

**FORM 51-102F3  
MATERIAL CHANGE REPORT**

**Item 1 Name and Address of Company**

BetterLife Pharma Inc. (the "Company")  
1275 West 6<sup>th</sup> Avenue  
Suite 300  
Vancouver, British Columbia  
V6H 1A6

**Item 2 Date of Material Change**

July 2021

**Item 3 News Releases**

News releases dated July 12 and July 15, 2021.

**Item 4 Summary of Material Change**

On July 12, 2021, the Company provided the following H1 2021 progress update:

TD-0148A

The Company's TD-0148A is a second-generation lysergic acid diethylamide ("LSD") derivative molecule that has been synthesized using the Company's own patented manufacturing process. The Company believes TD-0148A can mimic the projected therapeutic potential of LSD without causing its undesirable psychoactive dissociative side effects, such as hallucinations. TD-0148A is projected to be developed for treatment of major depressive disorders, a market which is forecast to reach near US\$25 billion by 2030, as well as cluster headaches and other neurological disorders.

To date, the Company has issued patents on synthesis of TD-0148A for its entirely unique manufacturing process. Neither the product nor process is restricted by controlled substance regulations because LSD or other Schedule 1 drugs are not used. Unlike first-generation psychedelics, which have side effects, TD-0148A can be self-administered, leading to both time and cost savings as it does not have to be ingested at a clinic or in the presence of at least one therapist nor does the patient require going through a four-step treatment model.

In H1 2021, the Company achieved the following value catalysts:

- Scale-up and process development for GMP manufacturing advanced significantly;
- Execution of agreements with several leading researchers at marquee institutions for preclinical pharmacology and other IND-enabling studies, including:
  - o Eurofins Discovery – Pharmacology and safety;
  - o University of California San Diego – Comparative in-vitro studies vs LSD;
  - o Carlton University – Testing in mouse depression model;
  - o ITR Labs – GLP bioavailability and toxicology;
  - o Nova Labs- GLP cardiac studies; and
  - o SGS – Bioanalytical assays.

Looking forward, the Company expects its GMP manufactured material for clinical trials to be completed in H2 2021 with IND filing and conduct of human trials projected for H1 2022.

#### TD-010

The second compound the Company is developing to treat neurological conditions is TD-010, which is projected to be developed initially for the treatment of benzodiazepine dependency. At a later stage, the Company will develop TD-010 for other anxiety and neurological related disorders.

The Company reported the following milestones achieved in H1 2021 in relation to TD-010:

- Developed and filed a US provisional patent on use for anxiety and related disorders; and
- Initiated the scale-up process development for GMP manufacturing.

Looking forward, the Company expects to file its IND in Q2 2022 and start Phase 1 of clinical trials in benzodiazepine dependent patients in Q3 2022.

#### AP-003

AP-003 is recombinant human interferon alpha 2b manufactured from the Company's patented (provisional) master cell bank and formulation. During H1 2021, the Company:

- Entered into a clinical research agreement with the Pontificia Universidad Católica de Chile to conduct a randomized placebo-controlled trial ("IN2COVID") in COVID-19 patients, testing the Company's proprietary inhaled AP-003; and
- Entered into a research agreement with Western University to test the efficacy of AP-003 against COVID-19 variants.

#### Financings

In May and June 2021, the Company completed financings totaling CDN\$9,161,953 and issued 22,837,500 units and 478,750 share purchase warrants ("Warrants"). Each unit consists of one common share of the Company ("Common Share") and one Warrant. Each Warrant entitles the holder thereof to purchase one Common Share at an exercise price of \$0.50 expiring on May 28, 2024.

On July 15, 2021, the Company provided a further update on its AP-003 program and announced early positive in vitro results of its SARS-CoV-2 ("COVID-19") anti-viral, recombinant human interferon alpha-2b ("rhIFN $\alpha$ 2b" or "AP-003"), from the Dr. Stephen Barr Laboratory and state-of-the-art ImPaKT Facility at Western University ("UWO"). AP-003's first proposed target indication is for people at higher risk to develop severe COVID-19 disease.

Early data show potent and similar anti-viral activity against the COVID-19 Wuhan reference strain (EC<sub>50</sub>=0.51), Alpha (B.1.1.7, UK, EC<sub>50</sub>=1.26) and Beta (B.1.351, South Africa, EC<sub>50</sub>=0.25) variants. Further studies are ongoing to validate these early results and to test AP-003 activity against Gamma (Brazil), Delta (India) and Lambda (Peru) variants.

