EHP Emerald Health Pharmaceuticals

Emerald Health Pharmaceuticals Inc.
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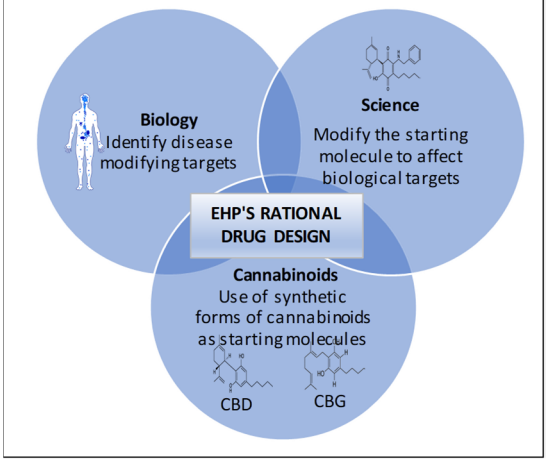
EHP's PRODUCT PIPELINE

	EHP-101	EHP-102
Origin	Synthetic form of CBD	Synthetic form of CBG
Indications	Systemic Sclerosis (SSc) Multiple Sclerosis (MS)	Parkinson's Disease (PD) Huntington's Disease (HD)
Clinical Stage	Phase II in SSc Phase II in MS	Pre-clinical studies
Designations	Orphan Drug Status (U.S. and EU in SSc) Fast Track Designation (U.S. in SSc)	Orphan Drug Status (U.S. and EU in HD)

EHP's RATIONAL DRUG DESIGN PROCESS



COMPANY DESCRIPTION

Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") is a clinical-stage biotechnology company developing novel proprietary therapeutic molecules to treat various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure. The Company's pipeline includes: EHP-101, initially for the treatment of **systemic sclerosis (SSc)†** and **multiple sclerosis (MS)**, and EHP-102, initially for the treatment of **Parkinson's disease (PD)** and **Huntington's disease (HD)**. Most current treatments for neurodegenerative and autoimmune diseases take aim at addressing symptoms but provide no disease modifying capabilities. This is because they address only part of the multiple biological processes that influence the disease. EHP's product candidates are **new chemical entities (NCEs)**, created through Rational Drug Design based on the molecular architecture of the non-psychoactive **cannabinoids, cannabidiol (CBD)** and **cannabigerol (CBG)**. Due to the unique molecular structure of the new molecules, these candidates display a multifaceted mechanism of action designed to affect the key biological processes associated with the conditions, with the goal of exerting disease-modifying properties and potentially reversing disease progression. Furthermore, while EHP's product candidates are based on cannabinoid architecture, the Company's active ingredient in its lead product candidate is not classified as a controlled substance under federal law. In addition, EHP's novel technology does not require extraction of molecules from the cannabis plant, allowing the Company to patent their novel molecules—something that companies using basic cannabinoids cannot do because natural molecules cannot be protected. The Company has secured 25 granted patents and 19 pending patents covering their portfolio of 25 unique molecules and is differentiated by its efforts to develop novel therapies through the interactions with the body's physiologic receptors and pathways, which are targets for many diseases.

KEY POINTS

- EHP's first-in-class patented technology has received **Orphan Drug status** for EHP-101 in SSc and EHP-102 in HD in both the U.S. and the EU, as well as **Fast Track designation** for EHP-101 in SSc in the U.S.
- In preclinical models of SSc and MS, EHP-101 demonstrated potential disease-modifying benefits (anti-inflammatory, neuroprotective, antifibrotic, vascular protection, and other properties).
- A large Phase I study was completed successfully, resulting in no significant adverse events, no maximum tolerated dose reached, and biomarker evaluation supporting the multimodal mechanism of action.
- The Company is in the beginning stages of two Phase II studies for EHP-101: a Phase IIa study for **diffuse cutaneous SSc**, which is currently enrolling patients; and a Phase IIa study for relapsing forms of MS, with enrollment scheduled to begin in Q1 2022.
- In preclinical studies, EHP-102 demonstrated the potential to protect against neuroinflammation and neurodegeneration in HD models, and reduce the loss of **dopamine** in PD models, supporting its potential as a disease-modifying candidate.
- EHP has assembled a highly experienced management team, supported by clinical and scientific advisory boards, to successfully develop its pharmaceutical product candidates.

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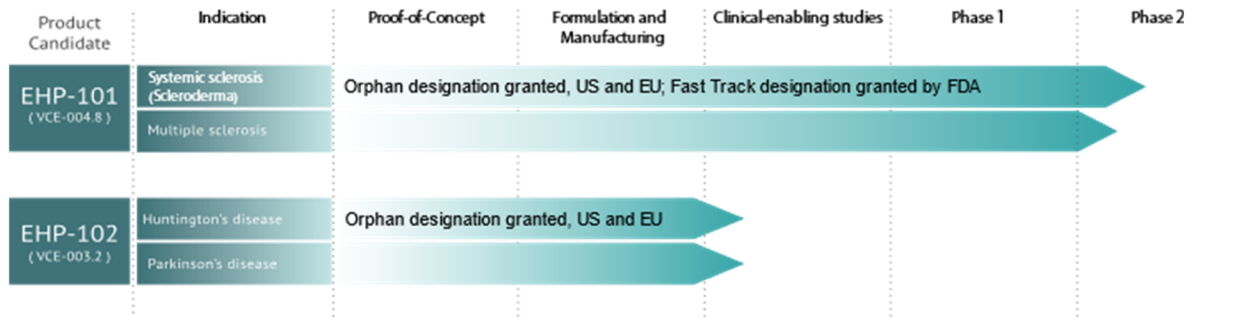
Executive Overview

Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") is a private clinical-stage biotechnology company developing a portfolio of novel patented new chemical entities (NCEs) to treat various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure. The Company's new therapeutic molecules are based on the architecture of the non-psychoactive cannabinoids, cannabidiol (CBD) and cannabigerol (CBG), which have been chemically created through rational drug design to result in distinct new molecules. Based on their novel chemical structure, these molecules possess first-in-class mechanisms of action that have demonstrated the potential to modify and reverse disease progression.

EHP has created two families of 25 therapeutic molecules and is initially developing two of these molecules (shown in Figure 1). Its first candidate, EHP-101, an oral formulation of a NCE (based on CBD architecture), has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility, and is currently enrolling patients in a Phase IIa study for the treatment of systemic sclerosis (SSc) and is in the initiation stages of a Phase IIa study for the treatment of multiple sclerosis (MS). Its second product candidate, EHP-102, an oral formulation of a NCE (based on CBG architecture), is in preclinical development and is focused on treating Parkinson's disease (PD) and Huntington's disease (HD).

Figure 1

PRODUCT PIPELINE



Source: Emerald Health Pharmaceuticals Inc.

While the Company's molecules are based on the chemical architecture of cannabinoids, EHP synthesizes its molecules chemically and does not extract or is not required to work with the cannabis plant. This allows the Company the ability to patent its novel molecules, something that companies using actual CBD and CBG cannot do, since natural ingredients cannot be protected. EHP has secured 25 granted patents and 19 pending patents covering their portfolio of 25 unique molecules. Another advantage of creating novel **synthetic** molecules is the fact that the Company's active ingredient in its lead product candidate, EHP-101, is not classified as a controlled substance under federal law (as are the molecules from cannabis). Due to these differences, EHP is not a cannabis company, but rather is a pharmaceutical company developing novel therapeutic molecules with disease-modifying capabilities through the interactions with the body's physiologic receptors and pathways, which are targets for many diseases.

EHP's Rational Drug Design

The incidence of neurodegenerative and autoimmune diseases is growing rapidly, and current treatments are not sufficient to address them adequately. This is, in part, due to the fact that these conditions are characterized and influenced by multiple physiological processes. Existing drugs and therapeutic options only address part of these processes, which does not fully solve the multi-factorial nature of the disease, leading to a significant unmet medical need and therapies with no disease-modifying effect. For example, the current therapeutic landscape for the four indications initially targeted by EHP—SSc, MS, PD, and HD—offer no curative treatments that can slow or reverse the progression of the disease, with treatment options aimed at managing symptoms and reducing or slowing down relapses. EHP plans to solve this shortcoming by developing product candidates with a multifaceted mechanism of action (MOA) designed to affect the key biological processes associated with the disease, with the goal of exerting disease-modifying properties and potentially reversing disease progression.

To accomplish this objective, EHP has developed a Rational Drug Design process, which consists of three key steps: (1) identify key physiological processes that must be affected to impact disease progression; (2) identify key biologic targets in the body able to affect those key processes across multiple diseases with certain commonalities; and (3) create novel molecules that are able to target and modulate these biologic targets and processes.

To develop a proprietary therapeutic molecule, EHP's scientific founders have tested numerous natural molecules to serve as the starting material. Their research led to the use of non-psychoactive cannabinoids, specifically CBD and CBG, as the ideal backbone due to their known health benefits based on their interaction with the body's own **endocannabinoid system (ECS)**. Research indicates that the ECS may contain multiple promising therapeutic targets for numerous physiological conditions, including PD, HD, Alzheimer's disease, and MS (Source: *MedicalNewsToday*'s What to know about endocannabinoids and the endocannabinoid system, 2021).

EHP then performed chemical modifications to these compounds to enhance the therapeutic benefits, allowing them to affect several validated biological targets and physiological pathways in the body pertinent to the targeted diseases. Emerald's Rational Drug Design process enables the Company to create enhanced unique novel molecules that may act as disease-modifying agents to treat these conditions.

EHP-101

The Company's most advanced candidate, EHP-101, is a patented fully synthetic new chemical entity (NCE) based on CBD architecture, which acts on three key physiologic targets involved in the modulation of systemic sclerosis (SSc) and multiple sclerosis (MS): (1) **cannabinoid type 2 receptor (CB2)**—providing anti-inflammatory and anti-fibrotic therapeutic benefits; (2) **peroxisome proliferator-activated receptor gamma (PPARγ)**—providing immunomodulation (not suppression), anti-fibrotic, and anti-inflammatory activity; and (3) the **hypoxia inducible factor (HIF) pathway**—providing neuroprotection and vascular protection activities.

EHP has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility of EHP-101. In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits in both SSc and MS. Data from the Company's Phase I study of EHP-101 demonstrated favorable safety and tolerability profiles. The Company is currently enrolling patients in a Phase IIa study with EHP-101 in SSc patients and is in the initiation stages of a Phase IIa study for the treatment of MS.

EHP-101 for Systemic Sclerosis (SSc)

Emerald has received Orphan drug status for EHP-101 in SSc in both the U.S. and the EU, as well as fast track designation in the U.S.

SSc is a chronic and progressive rare systemic autoimmune disease that causes inflammation and then fibrosis, or thickening and scarring of skin, vasculature, and internal organs that can result in organ failure and death. Continuous progression of vascular and fibrotic organ damage accounts for SSc's chronic morbidity and high mortality, resulting in the highest cause-specific mortality of all the connective tissue and rheumatic diseases. The market for SSc treatment is mainly driven by the off-label use of drugs approved for the symptomatic indications of the disease with no curative therapies. The global systemic **scleroderma** treatment market was valued at $1.4 billion in 2019 and is expected to reach $1.9 billion by 2027.

The Company is in the beginning stages of its Phase IIa study to evaluate the safety, tolerability, and preliminary efficacy of EHP-101 in patients with diffuse cutaneous SSc, currently enrolling patients. The study plans to enroll 36 patients at 30 sites in the U.S., Australia, and New Zealand. The primary objective of the study is to assess the safety and tolerability of various doses over 12 weeks. The secondary objective is to measure the treatment effect. EHP expects preliminary results on the first two of four cohorts by mid-2022, with results on all cohorts in 2023.

EHP-101 for Multiple Sclerosis (MS)

MS is an inflammatory disorder of the central nervous system affecting 2.3 million people worldwide. The hallmark of MS is **demyelination**, which is the breakdown of the protective **myelin** sheath surrounding nerves that aids in conducting nerve impulses. This breakdown, which results in damage that disrupts communication between the brain and the body, is initiated by autoimmune processes that cause inflammation. The damage to the myelin sheath is not reversible naturally or through existing drugs, leading to disease progression. Similar to the SSc therapeutic landscape, MS treatment options focus on symptoms, with no current therapy able to remyelinate damaged neurons and reverse the course of the disease. In 2020, the global MS drug market was valued at $27.5 billion and is projected to reach $42.5 billion in 2028.

In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits relating to the prevention of demyelination in two validated MS models and stimulation of remyelination in two demyelination models. The Company is planning a Phase IIa trial to evaluate the safety, tolerability, pharmacokinetics, and preliminary efficacy of EHP-101 in patients with relapsing forms of MS, with enrollment scheduled to begin 1Q 2022.

Other Potential Indications for EHP-101

EHP believes that the therapeutic application of EHP-101 could go beyond SSc and MS, and into other indications/diseases affected by EHP-101 biologic targets. These may include (1) other autoimmune diseases; (2) peripheral inflammatory diseases; (3) traumatic brain injury; (4) stroke; (5) other fibrotic diseases (cardiac, lung, kidney); (6) type II diabetes, (7) peripheral arteriopathies, chronic limb ischemia, (8) chronic kidney disease; (9) other demyelinating diseases; (10) certain neurodegenerative diseases, and (11) tauopathies, including Alzheimer's disease.

EHP-102

EHP-102 is a patented oral product candidate containing a NCE based on CBG architecture, another key non-psychoactive cannabinoid molecule. The novel active molecule of EHP-102 has been modified to affect key biologic targets and pathways involved in the pathophysiology of neurodegenerative diseases, including: (1) PPARγ—prevents neuro-inflammation and provides neuroprotection; (2) **Chicken ovalbumin upstream promoter transcription factor-interacting protein (Ctip2)**—enhances neurogenesis; and (3) **Extracellular signal-regulated kinases 1 and 2 (ERK1/2) pathway**—involved in neuronal survival and reduces neuro-degradation.

In preclinical studies, EHP-102 demonstrated the potential to promote the regeneration of nerve cells, protect against neuroinflammation and neurodegeneration in HD models, and reduce the loss of dopamine production in PD models. These data support EHP-102's potential to be disease-modifying rather than only symptomatic, possibly providing a beneficial treatment option for these complex diseases with no cure. The Company plans to complete its preclinical studies of EHP-102 in 2H 2022, with a clinical study initiation in 1H 2023.

EHP-102 for Parkinson's Disease (PD)

PD is an incurable neurodegenerative disorder affecting nearly 10 million people worldwide. Primarily, it is a disease where the nerve cells stop producing a substance called dopamine, which helps transmit impulses from the brain to the muscles. The disease results in tremors (shaking) of the hands, arms, legs, and face; bradykinesia (slow movement) and stiffness; impaired balance; and rigidity of the muscles. Currently, there is no cure for PD but there are many available treatments to manage the symptoms of the disease. The PD market is expected to see significant growth in the seven major pharmaceutical markets (the U.S., France, Germany, Spain, Italy, the UK, and Japan), with the segment expected to rise from $3.5 billion in 2019 to $11.5 billion in 2029.

In preclinical studies, EHP-102 demonstrated efficacy in validated PD models, with the following key findings: (1) improves clinical symptoms and recovers movement parameters (motor coordination and activity); (2) reduces inflammatory marker expression; and (3) prevents the loss of nerve cells that produce dopamine.

EHP-102 for Huntington's disease (HD)

Emerald has received Orphan Drug Designation for EHP-102 in HD from the U.S. FDA and the EMA in Europe. In preclinical studies, EHP-102 demonstrated the ability to induce regeneration of nerve cells and protect against neuroinflammation and neurodegeneration in HD models. Specifically, results indicate EHP-102 improved motor function and clinical scores, and caused a positive effect on neuroprotection and neurogenesis. These data support EHP-102's potential to be disease-modifying in addition to providing functional benefits.

HD is a rare neurodegenerative genetic disorder that causes the progressive breakdown of nerve cells in the brain. This chronic, complex disease is characterized by a triad of symptoms: motor impairment, decline in cognitive function, and psychiatric disturbances. The condition causes uncontrolled movements, emotional problems, loss of thinking (cognition) and deteriorates patients' physical and mental abilities to the extent that they are unable to care for themselves. HD has no curative therapies or drugs to slow or alter the progression of the disease. Current treatment for HD focuses on managing symptoms and is entirely dependent on symptomatic therapies. The global market for HD therapeutics is estimated at $402.2 million in the year 2020, with the U.S. market accounting for $107.7 million of that total, and projected to reach $3.1 billion by 2027.

Other indications for EHP-102

The Company believes that EHP-102's ability to target key biological pathways involved in the pathophysiology of multiple diseases expands its applications beyond PD and HD, into other indications with similar disease pathology, including: (1) other neurodegenerative diseases; (2) cognitive diseases; (3) **Friedreich's ataxia** and other ataxias; (4) pain; (5) **cerebral ischemia reperfusion**; (6) **amyotrophic lateral sclerosis (ALS)**; and (7) prion diseases.

EMPLOYEES, HEADQUARTERS, AND COMPANY INFORMATION

Emerald Health Pharmaceuticals Inc. was formed on March 2, 2017, under the laws of the State of Delaware, and is headquartered in San Diego, California. The Company was formed to acquire, discover, develop, and commercialize drug candidates based on patented NCEs derived from cannabinoids. EHP has 18 full-time employees and 2 part-time employees.

EHP's biggest stockholder is Emerald Health Sciences, a private entity focused on building companies advancing the development of cannabis and cannabinoids. Emerald Health Sciences originally financed EHP's operations through a revolving loan agreement, which has been settled in full and terminated effective June 1, 2021. In total, Emerald Health Sciences advanced approximately $11.3 million to EHP under the loan. Approximately $8.3 million of the total amount advanced by Emerald Health Sciences was repaid in cash and $3 million was converted into 1.5 million shares of EHP common stock at a conversion price of $2.00 per share. Approximately $2.2 million of interest expense was paid in cash to Emerald Health Sciences under the loan.

Milestones

As the Company continues its progress in the development of its product candidates, it has achieved the following milestones, as listed below. Moving forward, EHP has established objectives (Potential Milestones as highlighted on page 8) as it moves its products closer to U.S. and European approvals.

General

- Several patents granted: EHP has 25 molecules, now backed by 25 U.S. and international patents, with 19 patents pending.

EHP-101: systemic sclerosis (SSc) and multiple sclerosis (MS)

- Demonstrated and published the antifibrotic and anti-inflammatory effects, vascular protection, and vascular regeneration in SSc preclinical models.
- Demonstrated and published the potential disease-modifying benefits relating to the prevention of demyelination and stimulation of remyelination in four validated MS preclinical models.
- Successfully completed a large Phase I human clinical study in Australia to establish EHP-101's safety, tolerability, and pharmacokinetics (PK) in healthy volunteers.
- Initiated a Phase IIa multicenter study to evaluate the safety, tolerability, pharmacokinetics, and preliminary efficacy of EHP-101 in diffuse cutaneous SSc.
- Continued preparations to initiate a Phase IIa study in MS patients.
- EHP-101 received Orphan Drug Designation for SSc in both the U.S. and EU.
- EHP-101 was granted Fast Track Designation for SSc in the U.S. (FDA).
- EHP-101's active pharmaceutical ingredient, VCE-004.8, was deemed not a controlled substance by the U.S., Canada, and UK's regulatory agencies.

EHP-102: Parkinson's disease (PD) and Huntington's disease (HD)

- Demonstrated and published the anti-inflammatory and neuroprotective activity and the potential to stop the damage to nerves that produce dopamine (the main issue in PD) in PD models.
- Demonstrated and published the potential to promote the regeneration of nerve cells and protect against neuroinflammation and neurodegeneration in HD models.
- EHP-102 granted Orphan Drug Designation for HD in the U.S. and EU.

Potential Milestones

1Q 2022: Enrollment begins in the EHP-101 MS Phase IIa trial

2H 2022: Preliminary results on cohorts 1 and 2 in the EHP-101 SSc Phase IIa trial

2H 2022: Completion of nonclinical studies on EHP-102

1H 2023: Regulatory Agency clearance for EHP-102 clinical trial initiation

1H 2023: Preliminary results from the EHP-101 MS Phase IIa trial

2H 2023: Final top line results from the EHP-101 SSc Phase IIa trial

2H 2023: Initiation of Phase I for EHP-102

1H 2024: Final data from the EHP-101 SSc Phase IIa trial

1H 2024: Final data from EHP-101 MS Phase IIa trial

Intellectual Property

EHP believes that a key to its success relies on its ability to obtain and maintain patent and other legal protections for the proprietary molecules, technology, inventions, and improvements it considers important, as well as to maintain the confidentiality of its trade secrets. EHP's intellectual property strategy is focused on providing patent protection for its NCEs derived from cannabinoids, their formulation, and therapeutic applications. EHP has sought and intends to continue to seek appropriate intellectual protection for its product candidates, expanding and broadening this protection for its large portfolio of novel molecules as well as other proprietary technologies, by filing additional patent applications in the U.S. and select other countries.

The Company owns a total of 25 issued (granted) patents and 19 pending patent applications, covering a portfolio of 25 unique molecules (14 based on CBD architecture and 11 based on CBG architecture), consisting of composition of matter, method of use, and formulation patents. These patents cover the U.S. market as well as select international markets: four U.S. patents, three Japanese patents, three European patents, two Mexican patents, two patents in the Russian Federation, two Australian patents, two Israeli patents, two Indian patents, two patents in China, one patent in Hong Kong, one patent in Korea, and one patent in Canada.

These patents and patent applications will expire between 2030 and 2041 and could be eligible for patent term extensions for delay caused by regulatory review. EHP's patent portfolio is not specific to any single indication, which it believes could provide the Company with additional patent opportunities for multiple products and indications for additional patient populations in markets with unmet medical need. Figure 2 (page 10) provides details of EHP's seven patent families.

Intellectual Property Transfer Agreement (IPTA)

The Company acquired certain intellectual property from Emerald Health Biotechnology España, S.L.U. (EHBE), formerly known as VivaCell Biotechnology España S.L. During the year ended December 31, 2018, EHBE became a wholly owned subsidiary of Emerald Health Research Inc., which is a wholly owned subsidiary of Emerald Health Sciences Inc. EHP has no ownership or voting rights related to EHBE.

In June 2017, upon the execution of the Intellectual Property Transfer Agreement (IPTA), Emerald paid EHBE approximately $112,000 for the purchase of three U.S. patents, two Japanese patents, one European patent, and fourteen pending patent applications covering two series of molecules containing derivatives of CBD and CBG. Future payments of up to 2.7 million Euro per product are due upon completion of certain development milestones. As further consideration, the Company will pay EHBE a 2.5% royalty on all net revenues of any drug developed from the transferred compounds. The Company has paid approximately $0.5 million related to the first milestone payments for its completion of a Phase I clinical study for MS and SSc.

Figure 2

EHP INTELLECTUAL PROPERTY

Family Number	Patent Publication/Application Number	Status	Expiry	Title	Description
1 **CBD** **PPARγ**	US8772349 EP2551255B1* JP05575324B2 WO2011/117429 *Validated in DE, ES, GB, FR, IT, & NL	Granted Granted Granted Expired	2030	Cannabinoid Quinone Derivatives	Cannabinoid quinone derivatives to be used as medicaments, particularly as PPARγ activators for treating diseases which etiology is based on an impaired PPARγ function and can benefit from PPARγ activation.
1.2 **CBD** **PPARγ**	US9701618 AU2014390738 CA2945867A1 CN106232570A EP3131874A1* JP06167248B2 KR10-2256398 IN201617038938A BRPI1623902A2 MX2016013151A WO2015158381A1 RU2667504 IL248030 HK17104665.7 *Validated in BE, CH DE, DK, ES, FR, GB, IE, IT, LI, & NL	Granted Granted Granted Granted Granted Granted Granted Granted Pending Granted Expired Granted Granted Granted	2034	Cannabidiol Quinone Derivatives	CBD quinone derivatives to be used as medicaments in therapy, particularly or treating diseases and conditions responsive to PPARγ modulation due to their high PPARγ activatory effect
1.3 **HIF**	WO2018/177516 AU2017406103 CA3058352 EP3600274A1 IL269623 JP2019553369 US10,919,843 US17/176,743	Expired Pending Pending Pending Pending Pending Granted Pending	2037	Cannabidiol derivatives as inhibitors of the HIF prolyl hydroxylases activity	CBD quinone derivatives to be used as medicaments in therapy, particularly for treating diseases and conditions responsive to HIF-1 activation.
1.4 **CBD** **Formulations**	PCT/US20/17035	Pending	2040	Formulations of Cannabidiol Derivatives	Formulations of CBD derivatives to be used as Modulators of Cannabinoid Receptor Type 2 (CB_2)
1.5 **CBD** **Fibrosis**	PCT/US2021/017052	Pending	2041	Compositions of Cannabidiol Derivatives and their use as modulators of Cannabinoid Receptor Type 2 (CB_2) Cannabidiol Quinone Derivatives	Composition and Method for the treatment and preventions of cardiac fibrosis Composition and Method for the Treatment and Prevention of Cardiac, Pulmonary, Dermal, and Renal Fibrosis
2 **CBG** **PPARγ**	US9802880 AU2015222384 CA2937275A1 CN106061937A EP2913321A1 JP6619349 KR2016126006 MX2016010952 WO2015128200A1 BRPI1619891A2 IN201647028497A RU2684913 IL247149 HK17103324.2	Granted Granted Pending Granted Granted Granted Pending Granted Expired Pending Granted Granted Granted Pending	2035	Cannabigerol Derivatives	CBG derivatives to be used as medicaments in therapy particularly for treating PPARγ-related diseases due to their high PPARγ activatory effect.
3.1 **CBGA Salts**	PCT/EP2019/084764 US17413199 AU2019396637 CA CN EP19831602.8 JP	Expired Pending Pending Pending Pending Pending Pending	2038	Cannabigerol Quinone Acid and Salts	CBG quinone acid and its salts, and new methods of synthesis

Source: Emerald Health Pharmaceuticals Inc.

