LSD**
- o Was originally synthesized by Albert Hofmann, the chemist who invented LSD
- o BOL-148 shown to be non-hallucinogenic in humans (trials in 50s – 60s)<sup>1</sup>
- o Considered “un-interesting” until recently as it was not hallucinogenic
- o BOL-148 shown to be effective against cluster headaches in a trial in 2010<sup>2</sup>

**TD-0148A (BetterLife’s proprietary 2-bromo-LSD)**

- o TD-0148A’s active ingredient is 2-bromo-LSD, synthesized using BetterLife’s patented manufacturing process
- o TD-0148A manufacturing starting material is not LSD (unlike for BOL-148)
- o There are also no controlled substance intermediates at any stage in TD-0148A synthesis
- o TD-0148A has no residual LSD (unlike BOL-148)
- o **TD-0148A manufacturing, final product and use are totally free of controlled substance regulations**
- o **TD-148A protected by BetterLife’s synthesis and method of use patents**



1. Ceretti et al 1955; Gorzai et al 1956; Clark et al 1957; Schreckloth et al 1957; Abramson et al 1959; Turner et al 1959; Turner et al 1959; Iqbal et al 1959; Savelle et al 1959; Bertino et al 1959; Soutar et al 1963  
2. Karet et al 2010

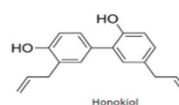
Source: BetterLife Pharma Inc Presentation

## Figure 4: TD-010 - Dihydrohonokiol(DHH-B)– The Background

### TD-010: Dihydrohonokiol (DHH-B) – The Background

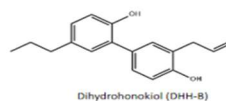
#### Honokiol (the parent of DHH-B)

- Magnolia bark extracts have been used in traditional Chinese medicines for centuries as anxiolytic (anti-anxiety medication)
- Honokiol is the active anxiolytic ingredient of magnolia bark
- Several animal studies on safety and anxiolytic efficacy of honokiol/magnolia bark extract have been published<sup>1</sup>
- Only two human clinical trials have been published on honokiol (given as magnolia bark extract)<sup>2</sup>
- Magnolia bark extract/honokiol is sold as a nutraceutical



#### TD-010 (BetterLife's proprietary DHH-B)

- DHH-B is a derivative of honokiol derivatives with significantly (20x) more anxiolytic activity<sup>3</sup>
- Shown in animal studies<sup>4</sup> to **not have the side effects of benzodiazepines**<sup>5</sup>
- Also shown in animal studies<sup>5</sup> **not to be addictive like benzodiazepines**
- No human clinical trials have been conducted on DHH-B
- Anecdotal oral reports from drug rehabilitation clinics claim oral DHH-B is a highly effective anxiolytic and an effective treatment for benzodiazepine dependency
- TD-010 is DHH-B formulated in BetterLife's patented formulation<sup>7</sup> to overcome its poor bioavailability
- TD-010 development is also covered by BetterLife's method of use patent<sup>7</sup>



1. Review Sarinca et al 2018
2. Khaman et al 2000, Campus et al 2011
3. Kuribara et al 2000, J Pharm Pharmacol
4. Kuribara et al 2000, J Pharmacol Biochem & Behaviour; Manuyama et al 2001
5. Benzodiazepines include Xanax™, Valium™, Xanax™, and Ativan™
6. Kuribara et al 2000, J Pharmacol Biochem & Behaviour; Manuyama et al 2001
7. Provisional Patent

Source: BetterLife Pharma Inc Presentation