The rhIFN $\alpha$ 2b, a Type I interferon, is a naturally occurring protein integral to the body's first line of anti-viral defenses. There is evidence that coronaviruses, such as COVID-19, have mechanisms which suppress IFN $\alpha$ 2b production, allowing the virus to evade the innate immune system and replicate unabated. Multiple clinical analyses show a significant link between deficiency in Type 1 interferon and development of severe COVID-19 disease. There is also accumulating evidence from preclinical studies that coronavirus replication is blocked by the addition of exogenous IFN $\alpha$ 2b, thereby allowing cells to restore their normal anti-viral activity. An exploratory study in Wuhan, China, in COVID-19 patients, showed that patients treated with inhaled rhIFN $\alpha$ 2b had a more rapid rate of viral clearance than patients in the comparator arm who did not receive inhaled rhIFN $\alpha$ 2b.

Separately, the Company has entered into a clinical research agreement with the Pontificia Universidad Católica de Chile to conduct a randomized placebo-controlled trial in COVID-19 patients to test the Company's proprietary inhaled AP-003.

Dr. Ahmad Doroudian, Chief Executive Officer of the Company, shared additional information in an interview with Proactive Investors which can be viewed at: <https://youtu.be/FKJuHmrH9cl>.

**Item 5 Full Description of Material Change**

Refer to Item 4 and the news release in Schedule "A".

**Item 6 Reliance on subsection 7.1(2) or (3) of National Instrument 51-102**

This Report is not being filed on a confidential basis in reliance on subsection 7.1(2) of National Instrument 51-102.

**Item 7 Omitted Information**

No information has been omitted on the basis that it is confidential information.

**Item 8 Executive Officer**

Further information can be obtained from Ahmad Doroudian, Chief Executive Officer of the Company, at (604) 221-0595.

**Item 9 Date of Report**

July 16, 2021

**SCHEDULE "A"**



BetterLife Pharma

## BetterLife Provides H1 2021 Progress Update

VANCOUVER, British Columbia, July 12, 2021 - BetterLife Pharma Inc. (“BetterLife” or the “Company”) (CSE: [BETR](#) / OTCQB: [BETRF](#) / FRA: [NPAU](#)), an emerging biotechnology company primarily focused on developing compounds to treat neurological conditions, announces significant progress in H1 2021.

### **TD-0148A**

BetterLife’s TD-0148A is a second-generation lysergic acid diethylamide (“LSD”) derivative molecule that has been synthesized using the Company’s own patented manufacturing process. BetterLife believes TD-0148A can mimic the projected therapeutic potential of LSD without causing its undesirable psychoactive dissociative side effects, such as hallucinations. TD-0148A is projected to be developed for treatment of major depressive disorders, a market which is forecast to reach near US\$25 billion by 2030, as well as cluster headaches and other neurological disorders.

To date, BetterLife has issued patents on synthesis of TD-0148A for its entirely unique manufacturing process. Neither the product nor process is restricted by controlled substance regulations because LSD or other Schedule 1 drugs are not used. Unlike first-generation psychedelics, which have side effects, TD-0148A can be self-administered, leading to both time and cost savings as it does not have to be ingested at a clinic or in the presence of at least one therapist nor does the patient require going through a four-step treatment model.

In H1-2021, BetterLife achieved the following value catalysts:

- Scale-up and process development for GMP manufacturing advanced significantly;
- Execution of agreements with several leading researchers at marquee institutions for preclinical pharmacology and other IND-enabling studies, including:
  - o Eurofins Discovery – Pharmacology and safety;
  - o University of California San Diego – Comparative in-vitro studies vs LSD;
  - o Carlton University – Testing in mouse depression model;
  - o ITR Labs – GLP bioavailability and toxicology;
  - o Nova Labs- GLP cardiac studies; and
  - o SGS – Bioanalytical assays.

Looking forward, BetterLife expects its GMP manufactured material for clinical trials to be completed in H2 2021 with IND filing and conduct of human trials projected for H1 2022.

Dr. Ahmad Doroudian, BetterLife’s Chief Executive Officer, said, “Following our acquisition of the assets of Transcend Biodynamics in December of 2020, we are pleased to be moving rapidly ahead with our second generation psychedelics programs that can potentially deliver a better life to many by alleviating them from debilitating neurological conditions.

“Today, with 265 million people across the globe suffering from depression, there is an incredible unmet need for help. Psychedelics are a viable answer however they come with their drawbacks, namely they

are expensive due to their regulated status, have unpredictable side effects, like hallucinations, and require being taken in the presence of at least one therapist. This makes it harder to treat depression in the majority of the affected population. TD-0148A, however, has the potential to overcome all of these obstacles due to its non-hallucinogenic and non-regulated nature. It can be self-administered, which is much less burdensome on health and point of care systems and therefore more likely to be covered by insurers. I very much look forward to filing an IND and starting human clinical trials in H1 2022."

#### **TD-010**

The second compound BetterLife is developing to treat neurological conditions is TD-010, which is projected to be developed initially for the treatment of benzodiazepine dependency. At a later stage, BetterLife will develop TD-010 for other anxiety and neurological related disorders.