Company Leadership

EHP has assembled a highly experienced, expert management team, supported by clinical and scientific advisory boards, to develop its portfolio of pharmaceutical candidates. Figure 3 provides a snapshot of EHP's management, followed by detailed biographies.

Figure 3
MANAGEMENT

Jim DeMesa, MD, MBA	President, Chief Executive Officer & Director
Alain Rolland, PharmD, PhD	Chief Operating Officer & Executive Vice President
Lisa Sanford, CPA	Chief Financial Officer
Joachim P.H. Schupp, MD, Dr. med.	Chief Medical Officer
Eduardo Muñoz, MD, PhD	Chief Scientific Officer, Scientific Advisor
Nancy Coulson, MBA	Senior Vice President, Regulatory & Quality Affairs

Source: Emerald Health Pharmaceuticals Inc.

Jim DeMesa, MD, MBA, President, Chief Executive Officer & Director

Dr. DeMesa has over 30 years of experience in biotechnology and pharmaceutical leadership, product development, and clinical and regulatory management. He has completed partnerships and collaborations with pharmaceutical, biotechnology, and medical device companies and has raised more than $200 million to advance product development into clinical stage, regulatory approval, and commercialization. He is a former practicing physician and CEO of two public biotechnology companies: Migenix and GenSci Regeneration Sciences (now part of Integra LifeSciences). Dr. DeMesa also currently serves as Director for two biotechnology companies: OncoSec Medical and Induce Biologics. Prior to his CEO roles, Dr. DeMesa was Vice President, Medical and Regulatory Affairs at Biodynamics International (now part of RTI Surgical) and Bentley Pharmaceuticals (now part of Teva Pharmaceuticals). Dr. DeMesa received a bachelor's degree in Chemistry, and MD and MBA degrees from the University of South Florida and did his medical residency at the University of North Carolina.

Alain Rolland, PharmD, PhD, Chief Operating Officer & Executive Vice President

Dr. Rolland brings over 30 years of international leadership experience in pharmaceutical and biotechnology companies. He has focused on the discovery and development of biologics and small molecules in a variety of therapeutic areas, including immuno-oncology, cardiovascular and hematological disorders, dermatology, and infectious disease vaccines. Prior to joining EHP, Dr. Rolland was a co-founder and served as CEO, President, and Director of CHIME BioTherapeutics, Executive Vice President and Chief Scientific Officer at HUYA Bioscience International, Executive Vice President, Product Development at Vical, and Senior Vice President, Preclinical R&D, Head of The Woodlands Center of Valentis. Dr. Rolland has published over 90 scientific articles and book chapters, and is editor of three scientific books. He is a member of several scientific societies, the founding Editor-in-Chief of Current Pharmaceutical Biotechnology, and an editorial board member of several journals. He is also the recipient of the Fellowship Award from the American Association of Pharmaceutical Scientists. Dr. Rolland earned his doctorate degree in Pharmacy (Pharm.D.) and in Pharmaceutical Sciences (Ph.D.) from Rennes University, France.

Lisa Sanford, CPA, Chief Financial Officer (CFO)

Ms. Sanford has 30 years of diversified experience in finance and accounting in the life sciences, biotechnology, and pharmaceutical industries. She has served as EHP's CFO since April 2019 and prior to that, she served as Vice President of Finance beginning in July 2018. Prior to her employment at EHP, from April 2000 through July 2018, Ms. Sanford managed her own consulting business, providing finance and accounting services for public and private companies. Ms. Sanford also served as an audit senior manager at Ernst & Young LLP, where she worked for twelve years and was involved in multiple IPOs and business combinations. She received her bachelor's degree in Accounting from Lehigh University and is a Certified Public Accountant.

Joachim P.H. Schupp, MD, Dr. med., Chief Medical Officer

Dr. Schupp has over 30 years of international pharmaceutical industry experience in all phases of drug development and several therapeutic areas. He directed multiple Phase I-IV clinical studies and led multiple international cross-functional project teams at Ciba-Geigy and Novartis Pharmaceuticals in Switzerland, which resulted in worldwide approval of several New Drug Applications (NDAs), Biologics License Applications (BLAs), and supplemental applications for small molecule drugs, biologics, and devices currently on the market. Dr. Schupp also served as Vice President, Clinical & Regulatory Affairs at HUYA Bioscience International, Chief Medical Officer at Imprimis/Transdel Pharmaceuticals, Inc., Vice President, Clinical Development at Apricus Biosciences, Inc., Vice President, Medical Affairs at Adventrx Pharmaceuticals, Inc., and Vice President, Clinical Data Services at ProSanos, Inc. Prior to joining EHP, Dr. Schupp managed his own consulting business (MEQVal), providing services as a medical monitor and drug safety physician. Dr. Schupp received his MD and doctorate (Dr. med.) from Freie Universität Berlin in Germany and practiced medicine in Germany, South Africa, UK, and Switzerland.

Eduardo Muñoz, MD, PhD, Chief Scientific Officer, Scientific Advisor

Dr. Muñoz is a Professor of Immunology in the Department of Cell Biology, Physiology, and Immunology of the University of Córdoba (Spain) since 1992 and Director of the Inflammation and Cancer Research Group at the Institute Maimonides for Biomedical Research of Córdoba since 2012. Dr. Muñoz has more than 30 years of experience in biomedical research and is the author of more than 250 articles, patents, and book chapters with more than 9,000 citations. He is experienced in the mechanism of actions of cannabinoids and endocannabinoids as well as the development of cannabinoid-based new chemical entities. Dr. Muñoz belongs to the editorial board of several scientific journals and is a co-founder of three biotech companies, Emerald Health Biotechnology España, S.L.U. (Spain), Glactone Pharma AB (Sweden) and InnoHealth Group (now part of Evonik Industries AG). He received a PhD in Medicine and Surgery at the University of Córdoba and was an associate researcher at Tufts University in Boston, and at the Institute Pasteur in Paris.

Nancy Coulson, MBA, Senior Vice President, Regulatory & Quality Affairs

Ms. Coulson has over 30 years of experience providing strategic counsel for regulatory, clinical, and quality affairs. As a senior advisor for medical device and pharmaceutical companies, she manages U.S. and international regulatory documents, briefing packages, and global regulatory dossiers across multiple product categories. Ms. Coulson has also completed several successful pre-approval inspections for new drug and device manufacturing facilities. Most recently, she was Worldwide Director, Regulatory Affairs at Cordis, a Johnson & Johnson company, where she provided strategic direction on global regulatory submissions. She also held scientific and senior regulatory positions at Bristol-Myers Squibb, Bausch & Lomb, GenSci, and Migenix. She received a Bachelor of Science in Chemistry from LeMoyne College and an MBA from Chapman University.

BOARD OF DIRECTORS

EHP's Board of Directors oversees the conduct and supervises the management and affairs of the Company. Figure 4 provides a snapshot of Emerald's Board members, followed by detailed biographies.

Figure 4
BOARD OF DIRECTORS

Jim Heppell, BSc, LLB	Chairman
Jim DeMesa, MD, MBA	President, Chief Executive Officer & Director
Gaetano Morello, ND	Director
Punit Dhillon	Director

Source: Emerald Health Pharmaceuticals Inc.

Jim Heppell, BSc, LLB, Chairman

Mr. Heppell has been involved with the Emerald Health Group since 2014. From 2003 to 2014, he was Co-Founder, President and Director of BC Advantage Funds (VCC) Ltd., a venture fund focused on investing in and building technology, life sciences, and clean technology companies. Mr. Heppell was founder and CEO of the Advantage Life Sciences I Fund, which won the Canadian Venture Capital Deal of the Year Award in 2006 for having the highest realized return of all venture capital funds in Canada. Earlier in his career, he practiced corporate securities law with Fasken Martineau DuMoulin and later served as President and CEO of Catalyst Corporate Finance Lawyers, a boutique corporate finance law firm representing life science and tech companies. He is a past member of the Securities Policy Advisory Committee to the British Columbia Securities Commission and is a Past-Chairman of the Securities Section of the Canadian Bar Association. Over the years, Mr. Heppell has written a number of articles, co-edited the Annotated British Columbia Securities Act and coordinated and taught numerous courses on corporate finance and corporate governance issues. He earned a BSc in microbiology and a law degree from the University of British Columbia.

Jim DeMesa, MD, MBA Director

Biography on page 11.

Gaetano Morello, ND, Director

Dr. Morello is an accomplished clinician with direct, first-hand experience in the clinical and medical application of cannabinoids. Dr. Morello continues to practice at the Complex Chronic Disease Program at Woman's Hospital in Vancouver, Canada. He also serves on the Quality Assurance Committee for the College of Naturopathic Physicians of British Columbia and other health and medical panels. He has authored Cleanse, The Healing Power, of the Endocannabinoid System, Ultimate Inside Out Approach, Whole Body Cleansing, Stress and Anxiety, A Powerful Antioxidant, and was a contributing author to A Textbook of Natural Medicine, and numerous journal publications. He has made more than 500 medical presentations in the U.S., Canada, Australia, Germany, and Italy in the last decade. Dr. Morello has a BSc in Cell Biology/Nutrition from the University of British Columbia and a Doctorate in Naturopathic Medicine from Bastyr University.

Punit Dhillon, Director

Mr. Dhillon was appointed CEO and Chair of Skye Bioscience, Inc. (OTCQB: SKYE) in August 2020. He is the co-founder and former President & CEO of OncoSec Medical Incorporated (NASDAQ: ONCS), a leading biopharmaceutical company developing cancer immunotherapies for the treatment of solid tumors, where he served as an Executive until March 2018 and a Director until February 2020. Mr. Dhillon serves as a Director and Audit Committee Chair for Emerald Health Therapeutics, and also serves as Director for Arch Therapeutics Inc. (OTCQB: ARTH). Prior to OncoSec, from 2003-2011, he served as Vice President of Finance and Operations at Inovio Pharmaceuticals, Inc. (NASDAQ: INO). Collectively, he has led and assisted in raising over $500 million through financings, M&A deals, and several licensing transactions with large pharma. His management experience spans corporate finance, M&A integration, in-licensing and out-licensing of key intellectual property, strategy implementation, corporate transactions and collaborations with leading universities and global disease specific opinion leaders. Mr. Dhillon also co-founded and is the Director of the YELL Canada, a registered Canadian charity that partners with schools to support entrepreneurial learning. Mr. Dhillon holds a BA (Honours) in Political Science and a minor in Business Administration from Simon Fraser University.

SCIENTIFIC AND CLINICAL ADVISORY BOARD

Figure 5
SCIENTIFIC AND CLINICAL ADVISORS

Eduardo Muñoz, PhD, MD	Chief Scientific Officer, Chairman of Scientific Advisory Board
Giovanni Appendino, PhD	Scientific Advisor
Rao Movva, PhD	Scientific Advisor
Eduardo Candelario-Jalil, Ph.D.	Scientific Advisor
Emmanuelle L. Waubant, MD, PhD	MS Clinical Advisor
Juan Antonio García Merino, MD, PhD	MS Clinical Advisor
Patricia Carreira, MD	SSc Clinical Advisor
John Varga, MD	SSc Clinical Advisor
Janet Pope, MD	SSc Clinical Advisor

Source: Emerald Health Pharmaceuticals Inc.

Eduardo Muñoz, PhD, MD, Scientific Advisor, Chairman of Scientific Advisory Board

Biography on page 12.

Giovanni Appendino, PhD, Scientific Advisor

Dr. Appendino is a Professor of Organic Chemistry at the Università del Piemonte Orientale, Department of Pharmaceutical Sciences, Novara (Italy), since 2000. Research activity in his laboratories takes inspiration from plant natural products to address problems in various realms of biomedical investigation, from pharmacology and nutrition (new drug leads and health-promoting dietary ingredients) to organic/medicinal chemistry (new synthetic methodologies and optimization of natural product drug leads) and cell biology (novel mechanisms of action). He is also the author of over 350 peer-reviewed articles and 15 book chapters on the chemistry and bioactivity of plant natural products. Dr. Giovanni is furthermore editor-in-chief of the journal Fitoterapia and member of the Advisory Board of the PharmaNutrition, Natural Products Reports, Acta Pharmaceutica Sinica B, and Progress in the Chemistry of Organic Natural Products. He is the recipient of the Rhône-Poulenc Rorer Award of the Phytochemical Society of Europe (1991), the Medaglia Quilico of the Società Chimica Italiana (2009), and the Bruker Prize of the Phytochemical Society of Europe in 2014 for his studies on bioactive natural products.

Rao Movva, PhD, Scientific Advisor

Dr. Movva brings broad experience from the biotechnology and large pharmaceutical industry, having worked since the very early years of biotechnology at Biogen and at Novartis as Executive Director. Dr. Movva and his collaborators have uncovered the mechanism of action of many natural compounds to advance them as leads for drug discovery. Dr. Movva was recognized in 2012 as a Novartis Distinguished Scientist for his significant contributions to drug discovery. He had initiated and pioneered the chemical biology efforts that led to the discovery and understanding of the biological targets of rapamycin, the TOR pathways, in collaboration with Drs. Joseph Heitman and Mike Hall at Biozentrum, Basel. This significant milestone lead to advancing the currently marketed drugs and highlighted novel therapeutic opportunities that are actively pursued by many biotechnology companies. Dr. Movva received his PhD in Molecular Biology from SUNY at Stony Brook, New York.

Eduardo Candelario-Jalil, Ph.D., Scientific Advisor

Dr. Eduardo Candelario-Jalil is a tenured Associate Professor in the Department of Neuroscience, McKnight Brain Institute, University of Florida. His research spans nineteen years of work in neuropharmacology, biochemistry, and molecular biology. His current research activities are focused on identifying novel molecular targets to reduce blood-brain barrier damage following ischemic stroke. Additionally, Dr. Candelario-Jalil directs an active research program with great translational potential, funded by two National Institute of Health (NIH) grants, with research focused on understanding neuroinflammatory mechanisms following ischemic stroke utilizing biochemical, cellular, genetic,

pharmacological, and MRI multimodal approaches. Dr. Candelario-Jalil has made significant contributions to the understanding of neuroinflammatory mechanisms in ischemic stroke and has authored 69 original peer-reviewed publications, 11 invited review articles, and 3 book chapters.

Emmanuelle L. Waubant, MD, PhD, MS Clinical Advisor

Dr. Waubant is a neurologist who specializes in treating MS patients. She is a professor of neurology and serves as director of the University of California, San Francisco (UCSF) Regional Pediatric Multiple Sclerosis Center. She earned her medical degree at the Lille University School of Medicine and completed a residency in neurology at Toulouse University Hospital. Dr. Waubant's research focuses on new treatments for MS. She also studies environmental and genetic risk factors in adults and children with the disease. Dr. Waubant is the Medical Director of Race to Erase MS and serves on the translational research review committee for the National Multiple Sclerosis Society. She chairs the clinical trial task force and is a member of the steering committee of the International Pediatric Multiple Sclerosis Study Group. A prominent contributor to scientific journals in her field, she is a co-chief editor of Multiple Sclerosis and Related Disorders, and the MS section editor for *Annals of Clinical and Translational Neurology*.

Juan Antonio García Merino, MD, PhD, MS Clinical Advisor

Dr. Merino is a neurologist focused on MS. He is Professor of Neurology and Director of the Neuroimmunology Lab at Puerta de Hierro Hospital, Universidad Autonoma, Madrid, where he runs a national reference unit for MS. He obtained his medical degree at the Faculty of Medicine, Valladolid, and trained as a neurologist at Puerta de Hierro Hospital. He received his PhD degree in 1985 at the Universidad Autonoma of Madrid. Dr. García Merino has held research posts at Karolinska Institute, Massachusetts General Hospital, and the University of California, San Francisco. His research interests are focused on mediation of damage in experimental models of neuroinflammation, the search for new therapeutic targets, and the role of the endocannabinoid system in MS.

Patricia Carreira, MD, SSc Clinical Advisor

Dr. Carreira is Associate Professor of Rheumatology in the University Hospital 12 de Octubre, Universidad Complutense, Madrid Spain. After her residency and fellowship in Rheumatology in the University Hospital 12 de Octubre, she became interested in scleroderma at the Rheumatology Division of South Carolina, directed by Dr. E. Carwile LeRoy and Dr. Rick M. Silver. Dr. Carreira is a founding member of the EUSTAR (European Scleroderma Trials and Research Group) and INSYNC (International Systemic Sclerosis Inception Cohort Group). She has worked with international scleroderma groups, ESOS (European Scleroderma Observational Study), and SPIN (Scleroderma Patient-centered Intervention Network). Her professional clinical research has focused on epidemiological research centered on autoimmune systemic diseases, systemic lupus erythematosus, inflammatory myopathies, and systemic sclerosis. Dr. Carreira has coauthored more than 200 papers and textbook chapters, mainly related to scleroderma.

John Varga, MD, SSc Clinical Advisor

Dr. Varga is a rheumatologist, and the Director and founder of the Northwestern University Feinberg School of Medicine Scleroderma Program. He earned his medical degree at New York University and completed a residency in Internal Medicine at the Rhode Island Hospital-Brown University in Providence, Rhode Island. He had a Rheumatology Fellowship at Boston University and was a post-doctoral research fellow of the Arthritis Foundation in the laboratory of Sergio Jimenez at the University of Pennsylvania. Dr. Varga has served on National Institutes of Health Study Section panels since 1998 and is the director of an NIH-supported translational research program focusing on basic and clinical aspects of scleroderma and the discovery of novel therapies. He is also an elected member of AOA, the Association of American Physicians, and the Henry Kunkel Society. A prominent contributor to scientific journals in his field, Dr. Varga has published over 250 peer-reviews articles, along with 150 reviews and textbook chapters, three books, and over a dozen chapters in Up To Date. He has trained over 20 clinical and research fellows, received the 2017 Lifetime Achievement Award of the Scleroderma Foundation, and was listed in Best Doctors in America for 2017-2018.

Janet Pope, MD, SSc Clinical Advisor

Dr. Pope is a Professor of Medicine in the Division of Rheumatology at the University of Western Ontario (UWO), Schulich School of Medicine, London, Ontario, Canada. She is the Division Head in Rheumatology at St. Joseph's Health Centre, London. Dr. Pope has mentored over 125 research students and trainees and has received the Distinguished Investigator Award from the Canadian Rheumatology Association, Rheumatologist of the Year from the Ontario Rheumatology Association, Department of Medicine Research Achievement Award, and the Dean's Award of Excellence in Research. She has published over 450 peer-reviewed articles, 15 chapters, 500 abstracts, and several Cochrane meta-analysis reviews. Her research interests are focused on scleroderma, systemic lupus erythematosus and rheumatoid arthritis, including outcome measurements, clinical trials, and disease manifestations.

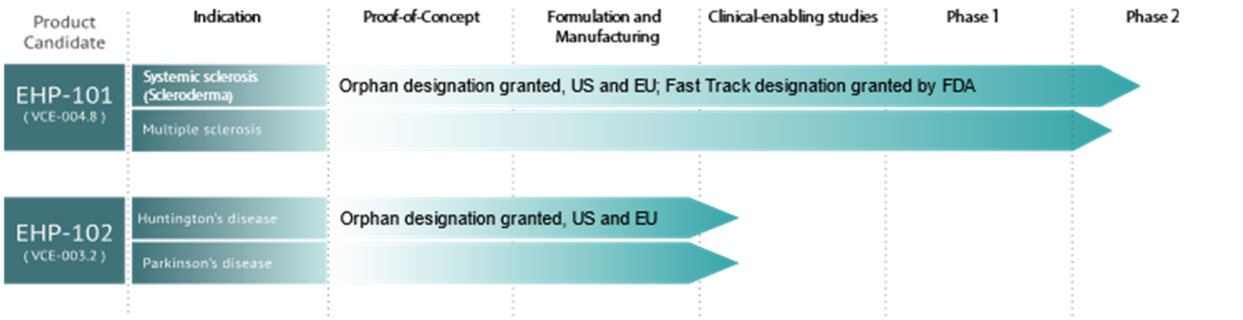
Core Story

Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") is a private clinical-stage biotechnology company developing a portfolio of novel patented new chemical entities (NCEs) to treat central nervous system, autoimmune, and other diseases with unmet medical needs. The Company's new therapeutic molecules possess first-in-class mechanisms of action that have demonstrated the potential to modify and reverse disease progression in people suffering from various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure.

EHP has developed two families of NCEs, derived from synthetic cannabidiol (CBD) and cannabigerol (CBG), respectively (Figure 6). Its first drug candidate, EHP-101 (based on CBD's architecture), has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility and is currently in the initiation stages of a pair of Phase IIa studies for the treatment of multiple sclerosis (MS) and systemic sclerosis (SSc). Its second product candidate, EHP-102 (based on CBG's architecture), is in preclinical development and focused on treating Huntington's disease (HD) and Parkinson's disease (PD).

Figure 6

PRODUCT PIPELINE



Source: Emerald Health Pharmaceuticals Inc.

EHP's development strategy is designed to maximize the market potential of each product candidate. In addition, the Company has intellectual property control over other novel therapeutic molecules with potential applications in a number of additional conditions, including other neurodegenerative, fibrotic, inflammatory, and metabolic conditions, as well as cancer.

The Company's novel molecules have been created and modified through EHP's Rational Drug Design technology platform to display a multi-pronged mechanism of action (MOA) that aims to modulate physiological pathways in the body, which are validated targets in the treatment of multiple serious diseases. EHP's Rational Drug Design is based on a unique convergence of cannabinoids, science, and biology to modify synthetically manufactured cannabinoids into novel molecules with the potential to provide valuable therapeutic benefits.

The Company's use of synthetic forms of cannabinoids means that EHP does not extract or even work with the cannabis plant. This allows the Company the ability to patent its novel molecules, something that companies using actual CBD and CBG cannot do, as natural ingredients cannot be protected. Another advantage of using novel synthetic forms of cannabinoids is that the Company's active ingredient in its lead product candidate, EHP-101, is not classified as a controlled substance under federal law. Due to these differences, EHP is not a cannabis company but rather a pharmaceutical company developing novel therapeutic molecules with disease-modifying capabilities through the interactions with the body's own physiologic receptors and pathways, which are targets for many diseases.

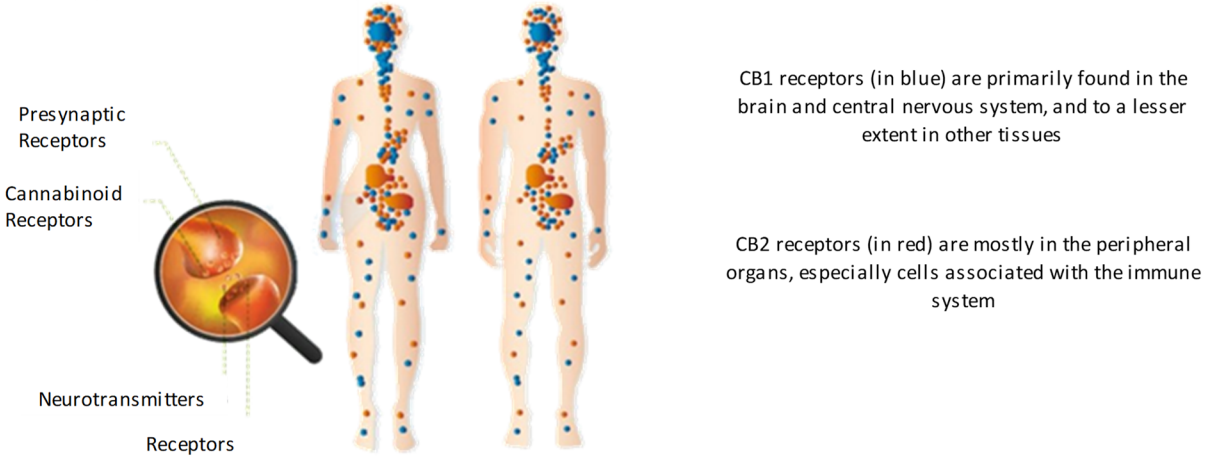
THE ENDOCANABINOID SYSTEM (ECS)

The endocannabinoid system (ECS) is a complex cell-signaling biological system identified in the early 1990s and composed of three core components: endocannabinoids, receptors, and enzymes. The ECS remains under preliminary research, but studies reveal it may be involved in regulating a broad range of physiological and cognitive processes, including pain, stress, appetite, energy, metabolism, immune response, inflammation, cardiovascular function, learning and memory, reproduction and fertility, muscle formation, bone remodeling and growth, liver function, and sleep.

Many of ECS' effects are mediated by two main cannabinoid receptors: Cannabinoid receptor type 1 (CB1) and Cannabinoid receptor type 2 (CB2), though additional receptors may be involved. CB1 is expressed in the peripheral nervous system and central nervous system and mediate many of the psychoactive effects of cannabinoids. CB2 is expressed primarily in immune cells that travel throughout the body and plays a key role in fighting inflammation. These receptors sit on cell surfaces, waiting for specific neurotransmitters to bind to them, resulting in different effects on the body, depending on the neurotransmitter and location of the receptor (Figure 7).