BetterLife is pleased to report the following milestones achieved in H1 2021 in relation to TD-010:

- Developed and filed a US provisional patent on use for anxiety and related disorders; and
- Initiated the scale-up process development for GMP manufacturing.

Looking forward, BetterLife expects to file its IND in Q2 2022 and start Phase 1 of clinical trials in benzodiazepine dependent patients in Q3 2022.

Dr. Doroudian commented, "There has been a rise in anxiety, panic, depression and manic conditions, and this has led to increased use of benzodiazepine drugs as patients seek to treat these issues. Unfortunately, in some cases, the use of benzodiazepines can create dependency. TD-010 can help people overcome this and manage withdrawal symptoms to live a better life."

#### **AP-003**

AP-003 is recombinant human interferon alpha 2b manufactured from BetterLife's patented (provisional) master cell bank and formulation. During H1 2021, BetterLife:

- Entered into a clinical research agreement with the Pontificia Universidad Católica de Chile to conduct a randomized placebo-controlled trial ("IN2COVID") in COVID-19 patients, testing the Company's proprietary inhaled AP-003; and
- Entered into a research agreement with Western University to test the efficacy of AP-003 against COVID-19 variants.

Dr. Doroudian added, "We are also pleased to have made significant progress with our inhaled interferon alpha 2b (AP-003) program for the treatment of COVID-19. I look forward to giving the market an update in the near future."

## **Financings**

In May and June 2021, BetterLife completed financings totaling CDN\$9,161,953 and issued 22,837,500 units and 478,750 share purchase warrants (“Warrants”). Each unit consists of one common share of the Company (“Common Share”) and one Warrant. Each Warrant entitles the holder thereof to purchase one Common Share at an exercise price of \$0.50 expiring on May 28, 2024.

## **About BetterLife Pharma Inc.**

BetterLife Pharma Inc. is an emerging biotechnology company primarily focused on developing and commercializing two compounds, TD-0148A and TD-010, to treat neurological disorders such as depression, cluster headaches and anxiety. TD-0148A (non-hallucinogenic LSD) is being developed for the treatment of major depressive disorder. It has been synthesized using BetterLife’s patented manufacturing process. It is unique in that it is not regulated and therefore can be self-administered. TD-010 is a treatment of anxiety without the addictive potential of benzodiazepines. BetterLife is also refining and developing drug candidates from a broad set of complementary interferon-based technologies which have the potential to engage the immune system to fight virus infections. BetterLife is evaluating strategic alternatives for the development of its anti-viral indications beyond 2021.

For further information please visit [www.abetterlifepharma.com](http://www.abetterlifepharma.com).

## **Contact Information**

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## **Cautionary Note Regarding Forward-Looking Statements**

No securities exchange has reviewed nor accepts responsibility for the adequacy or accuracy of the content of this news release. This news release contains forward-looking statements relating to product development, licensing, commercialization and regulatory compliance issues and other statements that are not historical facts. Forward-looking statements are often identified by terms such as “will”, “may”, “should”, “anticipate”, “expects” and similar expressions. All statements other than statements of historical fact, included in this release are forward-looking statements that involve risks and uncertainties. There can be no assurance that such statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Important factors that could cause actual results to differ materially from the Company’s expectations include the failure to satisfy the conditions of the relevant securities exchange(s) and other risks detailed from time

to time in the filings made by the Company with securities regulations. The reader is cautioned that assumptions used in the preparation of any forward-looking information may prove to be incorrect. Events or circumstances may cause actual results to differ materially from those predicted, as a result of numerous known and unknown risks, uncertainties, and other factors, many of which are beyond the control of the Company. The reader is cautioned not to place undue reliance on any forward-looking information. Such information, although considered reasonable by management at the time of preparation, may prove to be incorrect and actual results may differ materially from those anticipated. Forward-looking statements contained in this news release are expressly qualified by this cautionary statement. The forward-looking statements contained in this news release are made as of the date of this news release and the Company will update or revise publicly any of the included forward-looking statements as expressly required by applicable law.





BetterLife Pharma

## Early Results of BetterLife Preclinical Study Showing AP-003 (rhIFN $\alpha$ 2b) has Similar Potent Efficacy Against Different Variants of COVID-19

VANCOUVER, July 15, 2021 - BetterLife Pharma Inc. (“BetterLife” or the “Company”) (CSE: [BETR](#) / OTCQB: [BETRF](#) / FRA: [NPAU](#)), an emerging biotechnology company primarily focused on developing compounds to treat neurological conditions, is pleased to announce early positive in vitro results of its SARS-CoV-2 (“COVID-19”) anti-viral, recombinant human interferon alpha-2b (“rhIFN $\alpha$ 2b” or “AP-003”), from the Dr. Stephen Barr Laboratory and state-of-the-art ImPaKT Facility at Western University (“UWO”). AP-003’s first proposed target indication is for people at higher risk to develop severe COVID-19 disease.

Early data show potent and similar anti-viral activity against the COVID-19 Wuhan reference strain (EC<sub>50</sub>=0.51), Alpha (B.1.1.7, UK, EC<sub>50</sub>=1.26) and Beta (B.1.351, South Africa, EC<sub>50</sub>=0.25) variants. Further studies are ongoing to validate these early results and to test AP-003 activity against Gamma (Brazil), Delta (India) and Lambda (Peru) variants.

The rhIFN $\alpha$ 2b, a Type I interferon, is a naturally occurring protein integral to the body’s first line of anti-viral defenses. There is evidence that coronaviruses, such as COVID-19, have mechanisms which suppress IFN $\alpha$ 2b production, allowing the virus to evade the innate immune system and replicate unabated. Multiple clinical analyses show a significant link between deficiency in Type 1 interferon and development of severe COVID-19 disease. There is also accumulating evidence from preclinical studies that coronavirus replication is blocked by the addition of exogenous IFN $\alpha$ 2b, thereby allowing cells to restore their normal anti-viral activity. An exploratory study in Wuhan, China, in COVID-19 patients, showed that patients treated with inhaled rhIFN $\alpha$ 2b had a more rapid rate of viral clearance than patients in the comparator arm who did not receive inhaled rhIFN $\alpha$ 2b.

Ahmad Doroudian, CEO of BetterLife, said, “COVID-19 is very much still a threat to the global population and its variants are a key challenge when developing therapeutics to protect against it. The broad mechanism of action of interferon is such that our scientists hypothesized it could be equally effective against different variants. We are very pleased to see that early preclinical data confirms this as this takes us one step closer to the potential result of reducing overall hospitalization rate, long-term tissue damage and death by reducing the overall severity of the disease.”

“BetterLife will continue to work to extend the broad acting anti-viral efficacy of AP-003 to other emerging COVID-19 variants while simultaneously seeking strategic partners that can push forward the development of this promising treatment.”

Separately, BetterLife has entered into a clinical research agreement with the Pontificia Universidad Católica de Chile to conduct a randomized placebo-controlled trial in COVID-19 patients to test the Company's proprietary inhaled AP-003.

Dr. Ahmad Doroudian shared additional information in an interview with Proactive Investors which can be viewed at: <https://youtu.be/FKJuHmrH9cl>.

### **About BetterLife Pharma**

BetterLife Pharma Inc. is an emerging biotechnology company primarily focused on developing and commercializing two compounds, TD-0148A and TD-010, to treat neurological disorders such as depression, cluster headaches and anxiety.

The global depression drugs market reached US\$12.41 billion in 2019 and it is projected to reach near US\$25 billion by 2030. According to the WHO, depression is one of the leading causes of disability, impacting approximately 265 million people in the world. TD-0148A is being developed for the treatment of major depressive disorder. It has been synthesized using BetterLife's patented manufacturing process and is the only non-hallucinogenic and non-controlled psychedelic candidate on the market. It is unique in that it is not regulated and therefore can be self-administered. TD-010 is a treatment of anxiety without the addictive potential of benzodiazepines. TD-0148A and TD-010 are both in Preclinical and IND-enabling studies. BetterLife also owns a drug candidate for the treatment of viral infections such as COVID-19 and is in the process of seeking strategic alternatives for further development.

For further information please visit [www.abetterlifepharma.com](http://www.abetterlifepharma.com).

### **About Western University - Dr. Stephen Barr Laboratory**

Dr. Stephen Barr, PhD, is an Associate Professor in the Department of Microbiology & Immunology at Western University. His research focuses on the complex virus-host interactions of emerging viral pathogens, with a focus on the host interferon response. His team studies Containment Level 2 and Level 3 viruses such as HIV, Ebola-like viruses, and SARS-CoV-2, in the new state-of-the-art ImPaKT Facility featuring barrier-enclosed imaging scanners and instrumentation. This high-tech equipment allows Dr. Barr and his team to develop tools and methods to better understand the progression of emerging infectious diseases (in vitro and in vivo), identify/test novel antiviral agents, develop diagnostic reagents to characterize hidden reservoirs of pathogens, and for the early and accurate detection of infections. Dr. Barr is also part of Canada's Coronavirus Variants Rapid Response Network (CoVaRR-Net), whose goal is to rapidly answer critical and immediate questions regarding SARS-CoV-2 variants, such as their increased transmissibility, likelihood to cause severe cases of COVID-19, and resistance to vaccines.

For more information, please visit the Barr Lab (<https://publish.uwo.ca/~sbarr9/>) and CoVaRR-Net (<https://covarrnet.ca>).

## Contact Information

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