Figure 7

THE ENDOCANNABANOID SYSTEM



Source: Hapihemp.com.

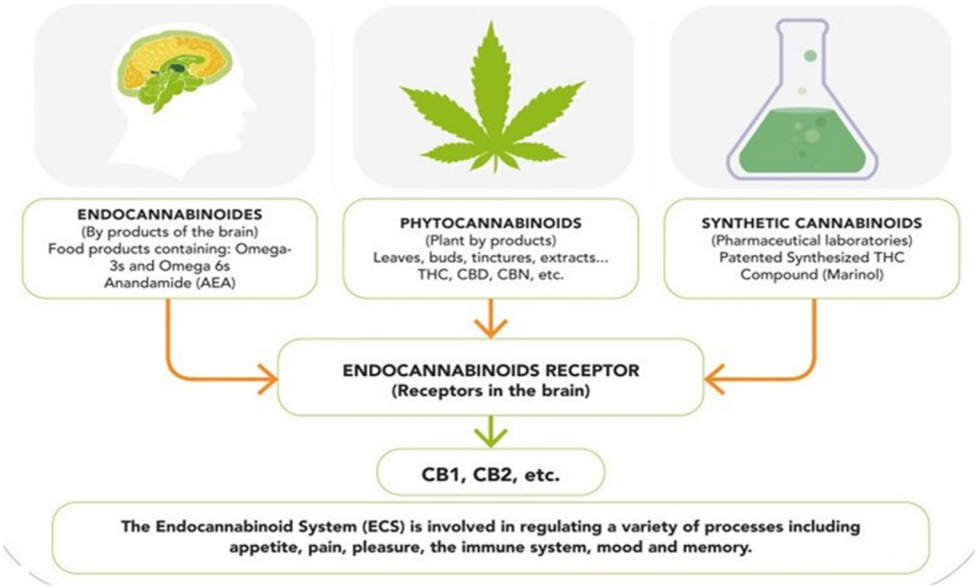
The neurotransmitters that the ECS use are called endocannabinoids—substances produced from within the body that activate cannabinoid receptors. Two of the main endocannabinoids are anandamide, considered the primary activator of CB1, and AG-2, which binds to both the CB1 and CB2 receptors with similar affinity. Endocannabinoids have been found to play a role in the pathology of many disorders. Research indicates that the ECS may contain multiple promising therapeutic targets for numerous physiological conditions, such as PD, HD, Alzheimer's disease, and MS (Source: MedicalNewsToday's *What to know about endocannabinoids and the endocannabinoid system*, 2021). Disruptions of the ECS may also be involved in the pathogenesis of depression, schizophrenia, anorexia, chronic motion sickness, and failure to thrive in infants (Source: *Pharmacy and Therapeutics*, Vol. 42(3):180–188, 2017).

The Endocannabinoid System (ECS) as a Therapeutic Target

Accumulating evidence suggests that the ECS is a promising target in treating a variety of health conditions through the development of novel therapeutics. Accordingly, three paths of cannabinoid drug development have emerged. One approach is focused on developing medications that are derived directly from the cannabis plant, while another focuses on a single molecule approach, where individual or novel cannabinoids with therapeutic potential are identified and synthesized for pharmaceutical development, and the third involves NCEs that are based on cannabinoid architecture (but are no longer cannabinoids) that have broader capabilities than individual or novel cannabinoids (Figure 8 [page 19]).

Figure 8

CANNABINOIDS EFFECT MECHANISM



Source: Kalapa Clinic.

The use of cannabis-derived therapeutic agents for medical applications relies on the interaction of the plant-derived cannabinoids (phytocannabinoids) with the ECS. For example, **Delta-9-tetrahydrocannabinol (THC)** binds with CB1, resulting in cannabis' psychoactive effect. Other phytocannabinoids, such as CBD, do not directly trigger either receptor, but modifies the receptors' ability to bind to other cannabinoids.

The cannabis plant has been shown to be chemically rich, with 565 known constituents belonging to 23 classes of compounds. Perhaps the most recognized class of compounds in cannabis are the namesake cannabinoids, with 120 different cannabinoids, plant-derived molecules unique to cannabis, identified in the cannabis plant (Source: *International Review of Psychiatry*, Vol. 30(3): 277–284, 2018). THC, CBD, and more recently CBG, are the main chemicals used in medicine. CBD and CBG's non-psychotic effect and low levels of toxicity lend itself to medical uses, whereas THC (the substance primarily responsible for the psychoactive effects of cannabis) is utilized, for example, to reduce the side-effects of HIV/AIDS and cancer treatment (Source: University of Washington's Alcohol and Drug Abuse Institute [ADAI]).

Cannabinoid-Like Molecules

The alternative use of synthetic molecules based on cannabinoid architecture, as opposed to phytocannabinoids, for the development of therapeutic agents provides significant advantages. While approximately 120 naturally occurring cannabinoids have been identified, they are finite and somewhat limited with respect to their pharmacological effect. On the other hand, hundreds of cannabinoids have been synthesized and characterized, including substances that are chemically identical to the natural cannabinoids, in addition to novel molecules not found in nature. Medicinal chemists are therefore able to modify known cannabinoid molecules in order to target specific pharmacological effects, resulting in medications that have very specific mechanisms of action. Synthetic cannabinoid-like molecules can provide further advantages in the manufacturing of a pharmaceutical-grade therapeutic agent. Quality control for synthetically derived, single molecule medications is much easier, as these pharmaceutical products are free from impurities associated with plants like mold, pesticides, and heavy metals. This also results in advantages in clinical testing, as synthetic molecules offer a consistent and pure product, avoiding the variations of naturally occurring cannabinoids in terms of strength and purity, and eliminating variables that could complicate the clinical trial process. Thus, identification of target molecules, especially novel synthetic molecules, requires a rigorous and lengthy preclinical screening process that is entirely different than that required for botanical cannabis products.

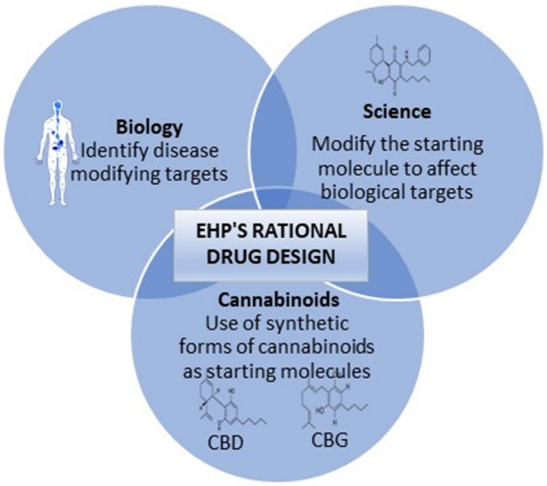
TECHNOLOGY OVERVIEW: RATIONAL DRUG DESIGN

The incidence of neurodegenerative and autoimmune diseases is growing rapidly, and current treatments are not sufficient to address them adequately. Many of these diseases are characterized by multiple physiological processes throughout the body that influence the disease. Existing drugs currently focus on only part of these processes to treat symptoms (e.g., anti-inflammatories and immunosuppressants), which doesn't address the multi-factorial nature of the disease, leading to a significant unmet medical need in treating these diseases.

EHP plans to solve this shortcoming by developing novel targeted drugs with a mechanism of action (MOA) designed to affect the key biological processes associated with the disease etiology, with the ultimate goal of exerting disease-modifying properties and potential reversal of disease progression. In order to do that, EHP is conducting a rational drug design process that consists of three key steps: (1) identify key physiological processes that must be affected to impact disease progression; (2) identify key biologic targets in the body able to affect those key physiological processes across multiple diseases with certain commonalities; and (3) create novel molecules that are able to target and modulate these key biologic targets and processes.

EHP is developing new pharmaceutical candidates by starting with the known benefits of cannabinoid interactions with the ECS to positively impact several serious diseases, including neurodegenerative, autoimmune, inflammatory, metabolic, and fibrotic diseases. EHP's Rational Drug Design is based on a unique convergence of biology, cannabinoids, and science to create novel molecules that may provide valuable therapeutic benefits against diseases with unmet medical needs, as depicted in Figure 9.

Figure 9
EHP RATIONAL DRUG DESIGN PLATFORM



Source: Emerald Health Pharmaceuticals Inc.

Biology

EHP researchers initially defined physiologic outcomes that they sought to generate in order to treat different diseases. Once the desired physiological outcomes were determined, the next step was to understand what biologic receptors and pathways in the body could be affected in order to alter key physiological process that could result in the desired outcomes. The receptors and pathways identified by the Company have been validated by independent third-party research as being pertinent to the diseases targeted by EHP's drug product candidates.

For example, for MS, EHP sought to show anti-inflammatory and neuroprotective activities, reducing neuro inflammation all the way down to promotion of re-myelination. The Company found that three receptors/pathways in the body—CB2 receptors, the Peroxisome Proliferator-Activated Receptor Gamma (PPARγ), and the hypoxia inducible factor (HIF) pathway—were validated targets that would affect these physiologic outcomes. The next step was to develop a molecule that could affect each validated target for a specific disease in order to elicit the desired biological activity.

Cannabinoid Architecture

In order to develop a proprietary therapeutic molecule, EHP's scientific founders tested numerous natural molecules to serve as the starting material to be modified to treat central nervous system, autoimmune, and other diseases. Their research led to the use of cannabinoids, specifically the non-psychoactive cannabinoids cannabidiol (CBD) and cannabigerol (CBG), as the ideal backbone. These molecules were found to be conducive to chemical modification into enhanced unique new molecules that could act as disease-modifying agents to treat these conditions.

CBD and CBG have multiple positive physiologic effects through interaction with the ECS. Research indicates they possess anti-inflammatory, antioxidative, neuroprotective, analgesic, and anti-infective properties, while additional research continues as to the impact of inhibiting or stimulating the ECS using derivatives of these substances on therapeutic benefits.

A key difference between CDB and CBG is their affinity for cannabinoid receptors. CBD has a low affinity for cannabinoid receptors, yet its effects are highly complex. Alternatively, CBG has a high affinity for cannabinoid receptors. The high affinity for cannabinoid receptors makes CBG effective in managing numerous health conditions.

Science

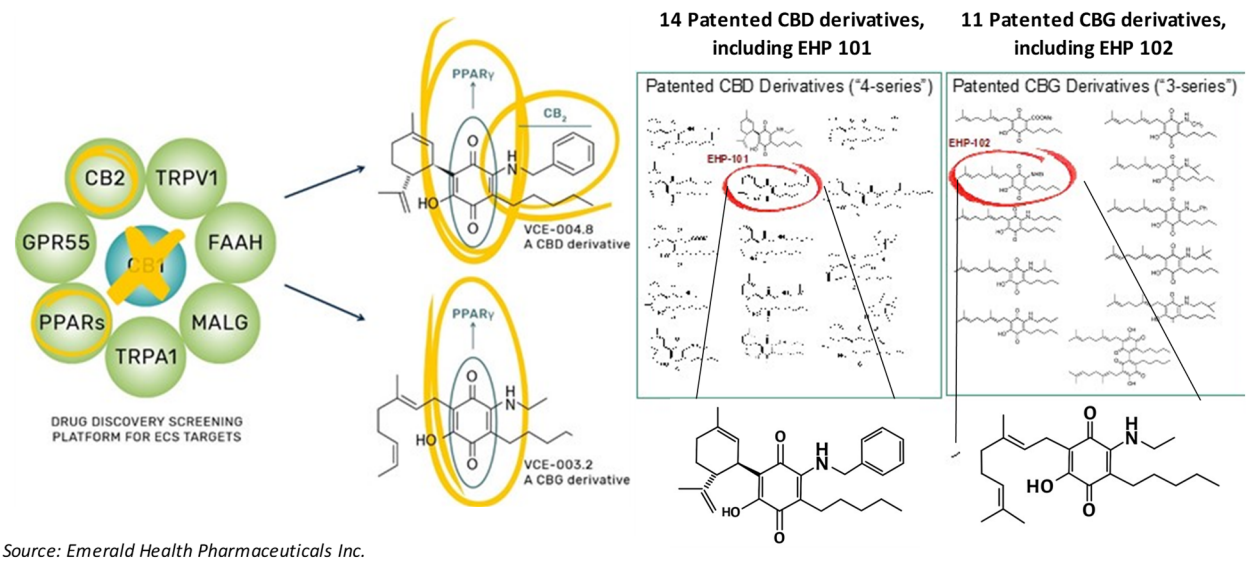
The next step in the rational drug design process was to make chemical modifications to the non-psychotropic cannabinoid molecules to expand their ability to affect several validated biological targets pertinent to targeted diseases. In particular, EHP designed new molecules based on CBD and CBG architecture by modifying them to create NCEs, which affected the biologic receptors and pathways in the body that are validated targets for various diseases.

As shown in Figure 10 (page 22), EHP added chemical groups to the CBD and CBG backbone to create targeted receptor/pathway activity (PPARγ, CB2, etc.). The Company was able to generate 25 different proprietary molecules (14 based on CBD architecture and 11 based on CBG architecture), shown on the right side of Figure 10 (page 22), with the two circled molecules representing the two lead candidates, EHP-101 and EHP-102, respectively. These drug candidates have been shown, in validated animal disease models, to achieve therapeutic benefits that exceed the capabilities of natural and synthetic cannabinoids.

The EHP Rational Drug Design process results in a novel therapeutic molecule with the following attributes:

- totally synthetic non-psychotropic NCEs;
- targeted receptor activity; and
- potential for disease modification.

Figure 10
RATIONAL DRUG DESIGN



Source: Emerald Health Pharmaceuticals Inc.

To EHP's knowledge, no other researchers have been able to develop a molecule with the ability to target all the receptors targeted by the Company's molecules, which provides the opportunity for a more effective and efficient approach to treating a wide range of diseases.

EHP Rational Drug Design Advantages

The Company's Rational Drug Design process allows EHP to develop novel molecules with enhanced therapeutic capabilities due to its ability to target multiple receptors in diseases with multi-factorial etiologies. In addition, the Company believes that because the new molecules are based on synthetic cannabinoid architecture but are not cannabinoids, this provides a key competitive advantage in two areas: (1) the ability to patent the novel molecules, and (2) its product candidates are not classified as a controlled substance.

Patent Protection

Compared to companies using actual CBD and CBG, which cannot be patented as they are natural molecules, EHP's novel molecules can secure IP protection. The Company has secured 25 granted patents and 19 pending patents covering a portfolio of 25 unique molecules. EHP's IP portfolio includes composition of matter, method of use, and formulation patents for multiple indications, beyond the initial disease targets (MS, SSc, HD, and PD) addressed in its first two product candidates. The Company's IP portfolio is highlighted on page 10 (Figure 2).

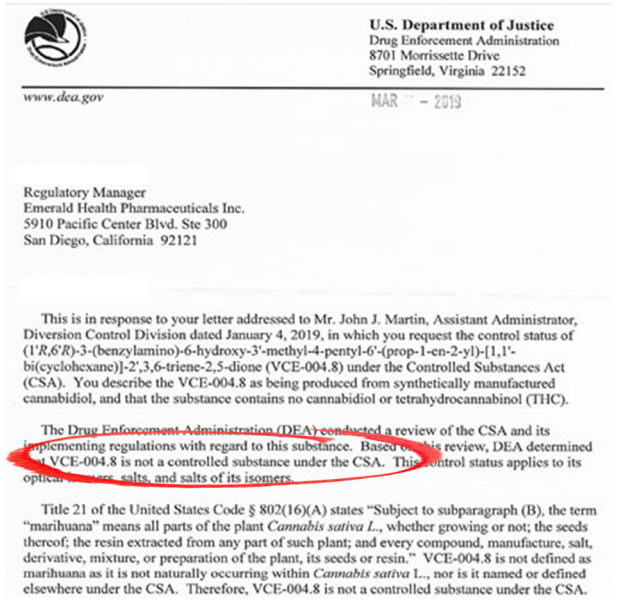
Not a Controlled Substance: Not a "Cannabis Company"

Another advantage of creating novel synthetic NCEs is that the Company's active ingredients are not classified as a controlled substance under federal law. EHP sent documentation on its active ingredient for EHP-101 (VCE-004.8), a synthetic new molecule based on CBD architecture, to the U.S. Drug Enforcement Agency (DEA) as well as similar entities in Canada and the UK. As shown in Figure 11 (page 23), based on the fact that the molecule is no longer a cannabinoid, the DEA determined that VCE-004.8 is not a controlled substance, with the same determination being made in Canada and the UK. EHP believes that this is a very important distinction. Despite the backbone of its novel molecules being based on the CBD and CBG cannabinoids, the Company does not extract or require work with the cannabis plant, as its molecules are manufactured synthetically. The end result is a completely new molecule that contains no residual CBD and no impurities (like THC), that not only has different mechanisms of action compared to natural cannabinoids, but is not considered a controlled substance.

That distinction is important because cannabis and its derivatives are widely restricted under federal legislation, with prohibition under federal law occurring with the Controlled Substances Act of 1970. Despite efforts to legalize cannabis both in the U.S. and internationally, these legislative measures are still in place and, beyond criminalization, create limitations on research by restricting procurement of cannabis for academic purposes as well as putting restrictions on international transport of cannabis-based molecules and some financial restrictions for companies managing these substances (Source: *Pharmacy and Therapeutics*, Vol. 42(3):180–188, 2017).

Figure 11

CONTROLLED SUBSTANCE STATUS



U.S. Department of Justice
Drug Enforcement Administration
8701 Morrissette Drive
Springfield, Virginia 22152

www.dea.gov

MAR [illegible] - 2019

Regulatory Manager
Emerald Health Pharmaceuticals Inc.
5910 Pacific Center Blvd. Ste 300
San Diego, California 92121

This is in response to your letter addressed to Mr. John J. Martin, Assistant Administrator, Diversion Control Division dated January 4, 2019, in which you request the control status of (1'*R*,6'*R*)-3-(benzylamino)-6-hydroxy-3'-methyl-4-pentyl-6'-(prop-1-en-2-yl)-[1,1'-bi(cyclohexane)]-2',3,6-triene-2,5-dione (VCE-004.8) under the Controlled Substances Act (CSA). You describe the VCE-004.8 as being produced from synthetically manufactured cannabidiol, and that the substance contains no cannabidiol or tetrahydrocannabinol (THC).

The Drug Enforcement Administration (DEA) conducted a review of the CSA and its implementing regulations with regard to this substance. Based on this review, DEA determined that VCE-004.8 is not a controlled substance under the CSA. This control status applies to its optical isomers, salts, and salts of its isomers.

Title 21 of the United States Code § 802(16)(A) states "Subject to subparagraph (B), the term "marihuana" means all parts of the plant *Cannabis sativa L.*, whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds or resin." VCE-004.8 is not defined as marihuana as it is not naturally occurring within *Cannabis sativa* L., nor is it named or defined elsewhere under the CSA. Therefore, VCE-004.8 is not a controlled substance under the CSA.

Source: Emerald Health Pharmaceuticals Inc.

COLLABORATIONS

EHP is collaborating with researchers and key opinion leaders (KOLs) at international centers of excellence to leverage multi-disciplinary expertise in cannabinoid science, drug delivery, formulation, and development. The Company's research collaborations provide EHP with the optimal platform on which to pursue the commercial development of new therapies for neurodegenerative, auto-immune, fibrotic, inflammatory, cardiovascular, metabolic, and other diseases.

Emerald Health Biotechnology España (an Emerald Health Sciences Company)

Emerald Health Biotechnology España (EHBE), formerly known as VivaCell Biotechnology España, a scientific cannabinoid R&D company based in Córdoba, Spain, is a pioneer in the analysis of biological activities of cannabis phytoextracts for medicinal use and the proprietary variety of CBG-rich hemp (CARMA). EHP acquired the IP from EHBE for two series of molecules including, VCE-004.8, a molecule based on CBD architecture (the API in EHP-101), and VCE-003.2, a molecule based on CBG architecture (the API in EHP-102). The science acquired by EHP was conducted over a 13-year period from 2004-2017 by two research scientists, Professor Eduardo Muñoz, MD, PhD (founder of EHBE and Chief Scientific Officer of EHP [biography on page 12]) and Professor Giovanni Appendino, PhD (a member of EHP's Scientific Advisory Board [biography on page 14]).

Concurrent with the acquisition of the IP, the Company signed a Research Agreement with EHBE for an initial term of five years. Under the terms of the Research Agreement, EHBE is providing research services under the Company's direction for consideration of cost plus a standard mark-up. The agreement will renew for successive one-year term and may be terminated by either party on the expiration of the original term or any renewal term by delivering written notice at least 90 days prior to expiration.

University Complutense (Madrid, Spain)

The Complutense University of Madrid is a public research university located in Madrid and one of the oldest universities in the world. EHP-102 has been evaluated in preclinical models of PD and amyotrophic lateral sclerosis (ALS) in collaboration with Prof. Javier Fernandez-Ruiz, a full Professor of Biochemistry and Molecular Biology. The results of these studies have been published in the *Journal of Neuroinflammation (2018)*, *Molecules* (2019), *Biochemical Pharmacology* (2018), and *Scientific Reports* (2016). Furthermore, the pro-neurogenic activity of EHP-102 on neuronal stem cells have been demonstrated in preclinical models of HD in collaboration with Dr. Ismael Galve-Roperh, an Associate Professor of Biochemistry and Molecular Biology. The results in the HD model have been published in *Scientific Reports* (2016) and *Translational Neurodegeneration* (2019).

Cajal Institute, Spanish National Research Council

The Cajal Institute is a research center in neurobiology, which belongs to the Spanish National Research Council (CSIC). EHP-101 has been evaluated in preclinical models of MS, such as the experimental autoimmune encephalomyelitis (EAE) and the Theiler's virus-induced encephalopathy (TMEV) murine models, in collaboration with Dr. Carmen Guaza. The data on the hypoxia mimetic activity of EHP-101 have been reported in *the Journal of Neuroinflammation* (2018).

University of Florida

The University of Florida is a top-ranked public research university located in Gainesville. EHP's lead molecule is currently under evaluation in preclinical models of stroke in collaboration with Dr. Eduardo Candelario-Jalil, an Associate Professor at the University of Florida.

Hospital Clínico de San Carlos

The San Carlos Clinical Hospital is located in the city of Madrid and administered by the Madrid Health Service under the Ministry of Health of the Community of Madrid. EHP's lead molecule is currently under evaluation in preclinical models of neonatal stroke in collaboration with Dr. José A. Martinez-Orgado, Head of the Department of Neonatology in the hospital.

Maimónides Institute for Biomedical Research (IMIBIC) – University of Córdoba

The Maimonides Biomedical Research Institute of Córdoba is a joint Institute of the University of Córdoba (UCO), the Reina Sofia University Hospital, and the Junta de Andalucía Regional government. VCE-004.8 has been evaluated in a preclinical model of metabolic syndrome induced by high-fat diet in collaboration with Dr. Manuel Tena-Sempere, a full Professor of Physiology at the university. The data on the anti-obesity activity of VCE-004.8 have been reported in *Scientific Reports* (2018). In addition, a collaboration is ongoing with the proteomic unit and Prof. Eduardo Muñoz at the IMBIC to analyze plasmatic drug-related biomarkers.

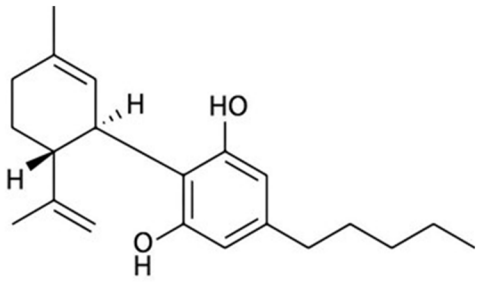
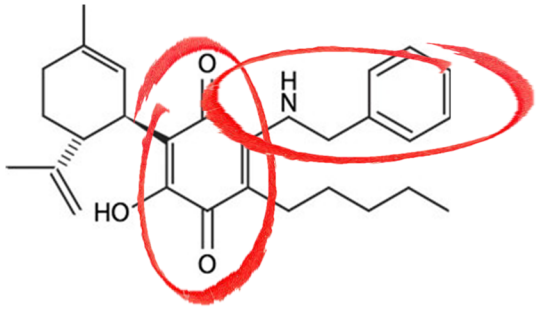
Dipartimento di Scienze Chimiche, Alimentari, Farmaceutiche e Farmacologiche- Università del Piemonte Orientale

The Dipartimento di Scienze Chimiche, Alimentari, Farmaceutiche e Farmacologiche-Università del Piemonte Orientale is located in the city of Novara, Italy. To expand the Company's library of compounds, it is developing novel cannabinoid aminoquinone derivatives in collaboration with Dr. Giovanni Appendino, a full Professor of Organic Chemistry. Professor Appendino was co-founder of EHBE and also participated in the discovery of the Company's lead candidates VCE-004.8 and VCE-003.2.

EHP-101

The Company's most advanced candidate, EHP-101, is a patented synthetic new chemical entity (NCE) based on CBD architecture, which acts on physiologic targets associated with systemic sclerosis (SSc) and multiple sclerosis (MS). The fully synthetic novel molecule has been rationally designed (as depicted in Figure 12) to create therapeutic benefits not addressed by CBD, providing the desired physiologic outcomes by interacting with three key therapeutic targets involved in the modulation of SSc and MS: cannabinoid type 2 receptor (CB2), peroxisome proliferator-activated receptor gamma (PPARγ), and the hypoxia inducible factor (HIF) pathway.

Figure 12
EHP-101

CBD	EHP-101
	

Source: Emerald Health Pharmaceuticals Inc.

Cannabinoid Receptor Type-2 (CB2)

As part of the body's ECS, CB2 is a receptor system that functions to maintain homeostasis (balance) in the body via interaction with endocannabinoids. CB2 plays a key role in modulating neuroprotection, inflammation, immunomodulation, and vascular responses, without introducing psychotropic effects. In studies conducted to date, EHP-101 has shown enhanced CB2 receptor modulation activity that could potentially provide anti-inflammatory and anti-fibrotic therapeutic benefits.

Peroxisome Proliferator-Activated Receptor Gamma (PPARγ)

The PPARγ nuclear receptor is implicated in regulating cell growth, lipid metabolism, and blood sugar. It is broadly expressed and has been shown to prevent inflammation, dermal fibrosis, and loss of fatty tissue. In studies to date, EHP-101 has shown the ability to modulate the activity of PPARγ through a "partial activation" MOA, which avoids the potential negative effects demonstrated with full activation, providing the potential for immunomodulatory and neuroprotective activities.

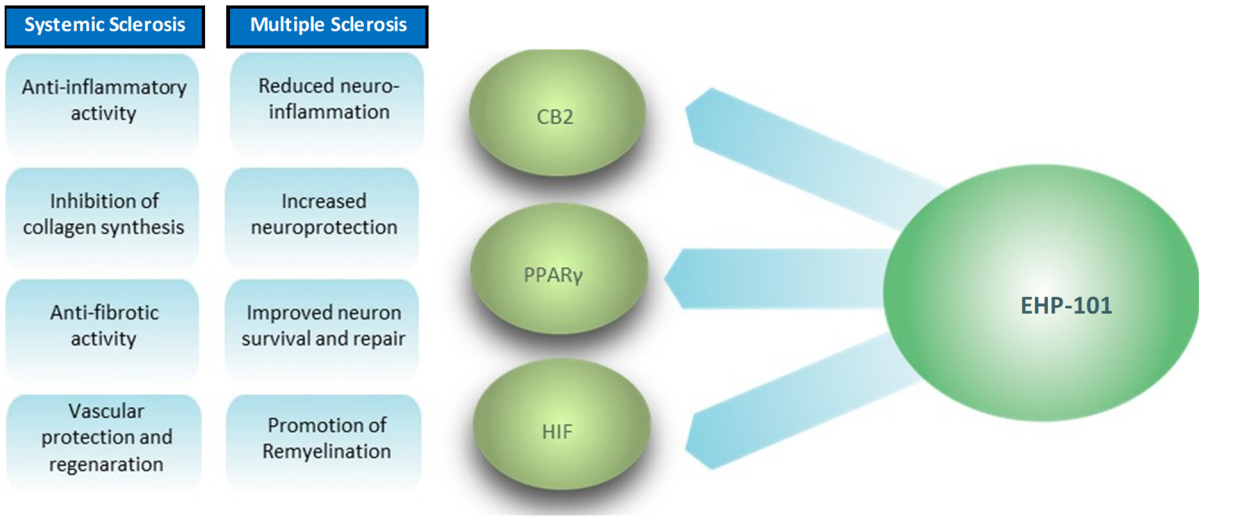
Hypoxia-Inducible Factor (HIF) Pathway

The HIF pathway is a protein complex that is integral in the body's response to reduced oxygen concentrations. Cellular adaptation to severe or mild hypoxia begins immediately with the activation of the HIF pathway, and regulates genes involved in red blood cell production, angiogenesis, neuroprotection, myelination, vascular tone, immunity, and other biological processes. HIF activation may play a role in the inflammatory aspect of MS, and may be linked to neuroprotection, including protection of the **blood brain barrier (BBB)**, as well as promotion of myelination. In studies conducted to date, EHP-101's active pharmaceutical ingredient, VCE-004.8, has shown activation of the HIF pathway, indicating potential for neuroprotection and vascular protection capabilities.

EHP-101 acts as an agonist of both PPARγ and CB2, validated therapeutic targets for the treatment of SSc and MS. In addition, EHP-101 is an activator of the HIF pathway, which may have additional benefits to MS and SSc patients, as the HIF pathway modulates the immune response that favors both neuroprotection and myelin regeneration in MS as well as prevents collagen deposition around blood vessels and reduces vascular damage in SSc. Figure 13 provides an overview of the potential therapeutic effects of EHP-101 through its interaction with these three biological targets.

Figure 13

EHP-101 BIOLOGICAL TARGETS



CB2: Cannabinoid Receptor type 2 **PPARγ**: Peroxisome proliferator-activated receptor gamma **HIF**: Hypoxia inducible factor pathway

Source: Emerald Health Pharmaceuticals Inc.

Furthermore, evidence shows these validated receptors may be beneficial in preventing neuroinflammation and demyelination in the CNS, and fibrogenesis in the periphery. Based on these activities, EHP is initially developing this proprietary new drug candidate for MS and SSc. Figure 14 provides a list of the potential therapeutic effects of EHP-101 in SSc and MS as it relates to each specific biological target.

Figure 14

EHP-101 THERAPEUTIC EFFECTS

CB2 Agonist	PPARγ Partial Agonist	HIF Activation
Systemic Sclerosis		
Anti-inflammatory activity	Inhibits collagen synthesis	Vascular endothelial cell protection against inflammation
	Anti-fibrotic activity	Vascular remodeling
Multiple Sclerosis		
Reduces neuro-inflammation	Increases neuro-protection	Promotes remyelination
	Improves neuron survival and repair	Protects oligodendrocytes
	Anti-inflammatory activity	Prevents BBB disruption

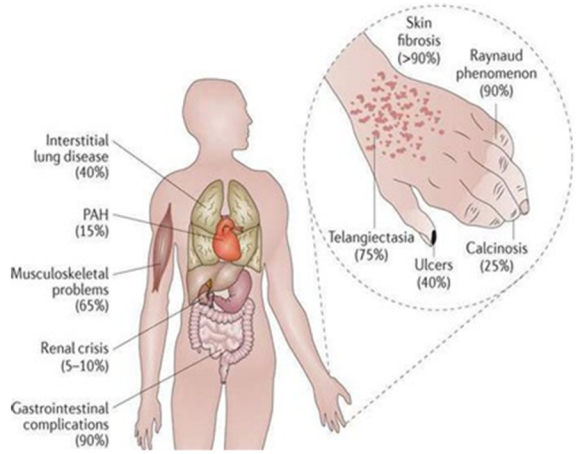
Source: Emerald Health Pharmaceuticals Inc.

EHP has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility of EHP-101. In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits in both SSc and MS. Data from the Company's Phase I study of EHP-101 demonstrated favorable safety and tolerability profiles. Mainly mild adverse events were observed with increasing doses, providing EHP with flexibility in setting the dosing of patients in future clinical studies. The Company is currently enrolling patients in a Phase IIa study for the treatment of SSc and is initiating another Phase IIa study for the treatment of MS.

EHP-101 FOR SYSTEMIC SCLEROSIS, A FORM OF SCLERODERMA

Systemic sclerosis (SSc) is a chronic and progressive rare autoimmune disease that causes inflammation and then fibrosis, or thickening and scarring of the skin, vasculature, and internal organs that progressively decreases quality of life and can result in organ failure and death, as shown in Figure 15 (Source: *Nature Reviews Disease Primer's* Systemic Sclerosis, 2015).

Figure 15
SYSTEMIC SCLEROSIS



Source: Nature Reviews

The severity of SSc is determined by the extent of fibrotic changes to cutaneous and internal organ tissues, with the most life-threatening visceral manifestations being interstitial lung disease, SSc-associated-pulmonary arterial hypertension, and myocardial involvement. Continuous progression of vascular and fibrotic organ damage accounts for SSc's chronic morbidity and high mortality, resulting in the highest cause-specific mortality of all the connective tissue and rheumatic diseases (Source: *Clinical Reviews in Allergy & Immunology*, 2021).

Systemic Sclerosis Market Overview

The market for SSc treatment is mainly driven by the off-label use of drugs approved for the symptomatic indications of the disease. Lack of curative therapies are underlying factors spurring interest in rare disease markets. This is expected to fuel the development of targeted biologics and small molecule combination therapies. The global systemic scleroderma treatment market size was valued at $1.4 billion in 2019 (with North America accounting for 42.9% of that revenue) and expected to reach $1.9 billion by 2027. The supplemental approvals for existing treatment options, coupled with the emergence of first-in-class therapies that are currently under development, are expected to be the key factors driving the market (Source: *Grand View Research*, Nov 2020). The estimated incidence of SSc in the U.S. is 20 cases per million population, and its prevalence has been estimated at 276 cases per million population. An increased SSc incidence and prevalence has been evident in the last 50 years (Source: Medscape, June 2020).

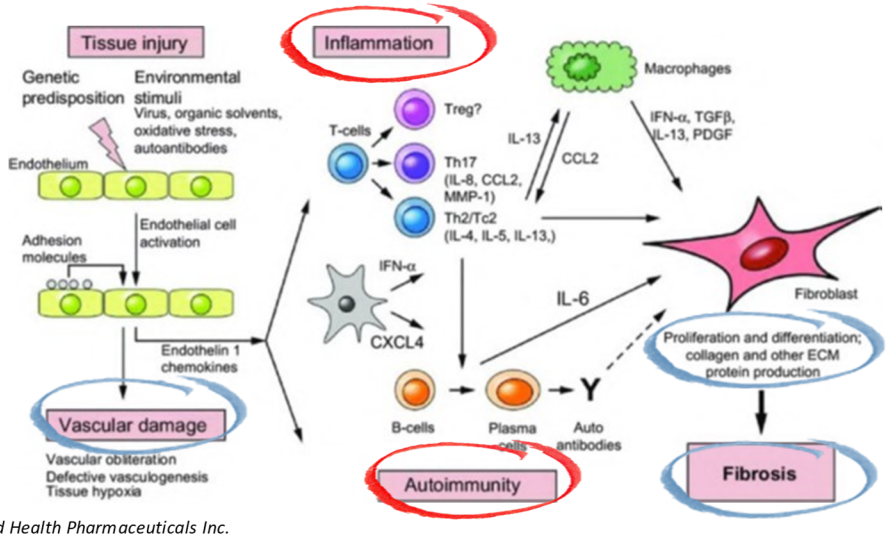
Current Treatment Landscape

There are no specific therapeutics approved for SSc. Current therapies (e.g., anti-inflammatories and immunosuppressants) predominantly target inflammatory symptoms and conditions resulting from the disease, providing some symptomatic relief with variable and unpredictable clinical efficacy. However, these therapies only address part of this multi-factorial disease, mainly inflammation and autoimmunity related symptoms (shown in Figure 16 [page 27] as red circles), with no significant influence on the natural course of the disease and no effect on other biological effects (blue circles). EHP believes that to achieve a notable impact for the patient, it is important to also prevent fibrosis and vascular damage.

Moreover, while none of these therapies are curative, many of them display undesirable safety profiles and toxicity and have no appreciable effect on long-term mortality. To solve these issues, researchers are focusing on the discovery of biomarkers, including autoantibodies, which could identify patient subsets at high risk for particular disease complications or rapid progression. Understanding the key pathogenetic pathways, cell types, and mediators underlying disease manifestations allows for the development of targeted therapies with true disease-modifying potential (Source: Nature Reviews).

Figure 16

SYSTEMIC SCLEROSIS PATHOPHYSIOLOGY



Source: Emerald Health Pharmaceuticals Inc.

EHP-101 Modulation of SSc Related Biological Targets

Over the past few years, the ECS has emerged as an important component for the regulation of many bodily functions, including inflammation, digestion, and energy metabolism. Therefore, the pharmacological modulation of the ECS by cannabinoids represents a novel strategy for the management of many diseases (Source: *Current Hypertension Reports,* Vol. 22(12):98, 2020). However, achieving this involves a complex network, which includes the classical cannabinoid receptors, as well additional receptors or physiological pathways, such as the peroxisome proliferator-activated receptors (PPARs). Researchers believe that targeting several of these factors at the same time is critical to providing a better chance of success, in sharp contrast to the one-disease-one-target strategy used in many current drug discovery efforts (source: *Biochemical Pharmacology*, Vol. 157: 122-133, 2018).

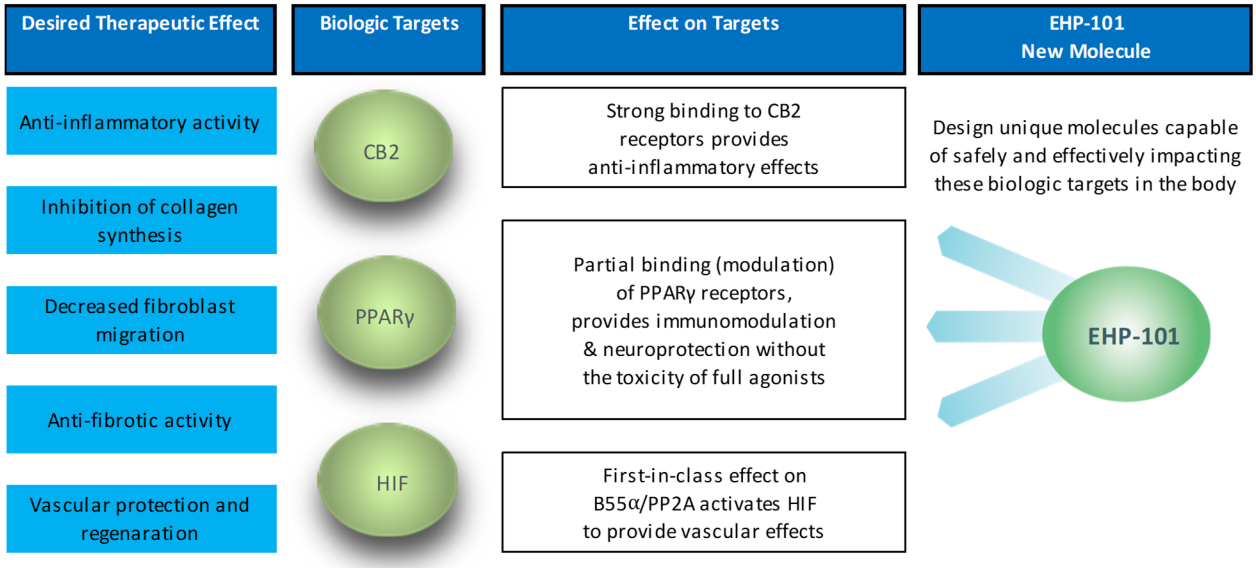
EHP-101 MOA follows this multi-target strategy. The compound contains a novel, patented synthetic molecule which acts on three validated physiologic targets associated with SSc—PPARγ, CB2, and HIF. To the Company's knowledge, the combined effects on these three validated targets is a novel approach that is not achieved by any other type of drugs or therapies.

By its interaction and modulation of these three targets, EHP-101 can not only modulate inflammatory and auto-immune responses of the body but can also generate anti-fibrotic activity and vascular remodeling. EHP-101's potential biological effects include the following, as outlined in Figure 17 (page 29):

- Anti-inflammatory effects by acting as a CB2 agonist;
- immunomodulation (not suppression) as well as antifibrotic activities by modulating PPARγ activity as a partial agonist; and
- mediation of the expression of growth factors that can help vascular remodeling that is impaired in the disease by activating the HIF pathway via a first-in-class mechanism (activation of **B55α/PP2A**).

Figure 17

EHP-101 SYSTEMIC SCLEROSIS THERAPEUTIC EFFECTS



Source: Emerald Health Pharmaceuticals Inc.

EHP has received Orphan Drug status for EHP-101 in SSc in both the U.S. and the EU, as well as Fast Track designation in the U.S. The Orphan Drug designation provides companies exclusive marketing and development rights, along with other benefits intended to recover part of research and development costs. In addition to cost benefits, the FDA provides Orphan Drug candidates with clinical trial protocol assistance, potentially decreased waiting-time for drug approval, eligibility for seven years of market exclusivity after approval, and a possible tax credit of 50% of the qualified clinical drug testing costs awarded upon drug approval. Fast track designation can further facilitate a candidate's development and expedite the review of applications and approvals.

EHP-101 Clinical Development for Systemic Sclerosis

In the past few years, it has become evident that the ECS plays a relevant role in healthy and diseased skin. Previous studies have confirmed that the dysregulation of ECS has been associated with dermatological disorders, such as atopic dermatitis, psoriasis, scleroderma, and skin cancer, opening new research avenues for the treatment of these disease through therapeutic agents targeted at ECS modulation (Source: *Biochemical Pharmacology*, Vol. 157: 122-133, 2018). Based on these principles, EHP has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility of EHP-101.

Preclinical Studies

In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits related to reducing inflammation and fibrosis, as well as promoting the protection and regeneration of the vasculature. Additionally, EHP-101 exhibited a good safety profile.

Studies in validated **bleomycin (BLM)** preclinical scleroderma animal models have established EHP-101 proof of concept, while also displaying the following potential disease-modifying results: (1) prevents dermal fibrosis and thickening; (2) prevents collagen accumulation and **macrophage** accumulation; (3) prevents lung fibrosis; (4) prevents blood vessel fibrosis; and (5) increases skin vascular markers. A list of scientific publications resulting from these studies is provided in Figure 18 (page 30), with details of preclinical study results validating these findings provided on pages 39-40.

Figure 18
SCIENTIFIC PUBLICATIONS FOR EHP-101 IN SSc

Scientific Reports (Nature)	The cannabinoid quinol VCE-004.8 alleviates bleomycin-induced scleroderma and exerts potent antifibrotic effects through peroxisome proliferator-activated receptor-γ and CB2 pathways	2016
Biochemical Pharmacology	EHP-101, an oral formulation of the cannabidiol aminoquinone VCE-004.8, alleviates bleomycin-induced skin and lung fibrosis	2018
Biochemical Pharmacology	The endocannabinoid system of the skin. A potential approach for the treatment of skin disorders	2018
Biochemical Pharmacology	Cannabinoid derivatives acting as dual PPARγ/CB2 agonists as therapeutic agents for systemic sclerosis	2019
Curr Hypertens Rep.	Cannabinoids in Metabolic Syndrome and Cardiac Fibrosis	2020
Biomedicine & Pharmacotherapy	EHP-101 alleviates angiotensin II-induced fibrosis and inflammation in mice	2021

Source: Emerald Health Pharmaceuticals Inc.

Phase I Study

EHP conducted a Phase I, randomized, placebo-controlled study in 104 healthy subjects to evaluate safety, tolerability, pharmacodynamics, pharmacokinetics, and food effect of single ascending doses and multiple ascending doses of EHP-101. The single ascending dose cohort tested doses ranging from 0.91 mg to 185 mg, with the upper limit well above the anticipated therapeutic dose of 25 mg to 50 mg/day. The multiple ascending doses cohort subjects received daily repeated doses for 7 days of either 20 mg QD, 25 mg BID, 50 mg BID, or 51.9 mg QD.

The results demonstrated favorable safety and tolerability profiles with no significant adverse effects. All doses tested were well tolerated with only mild to moderate adverse events, and no maximum tolerated dose reached. Adverse reactions included mild to moderate paresthesia (a feeling of pins and needles in the limbs), headache, and blurred vision. The results provide the Company with flexibility in setting the dosing of patients for future clinical trials, with pharmacokinetic data used to support intended dosage and administration regimen for its Phase IIa studies.

Overall, EHP-101 was well tolerated, with plasma concentrations within the anticipated therapeutic dose range, and preliminary biomarker analyses indicating drug-related effects on various physiological functions that support its novel multi-pronged MOA.

Phase IIa Study

The Company is currently enrolling patients in its Phase IIa study to evaluate the safety, tolerability, and preliminary efficacy of EHP-101 in patients with diffuse cutaneous SSc (dcSSc). The double-blind placebo-controlled study was designed based on pre-IND discussions with the FDA. The Company plans to enroll 36 patients in 30 sites in the U.S., Australia, and New Zealand. The patients will be divided into four cohorts and given various oral doses of EHP-101. The primary objective of the Phase IIa study is to assess the safety and tolerability of various doses over 12 weeks. The secondary objective is to measure the treatment effect by Composite Response Index in dcSSc (CRISS) over 12 weeks.

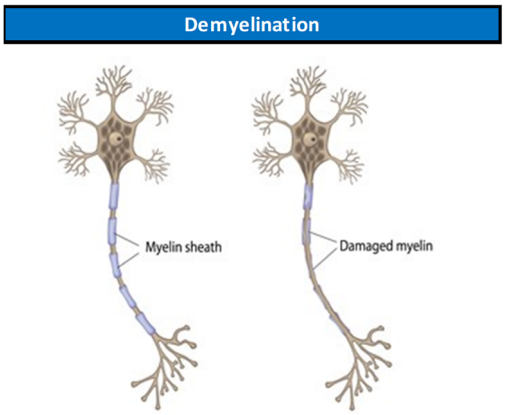
EHP also plans to analyze, as exploratory objectives, the treatment effect on patient-reported outcomes, as well as the treatment effect based on potential biomarkers related to the MOA. EHP expects preliminary results on the first two of four cohorts in H2-2022, with final results on all cohorts in 2023 and 2024.

EHP-101 FOR MULTIPLE SCLEROSIS

Multiple sclerosis (MS) is an inflammatory disorder of the central nervous system. The hallmark of MS is demyelination, which is the breakdown of the protective myelin sheath surrounding nerves that aid in conducting nerve impulses (as shown in Figure 19). This breakdown, which results in nerve damage that disrupts communication between the brain and the body, is initiated by autoimmune processes that cause inflammation. The damage to the myelin sheath is not reversible naturally or through existing drugs, leading to disease progression.

As MS progresses, it affects muscles, nerves, and joints, causing a wide variety of symptoms depending on the amount of nerve damage and which nerves are affected. Symptoms include significant pain, as well as spasms, stiffness, tremors, body mobility limitations and weakness, difficulty chewing, swallowing and speaking, vision loss, and impaired coordination.

Figure 19
MULTIPLE SCLEROSIS



Source: Emerald Health Pharmaceuticals Inc.

Multiple Sclerosis Market Overview

The global MS drug market size was valued at $27.5 billion in 2020 ($15.3 billion in the U.S., representing 55% of the total market) and is projected to reach $42.5 billion in 2028. This growth is driven by significant R&D efforts, new product launches, as well as government and non-government organizations measures (Source: Verified Market Research's *Multiple Sclerosis Drugs Market*, 2021).

MS affects 2.3 million people worldwide (one million people in the U.S. alone), with the global burden of the disease rising rapidly and becoming an issue of concern for healthcare providers as well as governments. The rising prevalence of the disease has led governments to take proactive measures through guidelines and recommendations, including recommendations on the different therapeutic options available for treatment, as well as information campaigns (e.g., March is MS awareness month in the U.S.) (Source: Fortune Business Insights' *MS Drugs Market Size*, 2021).

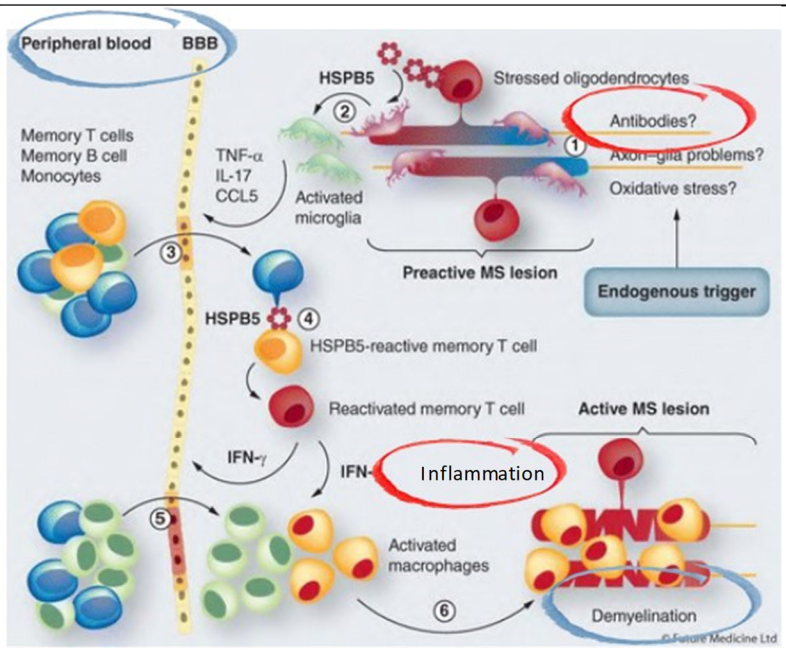
Current Treatment Landscape

Currently, there are several approved drugs on the market for MS, primarily anti-inflammatory (steroids) or immunosuppressive, all of which are aimed at relieving symptoms and preventing relapses. Although these therapeutics can help speed recovery from attacks, prevent or reduce relapses, and manage symptoms, none are curative and can cause significant adverse effects, with no current therapy being able to remyelinate damaged neurons and reverse the course of the disease.

Similar to the SSc therapeutic landscape, current MS therapies only address part of the multi-factorial disease, mainly inflammation and autoimmunity related symptoms (shown in Figure 20 [page 32] as red circles). MS starts with T cells entering the brain via a breakdown of the blood brain barrier (BBB), initializing an autoimmune process in which T cells identify myelin as foreign and attack it. The initial attack causes inflammation, which results in a subsequent immune reaction that causes further damage to the myelin sheath (causing demyelination) and nerve degeneration. Since most of the approved MS drugs affect the inflammatory and autoimmune responses, it has no effect on the early stage of the disease, and no significant effect on the demyelination process. To achieve a notable impact on patients' quality of life and the potential for disease modification, therapeutics need to affect the early stages of the disease so that inflammation is reduced, autoimmunity is addressed (without the toxicities of immunosuppression), and demyelination is slowed or stopped.

Figure 20

MULTIPLE SCLEROSIS PATHOPHYSIOLOGY



Source: Emerald Health Pharmaceuticals Inc.

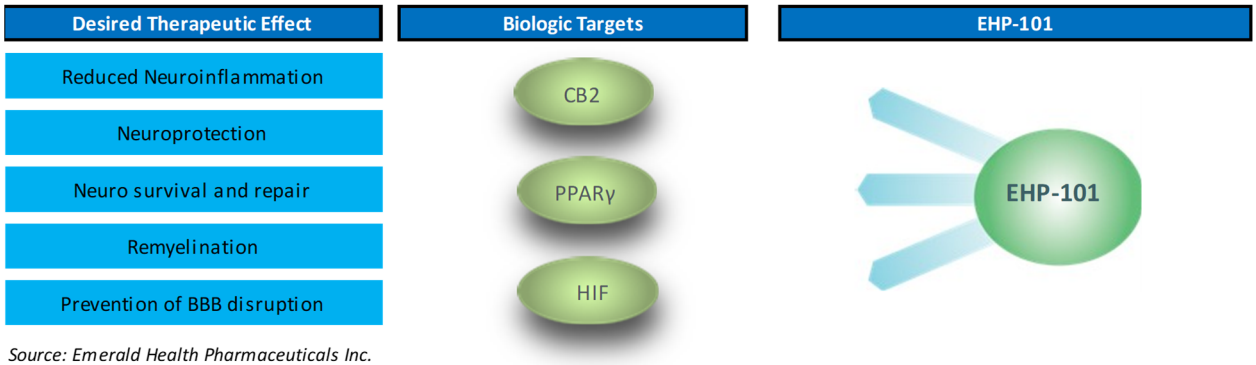
EHP-101 Modulation of Multiple Sclerosis Related Biological Targets

EHP-101 acts on three validated physiologic targets associated with MS: PPARγ, CB2, and HIF. These key targets influence the underlying cause of the disease and aim to slow, stop, or even reverse the progression of MS while causing minimal side effects. By acting as a PPARγ and CB2 agonist, EHP-101 can elicit anti-inflammatory, neuroprotective, and immunomodulation activity. The activation of the HIF pathway (through B55α/PP2A modulation) prevents BBB disruption and immune cell infiltration into the central nervous system, potentially affecting the early stages of the disease. HIF pathway activation may also provide neuroprotection and generation of oligodendrocytes, the cells that produce the myelin sheath, as B55α is widely expressed in the CNS and involved in neuroprotective activities.

To the Company's knowledge, the combined effects on these three validated targets is a novel approach that is not followed by any other type of drugs or therapies. EHP-101's potential biological targets are outlined in Figure 21.

Figure 21

EHP-101 MULTIPLE SCLEROSIS THERAPEUTIC EFFECTS



Source: Emerald Health Pharmaceuticals Inc.

EHP-101 Clinical Development for Multiple Sclerosis (MS)

EHP has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and dosing flexibility of EHP-101. In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits relating to prevention of demyelination and stimulation of remyelination in four validated MS models.

Preclinical Studies

Preclinical studies of EHP-101 for the treatment of MS have been conducted in four validated MS animal models: (1) experimental autoimmune encephalomyelitis (EAE); (2) Theiler's murine encephalomyelitis virus (TMEV); (3) cuprizone; and (4) modified cuprizone. These studies have established proof of concept for EHP-101, while also displaying the following potential disease-modifying results:

- improves clinical signs and clinical scores;
- stops neuroinflammation and demyelination; and
- promotes remyelination of neurons.

A list of scientific publications resulting from these studies is provided in Figure 22, with details of preclinical study results validating these findings provided on pages 41-42.

Figure 22
SCIENTIFIC PUBLICATIONS FOR EHP-101 IN MS

Journal of Neuroinflammation	Hypoxia mimetic activity of VCE-004.8, a cannabidiol quinone derivative: implications for multiple sclerosis therapy	2018
Neurobiology of Disease	Effects of EHP-101 on inflammation and remyelination in murine models of multiple sclerosis	2020
International Journal of Molecular Sciences	Cannabidiol and Other Cannabinoids in Demyelinating Diseases	2021

Source: Emerald Health Pharmaceuticals Inc.

Phase IIa Study

Following the EHP-101 Phase I study, the Company is now initiating a Phase IIa study to evaluate the safety, tolerability, pharmacokinetics, and preliminary efficacy of EHP-101 in patients with relapsing forms of MS. EHP plans to begin enrollment in 1Q 2022. The study is an open label study composed of a 24-week treatment period on 50-60 patients at 30 sites in the U.S. and Australia. The primary objective is to assess EHP-101 safety, tolerability, and treatment effect based on MRI at 6 months. Secondary objectives include assessments of disease progression and disability status, MS functional composite and expanded disability status scale, time to first study relapse, and annual relapse rate. EHP also plans to evaluate treatment effect based on changes from baseline for: diffusivity by diffusion tensor imaging, patient reported outcome by modified fatigue index scale-29, and different biomarkers as exploratory objectives.

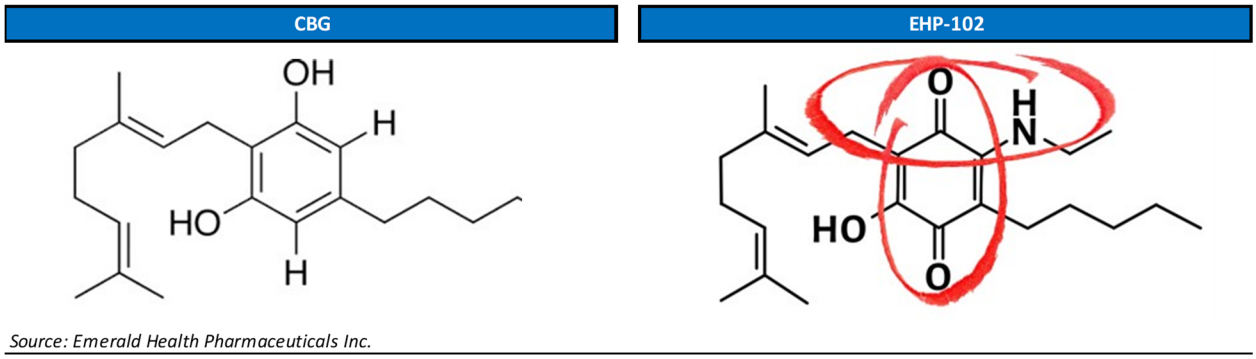
OTHER INDICATIONS FOR EHP-101

The Company believes that the therapeutic application of EHP-101 goes beyond SSc and MS, into other indications/diseases affected by EHP-101's biologic targets. These include (1) other autoimmune diseases; (2) peripheral inflammatory diseases; (3) traumatic brain injury; (4) stroke; (5) other fibrotic diseases (cardiac, lung, kidney); (6) type II diabetes, (7) peripheral arteriopathies, chronic limb ischemia, (8) chronic kidney disease; (9) other demyelinating diseases; (10) certain neurodegenerative diseases, and (11) tauopathies, including Alzheimer's disease.

EHP-102

EHP-102 is a patented oral pharmaceutical candidate based on cannabigerol (CBG) architecture, another key non-psychoactive cannabinoid molecule. The molecule in EHP-102 has been modified (as shown in Figure 23) to provide effects on key biologic targets and pathways involved in the pathophysiology of neurodegenerative diseases: (1) PPARγ, a key molecular target for the treatment of Huntington's disease (HD) and Parkinson's disease (PD); (2) Ctip2, a transcription factor involved in nerve cell regeneration (neurogenesis); and (3) ERK1/2 pathway, involved in neuronal survival. EHP-102 has demonstrated to be anti-inflammatory and has shown evidence of neuroprotection. These characteristics have led EHP to focus development of this proprietary new drug candidate initially for PD and HD, the latter for which the Company obtained Orphan Designation in the U.S. and in Europe.

Figure 23
EHP-102



Source: Emerald Health Pharmaceuticals Inc.

Peroxisome proliferator-activated receptor gamma (PPARγ)

PPARγ has a wide spectrum of biological functions, regulating mitochondrial function, mitochondrial turnover, energy metabolism, antioxidant defense and redox balance, immune responses, and fatty acid oxidation. Ligand activators of PPARγ have been tested successfully for their neuroprotective potential in certain central nervous system diseases, such as stroke, PD, HD, and certain types of ataxias.

Extracellular signal-regulated kinases 1 and 2 (ERK1/2)

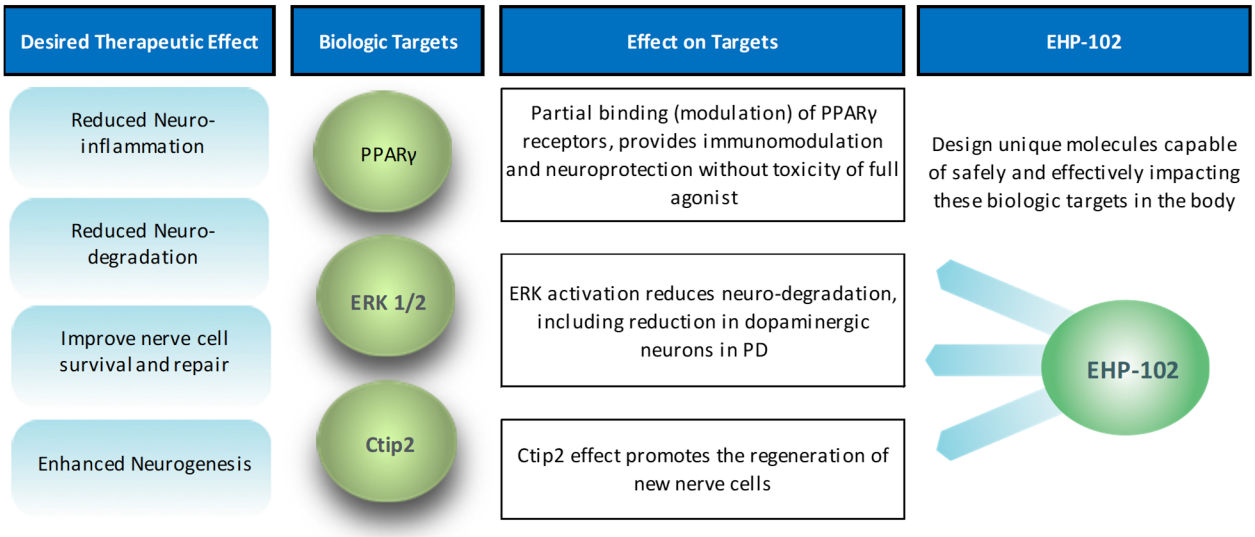
Accumulating evidence supports a key role for ERK1/2 signaling in the embryonic development of the central nervous system and in the regulation of adult brain function. ERK1/2 regulates a range of processes, from metabolism and motility to cell death and survival. In the nervous system, ERK1/2 regulates synaptic plasticity, brain development and repair, as well as memory formation. Also, it has been shown in preclinical models that activation of ERK1/2 both promote basal dopaminergic cell survival, and that ERK1/2 protects these cells from oxidative stress. In addition, ERK1/2 signaling in the depression-implicated brain regions was disrupted during the development of depression, which contributes to the long-lasting and transcription-dependent neuroadaptations critical for enduring depression-like behavior and the therapeutic effect of antidepressants.

Chicken ovalbumin upstream promoter transcription factor-interacting protein (Ctip2)

Striatal medium spiny neurons (MSN) are involved in motor control and their degeneration is a principal component of HD. It has been shown that transcription factor Ctip2 is central to MSN differentiation, **striatal** development, and the establishment of the cellular architecture of the **striatum**. In preclinical models, Ctip2 deficiency results in structural striatal defects, impaired spatial learning, and working memory deficits. Furthermore, Ctip2 protein levels are reduced in both human and rodent **mutant huntingtin (mHTT)**-expressing cells before the onset of MSN degeneration, pointing to a role for Ctip2 in HD pathogenesis.

Figure 24 provides an overview of the potential therapeutic effects of EHP-102 through its interaction with these three biological targets.

Figure 24
EHP-102 THERAPEUTIC EFFECTS



Source: Emerald Health Pharmaceuticals Inc.

In preclinical studies to date, EHP-102 and its active ingredient, VCE-003.2, have demonstrated the potential to promote the regeneration of nerve cells, protect against neuroinflammation and neurodegeneration in HD models, and reduce the loss of dopamine production in PD models. These data support EHP-102's potential to be disease-modifying rather than only symptomatic treatment, thus possibly providing a beneficial treatment option for these complex diseases with no cure. Figure 25 provides a list of the potential therapeutic effects of EHP-102 in HD and PD as it relates to each specific biological target. The Company plans to complete its preclinical studies of EHP-102 in 2H 2022, with an IND application expected in 1H 2023.

Figure 25
EHP-102 THERAPEUTIC EFFECTS

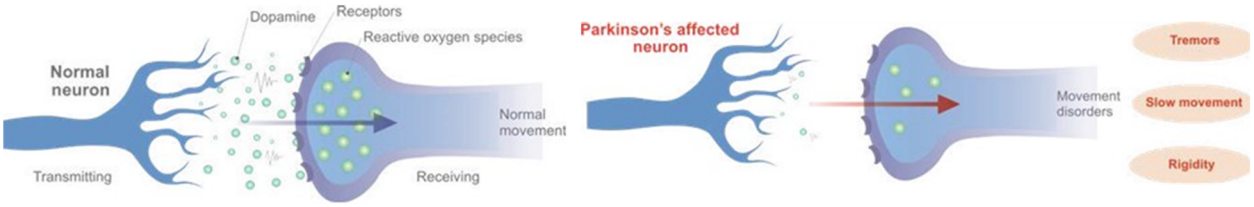
PPARγ Partial Agonist	ERK 1+2 Activator	Ctip2 Activator
Parkinson's Disease		
Reduces neuro-inflammation	Prevents loss of dopaminergic cells	Enhances Neurogenesis
Prevents mitochondria disruption	Promotes neuronal survival	
Huntington's Disease		
Reduces neuro-inflammation	Reduces neuro-degradation	Enhances Neurogenesis
Prevents mitochondria disruption	Promotes neuronal survival	

Source: Emerald Health Pharmaceuticals Inc.

EHP-102 FOR PARKINSON'S DISEASE

Parkinson's disease (PD) is an incurable neurodegenerative disorder affecting nearly 10 million people worldwide. Primarily, it is a disease where the nerve cells stop producing a substance called dopamine (Figure 26), which helps transmit impulses from the brain to the muscles. The disease results in tremors (shaking) of the hands, arms, legs, and face; bradykinesia (slow movement) and stiffness; impaired balance; and rigidity of the muscles. These symptoms get worse over time.

Figure 26
PARKINSON'S DISEASE



Source: Emerald Health Pharmaceuticals Inc.

Parkinson's Disease Market Overview

The PD market is expected to see significant growth in the seven major markets (the U.S., France, Germany, Spain, Italy, the UK, and Japan), with the markets expected to grow from $3.5 billion in 2019 to $11.5 billion in 2029. This growth is largely driven by the increasing cases of PD resulting from the growth of the aging population, coupled with a robust PD-related pipeline that is expected to result in the launch of multiple new products (Source: GlobalData's *Parkinson's Disease – Global Drug Forecast and Market Analysis to 2029*, 2021).

North America is expected to dominate PD's regional market. The direct and indirect costs of PD in the U.S., involving treatment, social payment, and lost income, is projected to be nearly $52 billion per year. Moreover, in 2020 an estimated 930,000 people in the U.S. are living with PD, a number that is projected to rise to 1.2 million by 2030 (Source: Acumen Research And Consulting's *Parkinson's Disease Market Value Anticipated To Reach US$ 4,764.3 Mn By 2027*, 2021).

Current Treatment Landscape

Currently, there is no cure for PD but there are many available treatments that manage the symptoms of the disease. The PD market is highly competitive, featuring many **levodopa**-combination therapies and adjunctive drug classes that aim to alleviate motor symptoms. However, these current treatment options are primarily symptomatic, off-patent, and not very effective in controlling the motor fluctuations that occur in advanced-stage patients. Furthermore, most current treatments address mainly motor symptoms, but not non-motor symptoms, which often start earlier and are overall more detrimental to patient well-being and quality of life. As a result, there are key unmet needs for drugs that have improved efficacy and delivery systems and that provide disease-modifying benefits (Source: GlobalData's *Parkinson's Disease – Global Drug Forecast and Market Analysis to 2029*, 2021).

EHP-102 Clinical Development for Parkinson's Disease

In preclinical studies, EHP-102 demonstrated efficacy in validated PD models (6-OHDA,LPS and synuclein models), with the following key findings: (1) improves clinical symptoms and recovers movement parameters (motor coordination and activity); (2) reduces inflammatory marker expression; and (3) prevents the loss of nerve cells that produce dopamine. A list of scientific publications resulting from these studies is provided in Figure 27 (page 37), with details of preclinical study results validating these findings provided on pages 43-44.

Figure 27
SCIENTIFIC PUBLICATIONS FOR EHP-102 IN PD

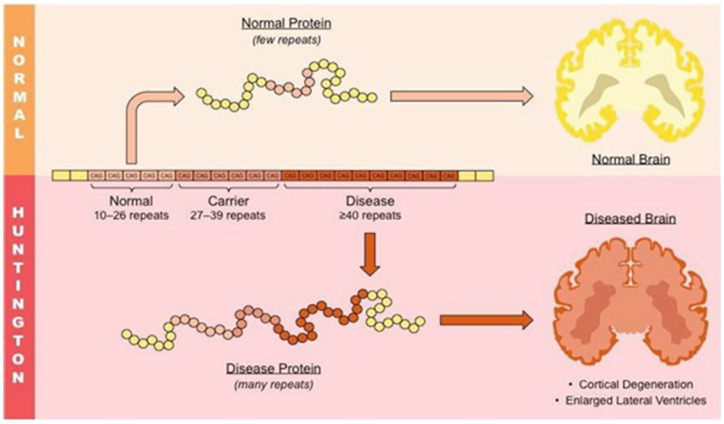
Journal of Neuroinflammation	Benefits of VCE-003.2, a cannabigerol quinone derivative, against inflammation driven neuronal deterioration in experimental Parkinson's disease: possible involvement of different binding sites at the PPARγ receptor	2018
Molecules	Development of an oral treatment with the PPAR-γ-acting cannabinoid VCE-003.2 against the inflammation-driven neuronal deterioration in experimental Parkinson's disease	2019
Molecular and Cellular Neuroscience	Neuroprotection with the cannabigerol quinone derivative VCE-003.2 and its. analogs CBGA-Q and CBGA-Q-Salt in Parkinson's disease using 6-hydroxydopamine-lesioned mice	2021

Source: Emerald Health Pharmaceuticals Inc.

EHP-102 FOR HUNTINGTON'S DISEASE

Huntington's disease (HD) is a rare neurodegenerative genetic disorder that causes the progressive breakdown of nerve cells in the brain. This chronic, complex disease is characterized by a triad of symptoms, including motor impairment, decline in cognitive function, and psychiatric disturbances. The condition, as shown in Figure 28, causes uncontrolled movements, emotional problems, loss of thinking (cognition), and deterioration of a patients' physical and mental abilities to the extent that they are unable to care for themselves.

Figure 28
HUNTINGTON'S DISEASE



Source: Emerald Health Pharmaceuticals Inc.

Huntington's Disease Market Overview

The global market for HD therapeutics is estimated at $402.2 million in the year 2020, with the U.S. market accounting for $107.7 million of that total, and projected to reach $3.1 billion by 2027. The growth is driven by an increased prevalence of the disease, combined with a better understanding of the pathology of the disease that has resulted in the development of new therapeutic approaches aimed at the cause of the disease (Source: Research and Market's *Huntington's Disease Therapeutics - Global Market Trajectory & Analytics*, 2021).

Although sources frequently state that 30,000 individuals living in the U.S. have HD, a recent review of the existing literature estimated the true HD prevalence in the U.S. to be over 40,000 individuals (Source: *Neurology,* Vol. 94:15, 2020). Due to its genetic cause, more than 200,000 people are at risk of inheriting the disease in the U.S.

Current Treatment Landscape

HD has no curative therapies or drugs to slow or alter the progression of the disease. Current treatment for HD focus on managing symptoms and is entirely dependent on symptomatic therapies, with guidelines borrowed from established treatments of other diseases.

Current medications used to lessen some of the symptoms include drugs that help control movement, as well as antidepressants, antipsychotics, and antiepileptics to control patients' cognitive, behavioral, and neurological symptoms. Since there is no cure, treatment focuses on optimizing a patients' quality of life by addressing symptoms and maximizing their ability to live and function independently for as long as possible. Because of this, as well as the debilitating and progressive nature of the disease, there is a tremendous need for effective disease-modifying therapies (DMTs).

EHP-102 Clinical Development for Huntington's Disease

In preclinical studies, EHP-102 demonstrated an ability to induce regeneration of nerve cells and protect against neuroinflammation and neurodegeneration in HD models. Specifically, results indicate that EHP-102 improved motor function and clinical scores and caused a positive effect on neuroprotection and neurogenesis. These data support EHP-102's potential to be disease-modifying in addition to providing functional benefits. EHP has received Orphan Drug designation for EHP-102 in HD from the U.S. FDA and the EMA in Europe. A list of scientific publications resulting from these studies is provided in Figure 29, with details of preclinical study results validating these findings provided on page 45.

Figure 29
SCIENTIFIC PUBLICATIONS FOR EHP-102 IN HD

Scientific Reports	VCE-003.2, a novel cannabigerol derivative, enhances neuronal progenitor cell survival and alleviates symptomatology in murine models of Huntington's disease	2016
Translational Neurodegeneration	Oral administration of the cannabigerol derivative VCE-003.2 promotes subventricular zone neurogenesis and protects against mutant huntingtin-induced neurodegeneration	2019

Source: Emerald Health Pharmaceuticals Inc.

OTHER INDICATIONS FOR EHP-102

EHP believes that EHP-102's ability to target key biological pathways involved in the pathophysiology of multiple diseases expands its applications beyond PD and HD and into other indications with similar disease pathology, including the following: (1) other neurodegenerative diseases; (2) cognitive diseases; (3) Friedreich's ataxia and other ataxias; (4) pain; (5) cerebral ischemia reperfusion; (6) amyotrophic lateral sclerosis (ALS); and (7) prion diseases.

PUBLICATIONS – PRECLINICAL STUDIES

EHP-101: SYSTEMIC SCLEROSIS

In preclinical studies, EHP-101 demonstrated potential disease-modifying benefits related to reducing inflammation and fibrosis, as well as promoting the protection and regeneration of vasculature. Additionally, EHP-101 exhibited a positive safety profile.

Studies in validated bleomycin (BLM) preclinical scleroderma animal models have established EHP-101 proof of concept, while also displaying the following potential disease-modifying results: (1) prevents dermal fibrosis and thickening; (2) prevents collagen accumulation and macrophage accumulation; (3) prevents lung fibrosis; (4) prevents blood vessel fibrosis; and (5) increases skin vascular markers. Details of preclinical studies' results validating these findings are provided in the next pages.

Scientific Reports (Nature) Vol 6, 2016

VCE-004.8 (EHP-101 active ingredient) was investigated for its activity against both CB2 and PPARγ and its capacity to prevent fibrosis in experimental animal models of SSc. The preclinical study results indicated that VCE-004.8 significantly inhibited collagen deposition (46.4% induction versus control) and collagen synthesis (43.5% induction versus control), as well as **myofibroblast** differentiation and fibroblast migration. These results are significant since migration of skin fibroblast plays a crucial role in SSc.

The anti-fibrotic efficacy *in vivo* was investigated in a murine model of dermal fibrosis induced by bleomycin (BLM). VCE-004.8 reduced dermal thickness and blood vessel collagen accumulation, and also prevented **mast cell** degranulation and macrophage infiltration in the skin. In addition, VCE-004.8 was found to downregulate the expression of several key genes associated with fibrosis, qualifying this molecule as a novel compound for the management of scleroderma and, potentially, other fibrotic diseases.

Biochemical Pharmacology, Vol. 157: 304-313, 2018

The study investigated the oral formulation of VCE-004.8—EHP-101—for the prevention of skin and lung fibrosis and of collagen accumulation in a murine model of SSc. Results indicate that EHP-101 can prevent skin and lung fibrosis and that it downregulates the expression of several key genes associated with fibrosis and inflammation.

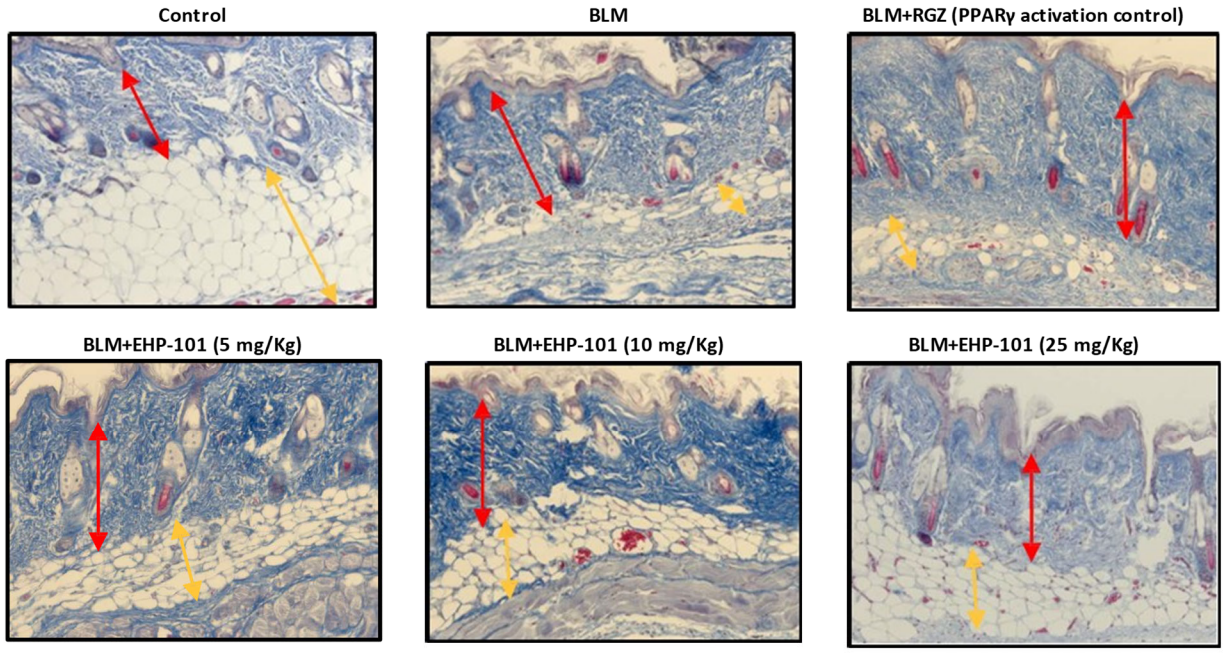
In BLM-challenged mice, skin fibrosis was induced, resulting in a significant increase of dermal thickness and collagen contents paralleled by a reduction of subcutaneous adipose layer that was replaced by connective tissue. Oral EHP-101 (5, 10, 25 mg/kg) alleviated skin fibrosis, reducing skin thickness to levels similar to those of a positive control for PPARγ activation as seen in Figure 30 (page 40), which displays dermis (red arrow) and adipose tissue thickness (yellow arrow) of the different experimental groups.

Treatment with EHP-101 also resulted in preventing excessive collagen deposition as well as macrophage infiltration (key markers of BLM-induced skin fibrosis). Researchers also found that EHP-101 alleviated BLM-induced lung fibrosis and collagen deposition following an injection of BLM.

Vascular damage is a fundamental part of the pathogenesis of scleroderma. BLM has been reported to significantly increase the thickness of the vascular wall, mimicking some of the histologic features found in human SSc. BLM induced a significant collagen deposition around blood vessels that could, however, be prevented by EHP-101 (25 mg/kg). Taken together, these results provide a rationale for further developing VCE-004.8 as a treatment for scleroderma and possibly other fibrotic diseases as well.

Figure 30

EHP-101 EFFECT ON SKIN FIBROSIS



Source: Biochemical Pharmacology, 2018

Biochemical Pharmacology, Vol. 163: 321-334, 2019

Researchers compared two forms of synthetic cannabinoids that act as PPARγ/CB2 agonists—EHP-101 and **ajulemic acid (AjA)**—as it relates to their ability to alleviate skin fibrosis and inflammation in SSc models. Results showed that both compounds downregulated the expression of genes involved in the inflammatory and fibrotic components of the disease, preventing fibrosis and collagen accumulation. However, key differences between the compounds were found in **vasculogenesis**. EHP-101, but not AjA, enhanced the expression of some factors related to angiogenesis and vasculogenesis. Altogether the results indicate that dual PPARγ/CB2 agonists qualify as a novel therapeutic approach for the treatment of SSc and other fibrotic diseases. EHP-101 demonstrated unique mechanisms of action related to the pathophysiology of SSc that could be beneficial in the treatment of this complex disease without current therapeutic options.

Biomedicine & Pharmacotherapy, Vol. 142, 2021

This study examined the effect of EHP-101 on cardiac fibrosis in a mouse model induced by **angiotensin II** (Ang II). Infusion of Ang II resulted in collagen accumulation in left ventricle, aortic, dermal, renal, and pulmonary tissues. Oral administration of EHP-101 improved these phenotypes. In myocardial tissue, Ang II induced infiltration of T cells and macrophages together with the accumulation of collagen and tenascin C; those were all reduced by either EHP-101 or losartan treatment. However, the gene set enrichment analysis comparing data from EHP-101 versus losartan showed specific hallmarks modified only by EHP-101. This study suggests that the oral administration of EHP-101 prevents and inhibits cardiac inflammation and fibrosis. Furthermore, EHP-101 inhibits renal, pulmonary, and dermal fibrosis. EHP-101 could offer new opportunities in the treatment of cardiac fibrosis and other fibrotic diseases. In many fibrotic diseases, tissue inflammation precedes fibrosis and, therefore, it is possible that the anti-inflammatory activity of EHP-101, mediated through CB2R and PPARγ, may inhibit T cell and macrophage activation.

EHP-101: MULTIPLE SCLEROSIS

Preclinical studies of EHP-101 for the treatment of MS have been conducted in four validated MS animal models: (1) experimental autoimmune encephalomyelitis (EAE); (2) Theiler's murine encephalomyelitis virus (TMEV); (3) cuprizone; and (4) modified cuprizone. These studies have established EHP-101 proof of concept while also displaying the following EHP-101 potential disease-modifying results: improves clinical signs and clinical scores; stops neuroinflammation and demyelination; and promotes remyelination of neurons.

Journal of Neuroinflammation, Vol. 15: 64, 2018

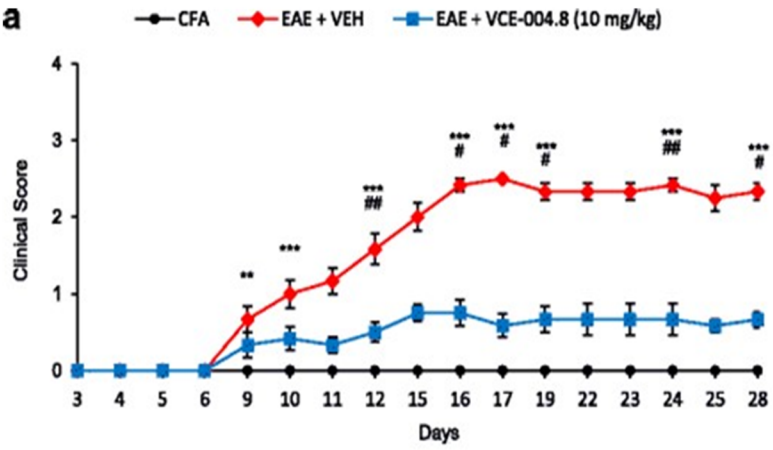
In this study, researchers investigated the effects of VCE-004.8 (EHP-101 active ingredient) on the HIF pathway in different cell types, as well as the efficacy of VCE-004.8 *in vivo* in two murine models of MS (EAE and TMEV). Results indicated that VCE-004.8 activates the HIF pathway. This finding is of interest since HIF activation may play a role in the inflammatory and the remitting phases of MS. In addition, there is evidence suggesting that activation of the HIF pathway may be also linked to neuroprotection and perhaps remyelination and axonal regeneration. Researchers concluded that VCE-004.8 is a promising molecule to modulate relevant MS targets, being endowed with neuroinflammatory activity, while displaying potential neuroprotective activity.

In vivo experiments showed efficacy of VCE-004.8 in EAE and TMEV. Histopathological analysis revealed that VCE-004.8 treatments prevented demyelination, axonal damage, and immune cells infiltration. In addition, VCE-004.8 downregulated the expression of several genes closely associated with MS physiopathology.

In EAE MS murine models, all vehicle-treated mice developed a disease that peaked by day 17 and maintained at day 28. By contrast, the clinical manifestations of EAE were attenuated in mice receiving daily injections of VCE-004.8 and the disease peaked on day 16, not reaching a score of 1 throughout the course of the experiment (Figure 31).

Figure 31

EHP-101 in EAE MS MODEL



Journal of Neuroinflammation, Vol. 15: 64, 2018

In TMEV models assumed to mimic primary progressive MS, mice were treated with VCE-004.8 (at 60 days). TMEV infection dramatically reduced both horizontal and vertical activities to very low levels. Strikingly, treatment with VCE-004.8 completely eliminated the decreased motor activity, recovering motor activities to normal levels.

Neurobiology of Disease, Vol. 143, 2020

A follow up study continued to assess EHP-101 in two models of MS, EAE and the cuprizone model of demyelination. The efficacy of EHP-101 in MS was first evaluated in EAE, with mice receiving increasing doses of EHP-101. All vehicle-treated mice developed a disease that peaked by day 16 and maintained at day 28. By contrast, the reduced clinical score showed therapeutic efficacy of EHP-101 with all the dose levels tested, with the highest dose (20 mg/kg) able to prevent the symptoms completely. Analysis of the data also showed that EHP-101 reduced infiltration of immune cells into the spinal cord, preventing neuroinflammation in both the spinal cord and the brain. In addition, EHP-101 was found to prevent the expression of many inflammatory genes closely associated with MS pathophysiology in the spinal cord.

EHP-101's effect on remyelination was further evaluated in the cuprizone demyelination MS model. While a diet containing 0.2% cuprizone for six weeks induced a clear loss of myelin in the brain, results provided evidence that EHP-101 showed potent anti-inflammatory activity, prevented demyelination, accelerated remyelination, and reduced axonal damage.

International Journal of Molecular Sciences, Vol. 22:2992, 2021

This article reviews the growing body of preclinical evidence validating certain cannabinoids, including CBD and synthetic derivatives, as potential drug candidates for management of demyelinating diseases such as MS, stroke, and traumatic brain injury (TBI). It is now established that CBD and various CBD-derivatives offer neuroprotective effects and attenuate the inflammatory process in several demyelinating animal models, which might be promising for the treatment of these diseases. Currently there are about 2,500 clinical trials focused on demyelinating disorders, but only 30 of these studies have been related to cannabis or cannabinoids. In fact, there are only 19 clinical trials that address the effect of CBD in demyelinating disorders, specifically in MS.

The article specifically discusses EHP-101—and its active ingredient VCE-004.8—that acts as a dual agonist of PPARγ and CB2 and presents potent antifibrotic activity *in vitro* and *in vivo*. Furthermore, it discussed how VCE-004.8 also activates the HIF pathway, reducing neuroinflammation and preventing myelin loss in several murine models of MS, such as EAE and TMEV, and inducing remyelination in two demyelination models induced by cuprizone.

EHP-102 FOR PARKINSON'S DISEASE

Journal of Neuroinflammation, Vol. 15:19, 2018

Researchers evaluated anti-inflammatory and neuroprotective properties of VCE-003.2 in an *in vivo* model of PD (lipopolysaccharide [LPS] lesioned mice), as well as in *in vitro* cellular models. Unilateral injections of LPS provoked an intense reactive microgliosis—a CNS-specific immune response to inflammatory signals and prompt destruction of infectious agents—in the substantia nigra, in parallel to an elevated expression of proinflammatory markers, resulting in the deterioration of tyrosine hydroxylase (TH)-containing nigral neurons (TH is a marker for dopamine, norepinephrine, and epinephrine-containing neurons).

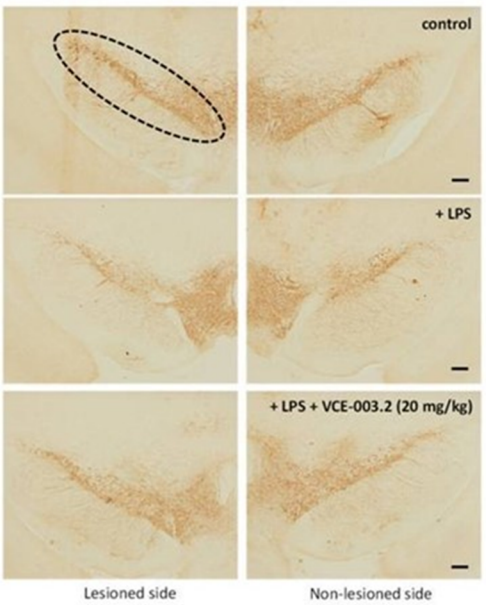
The intraperitoneal administration of VCE-003.2 was found to attenuate the inflammation-driven nigrostriatal neuronal deterioration—a fact further confirmed in *in vitro* studies—causing a partial recovery in the losses of TH-positive neurons. In addition, VCE-003.2 was found to reduce the LPS-induced reactivity and toxicity of microglial cells. The study demonstrated that VCE-003.2, through its activation of PPAR-γ receptors, is neuroprotective against inflammation-driven neuronal damage in an *in vivo* model of PD and in *in vitro* cellular models of neuroinflammation.

Molecules Vol. 24(15):2702. 2019

Following the 2018 study demonstrating VCE-003.2's ability to attenuate inflammation-driven neuronal deterioration in a PD model, researchers evaluated whether these beneficial effects are also found after oral administration, which is a more relevant route of administration for its clinical development, compared to the intraperitoneal route used in the previous study. To this end, the study evaluated VCE-003.2, administered orally at two doses (10 and 20 mg/kg), to LPS-lesioned mice following unilateral injection of LPS.

Although the 10 mg/kg oral dose was generally not active, histopathological analysis revealed that administration of VCE-003.2 at 20 mg/kg resulted in a trend towards recovery in the loss of TH-containing nigrostriatal neurons. Figure 32 shows immunostaining for TH measured in a selected area of the substantia nigra, for the control group, LPS-lesioned mice, and the VCE-003.2 (20 mg/kg) administered group, for both the lesioned and non-lesioned sites.

Figure 32
EHP-102 EFFECT ON DOPAMINERGIC NEURONS



Source: Molecules Vol. 24(15):2702. 2019.

This neuroprotective activity was associated with a partial reduction in the intense glial reactivity. The analysis of proinflammatory mediators showed that the marked elevation of these substances provoked by the LPS lesion were, in general, attenuated by the treatment with VCE-003.2, with the greatest effects found with the dose of 20 mg/kg.

All these effects resulted in a partial functional recovery, with VCE-003.2 found to be highly active in improving the changes detected in LPS-lesioned mice in the PD-related cylinder rearing test. The cylinder test evaluates lateralized motor impairment in rodents by monitoring the spontaneous placing of the two forepaws to balance when rearing. Unilateral brain lesions typically reduce the use of the contralateral paw, causing a preference for the ipsilateral paw.

Data demonstrate that LPS lesion caused a preference for the ipsilateral paw in the cylinder rearing test, whereas the treatment with VCE-003.2 partially corrected this alteration.

In summary, the study confirmed the neuroprotective potential of an oral formulation of VCE-003.2 against neuronal injury in an *in vivo* model of PD based on neuroinflammation, and this study opens the possibility to further the development of oral VCE-003.2 in the clinic.

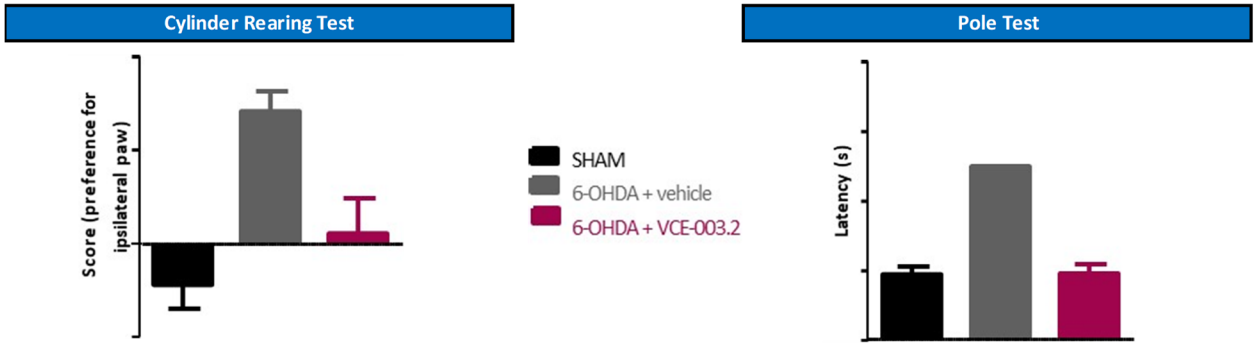
Molecular and Cellular Neuroscience Vol. 110:103583, 2021

The study further investigated the neuroprotective properties of VCE-003.2 against a neurotoxin 6-hydroxydopamine (6-OHDA) PD model in comparison to two new CBG-related derivatives, the cannabigerolic acid quinone (CBGA-Q) and its sodium salt CBGA-Q-Salt.

In vivo testing using mice unilaterally lesioned with 6-OHDA confirmed that VCE-003.2 administered orally (20 mg/kg) preserved TH-positive nigral neurons against 6-OHDA-induced damage, whereas it completely attenuated the microglial reactivity found in the substantia nigra of lesioned mice. Such neuroprotective effects caused an important recovery in the motor deficiencies displayed by 6-OHDA-lesioned mice in the pole test and the cylinder rearing test. As seen in Figure 33, in the cylinder tests administration of VCE-003.2 partially corrected the preference for the ipsilateral paw seen in lesioned mice. In the pole test, used to assess CNS-related movement disorders, administration of VCE-003.2 resulted in significant reduction of the time delay of lesioned mice to descend a vertical wooden pole following 6-OHDA administration. Additional phytocannabinoid derivatives, CBGA-Q and CBGA-Q-Salt, also afforded neuroprotection in 6-OHDA-lesioned mice, but their effects were lower compared to VCE-003.2.

Figure 33

EHP-102 EFFECT ON PD MODELS



Source: Molecular and Cellular Neuroscience Vol. 110:103583, 2021.

VCE-003.2 administration also resulted in the recovery in the concentration of both dopamine and metabolite DOPAC in the striatum of 6-OHDA-lesioned mice, an improvement that the other tested compounds failed to elicit. In summary, this study confirmed the neuroprotective potential of VCE-003.2 in 6-OHDA-lesioned mice, which adds to its previous activity found in the LPS inflammatory model of PD.

EHP-102 FOR HUNTINGTON'S DISEASE

Scientific Reports, Vol. 6: 29789, 2016.

The study evaluated the neuroprotective efficacy of oral VCE-003.2 administration in HD models both *in vivo* and *in vitro*. Quinolonic acid (QA) administration constitutes a widely employed *in vitro* HD model to investigate the mechanisms of striatal neurodegeneration. VCE-003.2 attenuated QA-induced cell death and also reduced mutant huntingtin (mHTT) aggregates in striatal cells. Huntingtin protein (HTT) aggregation is a hallmark of HD, as it induces medium spiny neuron (MSN) death, responsible for the characteristic motor symptoms of the disease.

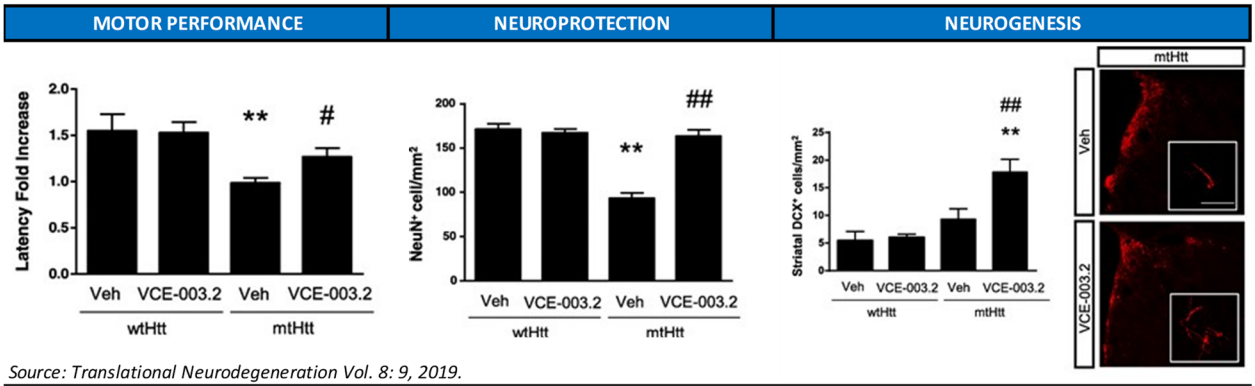
The neuroprotective profile of VCE-003.2 was also analyzed using *in vivo* models of striatal neurodegeneration induced by QA. VCE-003.2 prevented MSN neuronal loss in these Huntington's-like disease mice models, improving motor deficits. In the 3NP model, VCE-003.2 inhibited the upregulation of proinflammatory markers and improved antioxidant defenses in the brain. Fundamentally, VCE-003.2 displayed neuroprotective activity HD models and was also neuroprotective against mHTT-induced damage. Researchers believe that these results indicate VCE-003.2 has high potential for the treatment of Huntington's disease (HD) and other neurodegenerative diseases with neuroinflammatory traits.

Translational Neurodegeneration Vol. 8: 9, 2019.

The study investigated the pro-neurogenic potential of VCE-003.2 in striatal neurodegeneration by using adeno-associated viral expression of mHTT *in vivo* and mouse embryonic stem cell differentiation *in vitro*. Oral administration of VCE-003.2 attenuates neuroinflammation and is neuroprotective in a viral model of mHTT expression. Mice were injected bilaterally with mHTT proteins. Motor function was assessed in the rotarod test, a widely used test to assess the effects of a drugs on neuromuscular coordination. The rotarod consists of a circular rod turning at a constant or increasing speed. Animals placed on the rotating rod try to remain on it rather than fall onto a platform. Drugs known to alter neuromuscular coordination reduce the time the animals are able to remain on the rod. Oral administration of VCE-003.2 protected striatal MSN from mHTT-induced damage, attenuated neuroinflammation, and improved motor performance. Furthermore, VCE-003.2 administration prevented MSN degeneration as evidenced by NeuN immunofluorescence (Figure 34, left two graphs). Researchers also demonstrated pro-neurogenic activity of VCE-003.2. Oral administration of VCE-003.2 was effective in restoring striatal neurogenesis affected by mHTT expression. VCE-003.2 was able to increase neuroblast formation and striatal-like mediated neurogenesis (Figure 34, right graph).

Figure 34

EHP-102 IN HD



Source: Translational Neurodegeneration Vol. 8: 9, 2019.

Investment Highlights

- Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") is a private clinical-stage biotechnology company developing a portfolio of novel proprietary therapeutic molecules derived from cannabinoid architecture to treat various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure.
- EHP employs a Rational Drug Design platform to produce novel molecules that affect key validated biologic receptors and pathways in the body to exert a more comprehensive effect on complex diseases. Their drug development process is focused on achieving more powerful therapeutic outcomes, including disease modification and possible reversal of the disease progression.
- EHP's Rational Drug Design process consists of three key steps: (1) identify key physiological processes that must be affected to impact disease progression; (2) identify key biologic targets in the body able to affect those processes across multiple diseases with certain commonalities; and (3) create novel molecules able to target and modulate these key biologic targets and processes. The Company has created a portfolio of 25 distinct molecules (new chemical entities [NCE]) with 25 granted patents and 19 pending patents, including composition-of-matter, formulation, and method-of-use for many diseases.
- Most current treatments for neurodegenerative and autoimmune diseases aim at addressing symptoms, providing no disease-modifying capabilities due to addressing only part of the multiple processes that influence the disease. EHP is developing product candidates with a multifaceted mechanism of action designed to affect the key biological processes associated with the conditions. EHP's product candidates have demonstrated the potential to modify and reverse disease progression in people suffering from various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases.
- The Company's lead product candidate, EHP-101 (an oral formulation of a novel molecule based on cannabidiol [CBD] architecture), is a first-in-class molecule currently enrolling patients in a Phase IIa study for the treatment of systemic sclerosis (SSc) and in the initiation stage of a Phase IIa study to treat multiple sclerosis (MS). EHP has received Orphan Drug status in both the U.S. and E.U. and Fast Track designation in the U.S. for SSc.
- EHP-101 has completed preclinical proof-of-concept and a Phase I human study demonstrating tolerability, safety, and potential disease-modifying benefits in both SSc and MS. The molecule demonstrated anti-inflammatory, neuroprotective, neurogenic, and antifibrotic properties in preclinical (non-human) models. A Phase IIa clinical study for the treatment of SSc is underway in the U.S., Australia, and New Zealand. Initiation activities are also underway for a Phase IIa clinical study in MS with enrollment expected to start in Q1 2022.
- EHP's second product candidate, EHP-102 (an oral formulation of a novel molecule based on cannabigerol [CBG] architecture), is being developed for Parkinson's disease (PD) and Huntington's disease (HD) and is in the preclinical stage of development. EHP has received Orphan Drug status for EHP-102 in HD in both the U.S. and the EU.
- In preclinical studies, EHP-102 has demonstrated the potential to promote the regeneration of nerve cells, protect against neuroinflammation and neurodegeneration in HD models, and reduce the loss of dopamine production in PD models. These data support EHP-102's potential to be disease-modifying rather than only symptomatic.
- EHP has assembled a highly experienced management team with decades of experience in the biotechnology and pharmaceutical industry, supported by clinical and scientific advisory boards composed of globally recognized experts in their field.
- The Company is targeting a multi-billion-dollar market potential in its four initial disease indications—MS, SSc, PD, and HD—with its technology possibly able to address additional indications beyond the four identified.
- EHP closed a financing in March 2021, under which the Company raised approximately $60 million, covering operations through the second half of 2022. As of June 30, 2021, the Company's cash, cash equivalent, and restricted cash position was $21 million.

Competition

EHP's product candidates and its technology platform are intended to treat neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure. Most of the therapies in use today for EHP's first four indications—systemic sclerosis (SSc), multiple sclerosis, Parkinson's disease (PD), and Huntington's disease (HD)—are primarily symptomatic, aimed at the treatment and relief of symptoms, with no curative therapies that offer disease-modifying and disease-reversal benefits.

As EHP continues to develop its product candidates, it may encounter competitions from pharmaceutical companies and biotechnology companies that market therapeutic treatments, already approved or accepted (off-label) by the medical community for the treatment of indications the Company is targeting, as well as new treatments currently in development. Potential competitors also include academic institutions, and other public and private research organizations that seek to develop novel therapeutic treatments for these conditions.

While the Company's therapeutic candidates are synthetic molecules, based on cannabinoid architecture, EHP is not technically a cannabis company but rather a pharmaceutical company developing novel therapeutic molecules with disease-modifying capabilities. Its product candidates may compete with non-synthetic cannabinoid pharmaceutical companies, such as GW Pharmaceuticals plc, which markets Sativex, a botanical cannabinoid for the treatment of spasticity due to MS, and Epidiolex, a botanical cannabinoid for the treatment of two rare childhood seizure disorders.

However, the Company believes that its technology platform provides competitive advantages against other approved or developing therapeutic options. The diseases that the Company targets are characterized by multiple pathophysiological processes, with existing drugs and therapy options only addressing part of these pathophysiological processes, leading to significant unmet medical needs. EHP plans to solve this shortcoming by developing drugs with a mechanism of action (MOA) designed to affect the key biological processes associated with the disease etiology, with the goal to exert disease modifying properties and potential reversal of disease progression.

The Company's new therapeutic molecules possess first-in-class mechanisms of action that have demonstrated the potential to modify and reverse disease progression in people suffering from various neurodegenerative, autoimmune, inflammatory, and fibrotic diseases with no current cure. The Company's Rational Drug Design process allows EHP to develop novel molecules with enhanced therapeutic capabilities due to its ability to target multiple receptors. In addition, the Company believes that, despite using a cannabinoid as the backbone for its therapeutic molecules, the fact it uses synthetic derivatives of the cannabinoids provides key competitive advantages in two areas: (1) the ability to patent the novel molecules, something that companies using actual CBD and CBG cannot do, as natural ingredients cannot be protected, and (2) the fact that its product candidates are not classified as a controlled substance.

Accordingly, the list of companies presented in this Competition section is not in any way an exhaustive collection of the Company's competitors. However, it is believed to be a sample of the type of competition that EHP may face as it strives to commercialize its technologies and product candidates.

SYSTEMIC SCLEROSIS (SSc)

Blade Therapeutics

Blade Therapeutics is a privately-held discovery-stage drug development company focused on the development of innovative treatments for debilitating fibrotic and neurodegenerative diseases. Its lead product candidate is Cudetaxestat, in Phase I studies for the treatment of Idiopathic Pulmonary Fibrosis (IPF), which has received Orphan Drug designation for IPF as well as SSc. The company's pipeline also includes BLD-2184, in preclinical studies for the treatment of neurodegenerative diseases. Blade Therapeutics was founded in 2015 and is headquartered in San Francisco, California.

CiVi BioPharma, Inc. (through its wholly owned subsidiary, Eicos Sciences, Inc.)

CiVi Biopharma is a privately held, clinical stage biotechnology company developing novel cardiovascular and metabolic therapies. The company has multiple assets in various stages of development, including CIVI030 (IV iloprost) in Phase III clinical trials for the treatment of SSc. The safety and efficacy of IV-iloprost in people with SSc who experience frequent, symptomatic digital ischemic episodes (also known as Raynaud's Phenomenon) is currently being studied in the Phase III AURORA Study. CiVi BioPharma was founded in 2016 and is headquartered in Chevy Chase, Maryland.

Corbus Pharmaceuticals Holdings, Inc (CRBP-NASDAQ)

Corbus Pharmaceuticals, a clinical-stage pharmaceutical company, focuses on the development and commercialization of novel therapeutics that target the endocannabinoid system in the fields of autoimmunity, fibrosis, and cancer. Its lead product candidate is Lenabasum, a cannabinoid receptor type 2 (CB2) that is in a Phase III clinical trial for the treatment of dermatomyositis; and in Phase II clinical trial to treat systemic lupus erythematosus. Of note, Lenabasum failed a Phase III trial for diffuse cutaneous SSc, but despite missing its primary endpoint, post-hoc analysis may show promise for adjunctive therapy. The company is also developing cannabinoid receptor type 1 (CB1) inverse agonist program for treatment of metabolic disorders, such as obesity, diabetic nephropathy, diabetic retinopathy, and nonalcoholic steatohepatitis; and a CB2 agonist program for the treatment of cancer. The company was incorporated in 2009 and is based in Norwood, Massachusetts.

Horizon Therapeutics Public Limited Company (HZNP-NASDAQ)

Horizon Therapeutics is a biotechnology company that focuses on the discovery, development, and commercialization of medicines that address critical needs for people impacted by rare, autoimmune, and severe inflammatory diseases. Its portfolio comprises 12 medicines in the areas of rare diseases, gout, ophthalmology, and inflammation, including TEPEZZA® (teprotumumab-trbw) to treat thyroid eye disease. TEPEZZA® is also undergoing a Phase I trial exploring its use in diffuse cutaneous SSc. Horizon Therapeutics is also initiating a Phase IIb pivotal trial in diffuse cutaneous SSc and a Phase IIb pivotal trial in idiopathic pulmonary fibrosis for its product candidate HZN-825. Horizon was founded in 2005 and is headquartered in Dublin, Ireland.

Kadmon Holdings, Inc. (KDMN-NASDAQ)

Kadmon is a biopharmaceutical company engaged in the discovery and development of molecules and biologics primarily for the treatment of inflammatory and fibrotic diseases. Its lead product candidates include Belumosudil (KD025), in Phase II clinical trial for the treatment of SSc as well as chronic graft-versus-host; KD045, for the treatment of fibrotic diseases; and KD033, for the treatment of cancer. Enrollment is ongoing in a Phase II trial of KD025-209 in 60 patients with diffuse cutaneous SSc. Enrollment is also ongoing in a parallel Phase II trial of belumosudil (KD025-215) in up to 15 patients with diffuse cutaneous SSc. Initial data from this study are expected by year-end 2021. Kadmon Holdings was incorporated in 2010 and is headquartered in New York, New York.

Kyowa Kirin co., Ltd. (KYKOF-OTC)

Kyowa Kirin manufactures and markets pharmaceuticals focused on the therapeutic areas of oncology, nephrology, central nervous system, and immunology worldwide. Its products include Lumicef® (brodalumab), for the treatment of moderate to severe plaque psoriasis in people who have not improved with other treatments. The company's pipeline includes Brodalumab (under code name KHK4827) for SSc (Phase III) and Ankylosing Spondylitis (completed Phase III). The company was formerly known as Kyowa Hakko Kirin Co., Ltd. and changed its name to Kyowa Kirin Co., Ltd. in June 2019. The company was founded in 1949 and is headquartered in Tokyo, Japan. Kyowa Kirin is a subsidiary of Kirin Holdings Company, Limited.

MULTIPLE SCLEROSIS

Biogen Inc. (BIIIB-NASDAQ)

Biogen develops innovative therapies for treating neurological and neurodegenerative diseases, with a focus on MS and neuroimmunology, Alzheimer's disease and dementia, and neuromuscular disorders. Biogen has the leading portfolio of medicines to treat MS, offering TECFIDERA, VUMERITY, AVONEX, PLEGRIDY, TYSABRI, and FAMPYRA for MS. Furthermore, it is developing product candidates BIIB061 (Stage I for remyelination in MS), BIIB107 (MS and neuroimmunology), and BIIB091 (orelabrutinib), in a Stage II trials for MS, being develop in partnership with Innocare Pharma Limited (9969.hk-HKSE). In addition, Biogen is also developing, BIIB094, BIIB118, and BIIB122 for treating PD (all in Stage I). Biogen was founded in 1978 and is headquartered in Cambridge, Massachusetts.

Bristol Myers Squibb Company (BMY-NYSE)

Bristol-Myers develops and markets biopharmaceutical products worldwide. The company offers products in hematology, oncology, cardiovascular, and immunology. Its product portfolio includes Zeposia®(ozanimod), an FDA-approved treatment for relapsing forms of MS. The company is also developing Immune Tolerance (Anokion), in Phase I for the treatment of MS. Bristol-Myers was founded in 1887 and is headquartered in New York, New York.

Janssen Pharmaceuticals (a Johnson & Johnson company [JNJ-NYSE])

Janssen, Johnson & Johnson's pharmaceutical operations, offers products in various therapeutic areas, including immunology, neuroscience, and metabolic diseases. Its product portfolio includes Ponvory (ponesimod), an FDA-approved treatment for relapsing forms of MS (approved in March 2021 and expected to launch in September/October 2021). Johnson & Johnson was founded in 1886 and is based in New Brunswick, New Jersey.

Novartis AG (NVS-NYSE)

Novartis AG researches, develops, manufactures, and markets healthcare products worldwide. The company offers prescription medicines for ophthalmology, neuroscience, immunology, hepatology, and dermatology conditions, among others. Its product portfolio includes Mayzent (siponimod fumerate), KESIMPTA (ofatumumab), and Gilenya (fingolimod) for the treatment of relapsing forms of MS. In addition, it is developing LMI070 (branaplam), in Stage I for the treatment of HD. The company was incorporated in 1996 and is headquartered in Basel, Switzerland.

Pipeline Therapeutics, Inc.

Pipeline Therapeutics is a biopharmaceutical company focused on the development and commercialization of first-in-class small molecules for neuro-regeneration, including synaptogenesis, remyelination, and axonal repair. The company's pipeline includes PIPE-307, in Phase I studies for myelin restoration targeting MS, and PIPE-LPA1, in preclinical studies for myelin restoration and axonal repair. In addition, Pipeline has a portfolio of further programs addressing a range of neurological disorders and conditions. The company was founded in 2009 and is headquartered in San Diego, California.

Roche Holdings AG (RHHBY-OTC)

Roche engages in the prescription pharmaceuticals and diagnostics businesses. Its pharmaceutical division develops and markets products for treating a wide range of diseases. The company's commercial products include Ocrevus (ocrelizumab), the first and only therapy approved for relapsing MS and primary progressive MS; as well as Madopar (levodopa benserazide), to treat patients with PD and restless leg syndrome (RLS). Roche's pipeline includes tominersen (ASO-HTT, RG6042) in Phase III development for the treatment of HD (in collaboration with Ionis Pharmaceutical [IONS-NASDAQ]); fenebrutnib (RG7845/GDC-0853) in Phase III development for relapsing MS and primary progressive MS; prasinezumab (RG7935/PRX-002) in Phase II for the treatment of PD (in collaboration with Prothena Corporation plc [PRTA- NASDAQ]); and RG6315, in Phase I for SSc. The company was founded in 1896 and is headquartered in Basel, Switzerland.

Sanofi (SNY-NASDAQ)

Sanofi, a healthcare company, engages in the development, manufacture, and marketing of therapeutic solutions. Its pharmaceutical division provides products for MS, neurology, other inflammatory diseases, immunology, rare diseases, oncology, and rare blood disorders, among others. Sanofi's product portfolio includes AUBAGIO® (teriflunomide) indicated for the treatment of relapsing forms of MS; with two additional product candidates for the treatment of the condition: SAR441344, in Phase II for MS, and Tolebrutinib, in Phase III for relapsing MS, primary progressive MS, and secondary progressive MS. The company was formerly known as Sanofi-Aventis and changed its name to Sanofi in May 2011. Sanofi was incorporated in 1994 and is headquartered in Paris, France.

TG Therapeutics Inc. (TGTX-NASDAQ)

TG Therapeutics is a commercial stage biopharmaceutical company that focuses on the acquisition, development, and commercialization of novel treatments for B-cell malignancies and autoimmune diseases. Currently, the Company has three programs in Phase III development, including a study on its therapeutic product candidates Ublituximab (TG1101), an investigational monoclonal antibody for the treatment of relapsing forms of MS. The company is headquartered in New York, New York.

PARKINSON'S DISEASE (PD)

Overall, there are approximately 156 registered and ongoing clinical trials for therapies targeting Parkinson's disease (PD). Of these, 54 (34.6%) were Phase I, 73 (46.8%) were Phase II, and 29 (18.6%) were Phase III. Based on review findings, 65 (41.6%) of these trials were considered to be Disease Modifying Therapies (DMT) trials (Source: *Journal of Parkinson's Disease*, Vol. 11 (3): 891-903, 2021).

Focusing on Phase III DMT trials, there are only two on-going studies: (1) Researchers at Wayne University are studying the use of Memantine, a drug currently approved for dementia associated with Alzheimer's disease, to assess its ability to slow down PD progression (trial # NCT03858270); and (2) Researchers at the University College, London are studying the use of Exenatide, currently approved for the treatment of patients with type 2 diabetes, to assess its ability to slow down or stop the degeneration of PD (trial # NCT04232969).

Denali Therapeutics Inc. (DNLI-NASDAQ)

Denali Therapeutics is a biopharmaceutical company developing a broad portfolio of product candidates engineered to cross the blood brain barrier (BBB) for neurodegenerative diseases. Denali Therapeutics pursues new treatments by rigorously assessing genetically validated targets, engineering delivery across the BBB, and guiding development through biomarkers that demonstrate target and pathway engagement. The company, with partner Biogen Inc., is testing its product candidate DNL-155 (Stage I/II) in two parallel studies: one in patients with sporadic (of unknown cause) PD, and the other in patients with a mutation causing excessive LRRK2 activity. Denali and collaboration partner Biogen are also finalizing clinical development plans and intend to commence patient enrollment in 2021. Denali Therapeutics is based in San Francisco, California.

Herantis Pharma Oyj (HRPMF-PTC)

Herantis focuses on disease-modifying therapies for debilitating neurodegenerative diseases by restoring the neuronal protective mechanism of proteostasis, a key system widely implicated with the development of many neurodegenerative diseases, including PD and Alzheimer's Disease. Herantis' lead program, Cerebral Dopamine Neurotrophic Factor (CDNF) is in Phase I studies for PD, with xCDNF (a synthetic peptide version of CDNF), the company's follow-on program, currently in preclinical studies. CDNF is a biological protein whose natural role is to protect neurons by balancing and supporting proteostasis. Both CDNF and xCDNF, via their multimodal mechanism of action, have the potential to improve neuronal survival and stop the progression of PDs and other neurodegenerative diseases with a significant therapeutic impact on the quality of patients' lives. The company was founded in 2008 and is based in Espoo, Finland.

HUNTINGTON'S DISEASE (HD)

Annexon, Inc. (ANNX-NASDAQ)

Annexon is a clinical-stage biopharmaceutical company engaged in the discovery and development of therapeutics for autoimmune and neurodegenerative diseases, focused on the treatment of body, brain, and eye disorders. The company's pipeline includes ANX005, currently in a Phase II trial underway for HD. ANX005 is also being evaluated for Guillain-Barre Syndrome (Phase II/III), multifocal motor neuropathy (Phase I), and amyotropic lateral sclerosis (ALS) (Phase II), among others. The company was founded in 2011 and is headquartered in South San Francisco, California.

Neurocrine Biosciences, Inc. (NBIX-NASDAQ)

Neurocrine Biosciences is a neuroscience-focused, biopharmaceutical company dedicated to discovering, developing, and delivering life-changing treatments for people with serious, challenging, and under-addressed neurological, endocrine, and psychiatric disorders. The company's diverse portfolio includes FDA-approved treatments for PD (ONGENTYS®), tardive dyskinesia, endometriosis, uterine fibroids, as well as clinical programs in multiple therapeutic areas. Its lead asset is INGREZZA (valbenazine), in Phase III for the treatment of chorea in HD and dyskenesia due to cerebral palsy. Valbenazine is FDA-approved for the treatment of adults with tardive dyskinesia, an irreversible involuntary movement disorder, and may show similar benefits in addressing the motor symptoms associated with chorea in patients with HD. Neurocrine Biosciences was incorporated in 1992 and is headquartered in San Diego, California.

Prilenia Therapeutics

Prilenia is a clinical stage biotechnology startup with the purpose of improving patients' lives by developing treatments for neurodegenerative and neurodevelopmental disorders. Its lead candidate, Pridopidine, is currently being assessed in late-stage clinical development for HD and ALS. The company is conducting a global Phase III PROOF-HD (Pridopidine Outcome On Function in Huntington's Disease) trial to assess pridopidine for the treatment of HD. In prior clinical trials in HD patients, pridopidine demonstrated a beneficial effect in maintaining functional capacity after 1 year. Prilenia was founded in 2018 is based in Naarden, the Netherlands and Herzliya, Israel.

uniQure NV (QURE-NASDAQ)

uniQure, a gene therapy company, engages in the development of treatments for patients suffering from genetic and other devastating diseases. The company's pipeline includes AMT-130, a gene therapy that is in Phase I/II clinical study for the treatment of HD. U.S. Food and Drug Administration has granted orphan drug designation for AMT-130 in Huntington's disease and AMT-130 has received an Orphan Medicinal Product Designation (OMPD) from the European Medicines Agency. UniQure also has a preclinical candidate for PD (AMT-210). uniQure N.V. was founded in 1998 and is headquartered in Amsterdam, the Netherlands.

Vaccinex, Inc (VCNX-NASDAQ)

Vaccinex is a clinical-stage biotechnology company engaged in the discovery and development of targeted biotherapeutics to treat serious diseases and conditions with unmet medical needs. The company offers its products for the treatment of cancer, neurodegenerative diseases, and autoimmune disorders. Its lead product candidate is pepinemab (VX15), a humanized monoclonal antibody that is in Phase III for the treatment of HD. The company is also developing VX5, in preclinical development for the treatment of MS and other autoimmune disorders. Vaccinex was incorporated in 2001 and is headquartered in Rochester, New York.

Recent Events

05/24/2021—Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") expanded its Scientific Advisory Board with the appointment of neuroscience expert and innovator, Eduardo Candelario-Jalil, PhD (biography on pages 14-15). In addition to Dr. Candelario-Jalil's contribution to the EHP Scientific Advisory Board, he has also been instrumental in performing preclinical studies in his laboratories at the University of Florida related to the use of the Company's technology for the potential treatment of stroke.

03/09/2021—Announced a final closing date for its Regulation A offering. The offering will close on the earlier of March 28th or once the maximum offering amount of $67.1 million has been raised. To date, EHP has received investment commitments of approximately $56.0 million from over 8,000 investors.

03/08/2021—Initiated activities for a Phase II international clinical study for the treatment of patients with multiple sclerosis (MS). The MS Phase II study is an open label study to evaluate the safety, tolerability, pharmacokinetics, and preliminary efficacy of the Company's lead product candidate, EHP-101, an oral formulation of a patented new synthetic molecule, in patients with relapsing forms of MS. The study is planned to enroll approximately 50 patients in approximately 20 study centers in the U.S. and Australia.

02/09/2021—Published a scientific article in the peer-reviewed journal, *Molecular and Cellular Neuroscience*, highlighting data supporting the disease-modifying potential of EHP's drug product candidate, EHP-102, to treat Parkinson's disease (PD). The results of the study demonstrated that oral administration of EHP-102 in a validated PD model, reduced inflammation-driven neuronal deterioration, completely attenuated neuronal death, and restored the concentrations of dopamine in the striatum. These effects resulted in significant improvements in the motor performance of the diseased mice.

12/03/2020—Announced that the Company opened a new financing round under its Regulation A offering on December 7, 2020, following demand from existing and new investors to purchase shares. This financing round will expire once the maximum amount of approximately $17 million is raised or on March 28, 2021, whichever comes first, and will be available to all qualified U.S. and international investors.

10/19/2020—Announced a closing date for its current Regulation A offering round following the strong demand for its capital raise to date. The financing round is anticipated to close on or before October 30th as the Company is nearing the maximum raise of $50 million qualified under its current Offering Statement (as of October 18, 2020, EHP had received investment commitments of approximately $48 million).

07/27/2020—Began enrollment and has dosed the first patients with diffuse cutaneous systemic sclerosis (dcSSc) in its Phase IIa clinical study of lead product candidate EHP-101. The Phase IIa study is a multicenter study to evaluate the safety, tolerability, pharmacokinetics, and preliminary efficacy of EHP-101 in up to 36 patients with dcSSc in approximately 30 study centers across Australia, New Zealand, and the U.S. EHP has initiated six clinical trial sites and enrolled two patients to date.

07/20/2020—Began accepting investments under its Regulation A ("Reg A") offering. As of June, 2020, EHP had raised more than $22 million under its Reg A offering and provided mid-year corporate update.

05/28/2020—Provided an update on its Phase II SSc clinical trial. During the COVID-19 pandemic, site qualification and initiation activities continued remotely, and important drug manufacturing and other related activities continued as planned to keep the EHP-101 development program on track and in line with corporate goals.

03/31/2020—Initiated its Phase IIa international clinical study for the treatment of patients with SSc. A total of four doses (administered once or twice daily) have been selected for investigation based on the recently completed Phase I study in 104 healthy subjects. EHP-101 was granted Fast Track Designation by the FDA as well as Orphan Drug Designation for SSc in both the U.S. and European Union (EU).

03/23/2020—Received the determination from Canada's Controlled Substances Directorate that its lead product candidate, EHP-101, is not a controlled substance under its Controlled Drug and Substance Act (CDSA). The same previous designation by the U.S. Drug Enforcement Administration alleviates the typical complexities associated with developing controlled substances throughout North America. The patented active ingredient in EHP-101 is a non-psychoactive novel molecule chemically derived from synthetic cannabidiol (CBD). According to the Company, these determinations by Canada and the U.S. highlight the important difference between EHP's novel molecules compared to natural cannabinoids.

03/16/2020—Expanded its global patent portfolio with the recent publication of six newly granted patents in Japan, Israel, Australia, and Russia related to EHP's portfolio of 25 novel molecules derived from cannabidiol (CBD) and cannabigerol (CBG). EHP now owns a total of 17 granted patents, with 21 patents pending, consisting of composition-of matter, formulation, and "use" patents, including for the treatment of many diseases such as MS, SSc, HD, PD, and others. The patents and patent applications currently provide protection to 2040 and could be eligible for patent term extension.

03/03/2020—Was granted Fast Track designation from the U.S. Food and Drug Administration (FDA) for its lead clinical-stage product candidate, EHP-101, for the treatment of SSc. EHP previously received Orphan Drug designation in the U.S. and EU for EHP-101 in the treatment of SSc. Fast Track is an FDA regulatory designation to facilitate the development and expedite the review of drugs to treat serious conditions and fill an unmet medical need. The purpose is to get important new drugs to the patient earlier. Fast Track addresses a broad range of serious conditions.

02/27/2020—Presented new Phase I clinical and preclinical data on its lead oral product candidate, EHP-101, at the ACTRIMS Forum 2020, a scientific conference focused on MS, in West Palm Beach, Florida, February 27-29, 2020.

01/29/2020—Announced that the European Medicines Agency (EMA) has granted Orphan Designation for its product candidate, EHP-102, for the treatment of HD. Orphan Designation provides potential incentives from the EU to develop a medicine for a rare disease, including protocol assistance, reduced fees, funding from the European Commission for clinical trials, and protection from competition once the medicine is placed on the market, including ten years of market exclusivity.

01/13/2020—Announced that the U.S. FDA cleared its investigational new drug (IND) application for EHP-101. This IND clearance allows the initiation of a Phase II study in the U.S. The study is planned to be conducted at multiple centers in the U.S. and site selection activities are currently underway.

Historical Financial Results

Figures 35, 36, and 37 provide the Company's Unaudited Condensed Consolidated Statements of Operations and Comprehensive Loss, its Unaudited Condensed Consolidated Balance Sheets, and its Unaudited Condensed Consolidated Statements of Cash Flows for the six months period ending June 30, 2021.

Figure 35
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(unaudited)

	Six Months Ended June 30,	
	2021	2020
Revenue	$ -	$ -
Operating expenses:		
Research and development	5,163,267	3,315,691
General and administrative	2,789,701	1,775,129
Total operating expenses	7,952,968	5,090,820
Operating loss	(7,952,968)	(5,090,820)
Other (income)/expenses:		
Other income	(362,003)	–
Interest expense	66,334	265,180
Foreign exchange (gain) loss	(12,480)	20,729
Net loss	(7,644,819)	(5,376,729)
Other comprehensive loss:		
Foreign currency translation adjustments	(72,434)	(45,465)
Comprehensive loss	$ (7,717,253)	$ (5,422,194)
Net loss per share, basic and diluted	$ (0.36)	$ (0.36)
Weighted-average common shares outstanding, basic and diluted	21,053,937	14,979,018

Source: Emerald Health Pharmaceuticals Inc.

Figure 36
CONDENSED CONSOLIDATED BALANCE SHEETS
(unaudited)

	June 30, 2021	December 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 20,961,625	$ 17,036,840
Restricted cash	98,715	2,752,890
Incentive and other tax receivables	691,577	513,953
Other current assets	1,142,101	694,445
Total current assets	22,894,018	20,998,128
Property and equipment, net	25,565	35,068
Other noncurrent assets	57,591	59,136
Total assets	$ 22,977,174	$ 21,092,332
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 589,771	$ 428,304
Accrued expenses	2,151,820	2,343,139
Deposits held in escrow	98,715	2,752,890
Accrued interest payable	–	97,531
Related party loan	–	2,819,771
Total current liabilities	2,840,306	8,441,635
Loans payable	–	292,152
Total liabilities	2,840,306	8,733,787
Stockholders' equity:		
Common stock, $0.0001 par value, 100,000,000 shares authorized; 22,134,281 shares issued and 22,059,281 shares outstanding at June 30, 2021; 19,585,029 shares issued and 19,510,029 shares outstanding at December 31, 2020	2,213	1,959
Additional paid-in-capital	68,143,793	52,648,471
Accumulated other comprehensive loss	(255,603)	(183,169)
Accumulated deficit	(47,753,527)	(40,108,708)
Treasury stock, at cost (common stock: 75,000 at June 30, 2021 and December 31, 2020)	(8)	(8)
Total stockholders' equity	20,136,868	12,358,545
Total liabilities and stockholders' equity	$ 22,977,174	$ 21,092,332

Source: Emerald Health Pharmaceuticals Inc.

Figure 37
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

	Six Months Ended June 30,	
	2021	2020
Operating activities		
Net loss	$ (7,644,819)	$ (5,376,729)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	9,503	13,211
Stock-based compensation	1,860,517	910,048
Gain on forgiveness of PPP Loan and accrued interest payable	(294,603)	–
Changes in operating assets and liabilities:		
Incentive and other tax receivables	(177,624)	1,148,697
Other current assets	(447,656)	(333,376)
Other noncurrent assets	1,545	–
Accounts payable	256,500	(1,110,677)
Accrued expenses	(190,333)	8,505
Accrued interest payable	(95,080)	(138,003)
Net cash used in operating activities	(6,722,050)	(4,878,324)
Investing activities		
Net cash used in investing activities	–	–
Financing activities		
Issuance of common stock	13,852,511	8,361,756
Deposits held in escrow	(2,654,175)	1,203,617
Funds received under loans payable	–	1,087,373
Funds repaid under loans payable	–	(795,221)
Funds repaid under related party loan	(2,319,771)	–
Stock issuance costs	(813,471)	(401,947)
Net cash provided by financing activities	8,065,094	9,455,578
Effect of exchange rate changes on cash	(72,434)	(45,465)
Net increase in cash, cash equivalents, and restricted cash	1,270,610	4,531,789
Cash, cash equivalents, and restricted cash at beginning of period	19,789,730	983,261
Cash, cash equivalents, and restricted cash at end of period	$ 21,060,340	$ 5,515,050
Supplemental disclosure of cash flow information:		
Interest paid to related party	$ 161,415	$ 350,000
Interest paid on loans payable $ - $ 42,597	$ -	$ 42,597
Non-cash investing and financing activities:		
Conversion of related party loan to common stock	$ 500,000	$ -
Gain on forgiveness of PPP loan and accrued interest payable	$ 294,603	$ -
Deferred stock issuance costs in accounts payable and accrued expenses	$ -	$ 60,194

Source: Emerald Health Pharmaceuticals Inc.

Risks and Disclosures

This Executive Informational Overview® (EIO) has been prepared by Emerald Health Pharmaceuticals Inc. ("EHP" or "the Company") with the assistance of Crystal Research Associates, LLC ("CRA") based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this EIO relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in EHP's statements on its financial and other reports filed from time to time.

The content of this report with respect to EHP has been compiled primarily from information available to the public released by the Company through news releases, presentations, Annual Reports, and other filings. EHP is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by EHP or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of thirty nine thousand five hundred U.S. dollars and five thousand shares of Company stock for its services in creating this report and for updates.

Investors should carefully consider the risks and information about EHP's business. Investors should not interpret the order in which considerations are presented in this or other filings as an indication of their relative importance. In addition, the risks and uncertainties overviewed herein are not the only risks that the Company faces. Additional risks and uncertainties not presently known to EHP or that it currently believes to be immaterial may also adversely affect the Company's business. If any of such risks and uncertainties develops into an actual event, EHP's business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company's shares could decline.

This report is published solely for informational purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. Additional information about EHP, as well as copies of this report, can be obtained in either a paper or electronic format by calling (858) 352-0622.

RISKS RELATED TO EHP'S BUSINESS AND INDUSTRY

EHP is largely dependent on the success of its product candidates, EHP-101 and EHP-102, which are in clinical and preclinical development, respectively, and will require the effective execution of the Company's business plan, significant capital resources, and years of clinical development effort.

EHP currently has no products on the market. The Company's most advanced product candidate, EHP-101, completed a Phase I clinical trial in September 2019, and its second product candidate, EHP-102, is in preclinical development. EHP's business plan depends almost entirely on the successful preclinical and clinical development, regulatory approval, and commercialization of EHP-101 and EHP-102, and substantial clinical development and regulatory approval efforts will be required before the Company is permitted to commence commercialization, if ever. It could be several years before EHP can complete a pivotal study for EHP-101 or EHP-102, if ever. The clinical trials and manufacturing and marketing of EHP-101 and EHP-102 will be subject to extensive and rigorous review and regulation by numerous government authorities in the U.S., Australia, New Zealand, the European Union (EU), Canada, and other jurisdictions where the Company intends to perform studies and, if approved, market its product candidates.

Before obtaining regulatory approvals for the commercial sale of any product candidate, EHP must demonstrate through preclinical testing and clinical trials that its product candidates are safe and effective for use in each target indication, and potentially in specific patient populations. This process can take many years and may include post-marketing studies and surveillance, which would require the expenditure of substantial resources beyond existing

funds. Of the large number of drugs in development for approval in the U.S. and the EU, only a small percentage successfully complete the U.S. Food and Drug Administration (FDA) regulatory approval process or are granted a marketing authorization by the European Medicines Agency (EMA) or the other competent authorities in the EU Member States, as applicable, and are commercialized. Accordingly, even if EHP is able to obtain the requisite financing to continue to fund its research, development, and clinical programs, it cannot guarantee that any of its product candidates will be successfully developed or commercialized.

Because the results of efficacy and preclinical studies are not necessarily predictive of future results, EHP-101 and EHP-102 may not have favorable results in the Company's planned clinical trials.

Any positive results from efficacy in preclinical testing of EHP-101 and EHP-102 may not necessarily be predictive of the results from the Company's current and planned clinical trials. In addition, EHP's interpretation of clinical data or its conclusions based on the preclinical *in vitro* and *in vivo* models may prove inaccurate. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in clinical trials after achieving positive results in preclinical development, and EHP cannot be certain that it will not face similar setbacks. Moreover, preclinical data can be susceptible to varying interpretations and analyses, and many companies that believed their product candidates performed satisfactorily in preclinical studies nonetheless failed to obtain FDA approval or a marketing authorization granted by the EMA. If EHP fails to produce positive results in its planned clinical trials of EHP-101 and EHP-102, the development timeline and regulatory approval and commercialization prospects for EHP-101 and EHP-102, and, correspondingly, the Company's business and financial prospects, would be materially adversely affected.

Failures or delays in the Company's planned clinical trials of EHP-101 or EHP-102 could result in increased costs and could delay, prevent, or limit EHP's ability to generate revenue and continue its business.

EHP-101 has completed a Phase I clinical study and is currently initiating a Phase II clinical study and EHP-102 is advancing through preclinical development. Successful completion of preclinical studies and clinical trials is a prerequisite to submitting a new drug application (NDA) to the FDA or a marketing authorization application (MAA) to the EMA, which are required for approval for commercialization. Clinical trials are expensive, difficult to design and implement, can take many years to complete and are uncertain as to outcome. A product candidate can unexpectedly fail at any stage of clinical development. The historic failure rate for product candidates is high due to many factors, including scientific feasibility, findings related to safety and efficacy, changing regulatory standards, and standards of medical care and other variables. EHP does not know whether its clinical trials will begin or be completed on schedule, if at all, as the commencement and completion of clinical trials can be delayed or prevented for a number of reasons.

In addition, a clinical trial may be suspended or terminated by EHP, the FDA, an Institutional Review Board (IRB), an ethics committee, a data safety monitoring board or other foreign regulatory authorities overseeing the clinical trial at issue due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements; safety issues, including any issues that could be identified in EHP's ongoing toxicology and mutagenicity studies; adverse side effects or lack of effectiveness; and changes in government regulations or administrative actions.

If the Company's clinical trials fail or are delayed for any of the above reasons, its development costs may increase, the approval process could be delayed and EHP's ability to commercialize its product candidates could be materially harmed, which could have a material adverse effect on its business, financial condition, or results of operations.

The regulatory approval processes of the FDA, the EMA, and other comparable domestic and foreign regulatory authorities are lengthy, time-consuming, and inherently unpredictable, and if EHP is ultimately unable to obtain timely regulatory approval for its product candidates, its business will be substantially harmed.

EHP is not permitted to market its product candidates in the U.S. or the EU until it receives approval of an NDA from the FDA or an MAA from the EMA, or in any foreign countries until it receives the requisite approval from such countries. Prior to submitting an NDA to the FDA or an MAA to the EMA for approval of its product candidates, the Company will need to complete preclinical studies and initiate and complete multiple clinical trials. Successfully completing the clinical program and obtaining approval of an NDA or MAA is a complex, lengthy, expensive, and uncertain process, and the FDA or EMA may delay, limit, or deny approval of the Company's product candidates for many reasons, including, among others, an inability to demonstrate that the Company's product candidates are safe and effective in treating patients; the results of EHP's clinical trials may not meet the level of statistical or clinical significance required by the FDA, EMA, or other applicable foreign regulatory agencies for marketing approval; or the FDA, EMA, or other applicable foreign regulatory agencies may disagree with the Company's interpretation of data from its preclinical studies and clinical trials.

Any of these factors, many of which are beyond the Company's control, could increase development costs, jeopardize its ability to obtain regulatory approval for and successfully market EHP-101 or EHP-102, and generate product revenue. Moreover, because EHP's business is almost entirely dependent upon these two candidates, any such setback would have a material adverse effect on its business and prospects.

EHP has conducted a Phase I clinical trial for EHP-101 outside the U.S., is initiating a Phase IIa clinical trial for EHP-101 inside and outside the U.S., and the Company may choose to conduct additional clinical trials for EHP-101 and EHP-102 outside the U.S., where the FDA may not accept data from such trials.

EHP completed a Phase I clinical trial for EHP-101 in Australia and it is initiating a Phase IIa clinical trial for EHP-101 in Australia, New Zealand, and the U.S., and it may choose to conduct additional clinical trials for EHP-101 and EHP-102 in countries outside the U.S., including Australia and New Zealand, subject to applicable regulatory approval. The Company plans to submit NDAs for EHP-101 and EHP-102 to the FDA upon completion of all requisite clinical trials. Although the FDA may accept data from clinical trials conducted outside the U.S., acceptance of such study data by the FDA is subject to certain conditions. For example, the clinical trial must be conducted in accordance with Good Clinical Practice (GCP) requirements and the FDA must be able to validate the data from the clinical trial through an onsite inspection if it deems such inspection necessary. There can be no assurance the FDA will accept data from clinical trials conducted outside of the U.S. If the FDA does not accept any such data, it would likely result in the need for additional clinical trials, which would be costly and time-consuming and delay aspects of the development plan.

EHP-101 and EHP-102 may be subject to controlled substance laws and regulations. Failure to receive necessary approvals may delay the launch of the Company's products and failure to comply with these laws and regulations may adversely affect the results of EHP's business operations.

Under the Controlled Substances Act (CSA), both CBD and CBG, derived from certain parts of the cannabis plant, fall into drug code 7350 and are considered controlled substances that are illegal under the CSA. The DEA's current position is that materials or products that consist solely of parts of the cannabis plant excluded from the CSA definition of marijuana are excluded from the 7350 (marijuana) or 7360 (marijuana) drug codes.

EHP-101 and EHP-102 are NCEs, which are not parts of the cannabis plant. They are synthetically manufactured derivatives of CBD and CBG. Even though EHP's NCEs are not part of the cannabis plant, and therefore should not fall into the 7350-drug code, certain of these synthetically manufactured derivatives (though not all) may still be considered controlled substances under the CSA because they are derived from CBD and CBG molecules.

The Company sought a decision from the U.S. DEA regarding the controlled substance status of the API in EHP's lead product candidate (EHP-101) and in March 2019, received a decision from the DEA that the EHP-101 active ingredient (VCE-004.8) is not a controlled substance. EHP has also received the same decision from the UK Home Office and Canada's Controlled Substances Directorate. Once EHP advances its second product candidate (EHP-102) further in development, it will request a similar decision from the DEA, and other countries, for this product candidate.

If any of EHP's molecules are considered to be controlled substances because they were derived from cannabinoid molecules, research sites conducting clinical trial activities may be required to submit a research protocol to the DEA and obtain and maintain DEA researcher registration that will allow those sites to handle and dispense the product candidates, manufacturing facilities may require controlled substance certification for handling and dispensing the molecules and drug products, and limitations may be put on transportation of the controlled substances, especially across international borders.

Even if EHP is able to commercialize EHP-101 or EHP-102, the products may not receive coverage and adequate reimbursement from third-party payors, which could harm the Company's business.

The availability of reimbursement by governmental and private payors is essential for most patients to be able to afford expensive treatments. Sales of the Company's product candidates, if approved, will depend substantially on the extent to which the costs of these product candidates will be paid by health maintenance, managed care, pharmacy benefit, and similar healthcare management organizations, or reimbursed by government health administration authorities, private health coverage insurers, and other third-party payors. If reimbursement is not available, or is available only to limited levels, the Company may not be able to successfully commercialize EHP-101 or EHP-102. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow EHP to establish or maintain pricing sufficient to realize a sufficient return on its investment.

Outside the U.S., particularly in EU Member States, the pricing of prescription drugs is subject to governmental control. In these countries, pricing negotiations or the successful completion of Health Technology Assessment (HTA) procedures with governmental authorities can take considerable time after receipt of marketing authorization for a product. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic, and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. If reimbursement of any product candidate approved for marketing is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, EHP's business, financial condition, results of operations, or prospects could be adversely affected.

The Company's product candidates, if approved, may be unable to achieve broad market acceptance and, consequently, limit its ability to generate revenue and profits from new products.

Even when product development is successful and regulatory approval has been obtained, EHP's ability to generate significant revenue and profits depends on the acceptance of its products by physicians and patients. The market acceptance of any product depends on a number of factors, including but not limited to awareness of a product's availability and benefits, the indication statement and warnings approved by regulatory authorities in the product label, continued demonstration of efficacy and safety in commercial use, perceptions by members of the healthcare community, including physicians, about the safety and effectiveness of the Company's drugs, physicians' willingness to prescribe the product, reimbursement from third-party payors, such as government healthcare systems and insurance companies, the price of the product, pharmacological benefit and cost-effectiveness of the products relative to competing products; competition, and the effectiveness of marketing and distribution efforts. Any factors preventing or limiting the market acceptance of the Company's product candidates could have a material adverse effect on its business, results of operations, and financial condition.

If EHP receives regulatory approvals, it intends to market EHP-101 and EHP-102 in multiple jurisdictions where it has limited or no operating experience and may be subject to increased business and economic risks that could affect the financial results.

EHP plans to market EHP-101 and EHP-102 in jurisdictions where it has limited or no experience in marketing, developing, and distributing products. Certain markets have substantial legal and regulatory complexities that the Company may not have experience navigating. EHP is subject to a variety of risks inherent in doing business internationally, including risks related to the legal and regulatory environment in non-U.S. jurisdictions, including with respect to privacy and data security, trade control laws and unexpected changes in laws, regulatory requirements, and enforcement, as well as risks related to fluctuations in currency exchange rates and political, social and economic instability in foreign countries. If EHP is unable to manage its international operations successfully, its financial results could be adversely affected. In addition, controlled substance legislation may differ in other jurisdictions and could restrict the Company's ability to market its products internationally. Most countries are parties to the Single Convention on Narcotic Drugs 1961, which governs international trade and domestic control of narcotic substances, including cannabis extracts. Countries may interpret and implement their treaty obligations in a way that creates a legal obstacle to obtaining marketing approval for EHP-101 or EHP-102. These countries may not be willing or able to amend or modify their laws and regulations to permit EHP-101 or EHP-102 to be marketed or achieving such amendments to the laws and regulations may take a prolonged period of time. The Company would be unable to market EHP-101 or EHP-102 in countries with such obstacles in the near future or perhaps at all without modification to laws and regulations.

Any inability to attract and retain qualified key management and technical personnel would impair the Company's ability to implement its business plan.

EHP's success largely depends on the continued service of key management and other specialized personnel. The loss of one or more members of its management team or other key employees or consultants could delay the research and development programs and materially harm its business, financial condition, results of operations and prospects. The relationships that the Company's team has cultivated within the life sciences industry makes EHP particularly dependent upon their continued employment or services. Because its management team is not obligated to provide it with continued service, they could terminate their employment or services with the Company at any time without penalty, subject to providing any required advance notice. EHP does not maintain key person life insurance policies for any members of its management team. The Company future success and growth will depend in large part on its continued ability to attract and retain other highly qualified scientific, technical and management personnel and consultants, as well as personnel and consultants with expertise in clinical testing, manufacturing, governmental regulation, and commercialization. EHP faces competition for personnel and consultants from other companies, universities, public and private research institutions, government entities, and other organizations.

EHP faces substantial competition, which may result in others discovering, developing, or commercializing products before or more successfully than it does.

The development and commercialization of drugs is highly competitive. EHP competes with a variety of multinational pharmaceutical companies and specialized biotechnology companies, as well as products and processes being developed at universities and other research institutions. The Company's competitors have developed, are developing, or will develop product candidates and processes competitive with EHP's product candidates. Competitive therapeutic treatments include those that have already been approved and accepted by the medical community and any new treatments that may enter the market. EHP believes that a significant number of products are currently available, under development, and may become commercially available in the future, for the treatment of indications for which it may try to develop product candidates. If either of its product candidates, EHP-101 and EHP-102, is approved for the indications EHP is currently pursuing, it will compete with a range of therapeutic treatments that are either in development or currently marketed, as further described in the competition section (pages 47-52).

More established companies may have a competitive advantage over the Company due to their greater size, cash flows, and institutional experience. Compared to EHP, many of its competitors may have significantly greater financial, technical, and human resources. As a result of these factors, competitors may have an advantage in marketing their approved products and may obtain regulatory approval of their product candidates before EHP is able to, which may limit its ability to develop or commercialize product candidates. Competitors may also develop drugs that are safer, more effective, more widely used, and less expensive, and may also be more successful than EHP in manufacturing and marketing their products. These advantages could materially impact the Company's ability to develop and, if approved, commercialize EHP-101 or EHP-102 successfully.

Product liability lawsuits against EHP could cause it to incur substantial liabilities.

The Company's use of EHP-101 and EHP-102 in clinical trials and the sale of EHP-101 and EHP-102, if approved, exposes EHP to the risk of product liability claims. Product liability claims might be brought against the Company by patients, healthcare providers, or others selling or otherwise coming into contact with EHP-101 or EHP-102. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, including as a result of interactions with alcohol or other drugs, negligence, strict liability, and a breach of warranties. Claims could also be asserted under state consumer protection acts. If EHP becomes subject to product liability claims and cannot successfully defend itself against them, it could incur substantial liabilities. In addition, regardless of merit or eventual outcome, product liability claims may result in, among other things, withdrawal of patients from the Company's expected clinical trials; decreased demand for EHP-101 or EHP-102 following marketing approval, if obtained; and damage to the Company's reputation and exposure to adverse publicity.

Business or economic disruptions or global health concerns could seriously harm the Company's development efforts and increase its costs and expenses.

Broad-based business or economic disruptions could adversely affect EHP's ongoing or planned research and development. For example, in December 2019, an outbreak of a novel strain of coronavirus originated in Wuhan, China, and has since spread to a number of other countries, including the U.S. To date, the COVID-19 outbreak has already resulted in extended shutdowns of certain countries around the world. The outbreak has resulted in and may continue to have additional or more extensive travel restrictions, closures, disruptions of businesses or facilities in affected regions around the world, and lead to social, economic, political and/or labor/workforce instability in the affected areas, which may impact EHP, its suppliers' and/or its customers' operations. The impact of the COVID-19 health emergency has also affected the regulatory agencies' ability to monitor and perform routine regulatory reviews and inspections, which may prolong regulatory processes.

Global epidemics and pandemics, such as COVID-19, could also negatively affect the hospitals and clinical sites in which EHP conducts any of its clinical trials, which could have a material adverse effect on its business and results of operation, and financial condition. The Company cannot presently predict the scope and severity of any potential business shutdowns or disruptions, but if it or any of the third parties with whom it engages, including the suppliers, clinical trial sites, regulators, and other third parties with whom it conducts business, were to experience shutdowns or other business disruptions, EHP's ability to conduct business in the manner and on the timelines presently planned could be materially and negatively impacted.

RISKS RELATED TO EHP'S INTELLECTUAL PROPERTY

If EHP is unable to protect its intellectual property rights or if its intellectual property rights are inadequate for its technology and product candidates, the Company's competitive position could be harmed.

EHP's commercial success depends in large part on its ability to obtain and maintain patent and other intellectual property protection in the U.S. and other countries with respect to the Company's proprietary technology and products. EHP relies on trade secret, patent, copyright and trademark laws, and confidentiality and other agreements with employees and third parties, all of which offer only limited protection. The Company seeks to protect its proprietary position by filing and prosecuting patent applications in the U.S. and abroad related to its technologies and products that are important to the business.

The patent positions of biotechnology and pharmaceutical companies generally are highly uncertain, involve complex legal and factual questions, and have in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability, and commercial value of EHP's patents are highly uncertain. The steps the Company has taken to protect its proprietary rights may not be adequate to preclude misappropriation of proprietary information or infringement of its intellectual property rights, both inside and outside the U.S. EHP does not know whether the pending patent applications for any of its product candidates will result in the issuance of any patents that protect its technology or products, or if any of its issued patents will effectively prevent others from commercializing competitive technologies and products. If EHP is unable to obtain and maintain patent protection for its technology and products, or if the scope of the patent protection obtained is not sufficient, competitors could develop and commercialize technology and similar or superior products, and the Company's ability to successfully commercialize its technology and products may be adversely affected.

Protecting against the unauthorized use of EHP's patented technology, trademarks, and other intellectual property rights is expensive, difficult, and may in some cases not be possible. In some cases, it may be difficult or impossible to detect third-party infringement or misappropriation of the Company's intellectual property rights, even in relation to issued patent claims, and proving any such infringement may be even more difficult.

EHP may become subject to claims by third parties asserting that it or its employees have misappropriated their intellectual property or claiming ownership of what the Company regards as its own intellectual property.

EHP's commercial success depends upon its ability to develop, manufacture, market, and sell its product candidates, and to use its related proprietary technologies without violating the intellectual property rights of others. The Company may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to its product candidates, including interference or derivation proceedings before the USPTO. Third parties may assert infringement or post grant invalidation claims against EHP based on existing patents or patents that may be granted in the future. If the Company is found to infringe a third party's intellectual property rights, it could be required to obtain a license from such third party to continue commercializing its product candidates. However, EHP may not be able to obtain any required license on commercially reasonable terms or at all. Under certain circumstances, the Company could be forced, including by court order, to cease commercializing the applicable product candidate. In addition, in any such proceeding or litigation, EHP could be found liable for monetary damages. A finding of infringement could prevent the Company from commercializing its product candidates or force it to cease some of its business operations, which could materially harm its business. Any claims by third parties that EHP has misappropriated their confidential information or trade secrets could have a similar negative impact on its business.

EHP may become involved in lawsuits to protect or enforce its intellectual property, which could be expensive, time consuming, and unsuccessful and have a material adverse effect on the success of its business.

Competitors may infringe on EHP's patents or misappropriate or otherwise violate its intellectual property rights. To counter infringement or unauthorized use, litigation may be necessary in the future to enforce or defend the Company's intellectual property rights, to protect its trade secrets, or to determine the validity and scope of its own intellectual property rights or the proprietary rights of others. Also, third parties may initiate legal proceedings against EHP to challenge the validity or scope of intellectual property rights it owns. These proceedings can be expensive and time consuming. Many of the Company's current and potential competitors have the ability to dedicate substantially greater resources to defend their intellectual property rights than it can. Accordingly, despite EHP's efforts, it may not be able to prevent third parties from infringing upon or misappropriating its intellectual property. Litigation could result in substantial costs and diversion of management resources, which could harm its business and financial results. In addition, in an infringement proceeding, a court may decide that a patent owned by the Company is invalid or unenforceable or may refuse to stop the other party from using the technology at issue on the grounds that EHP's patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of EHP's patents at risk of being invalidated, held unenforceable or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of the Company's confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments.

EHP may not be able to protect its intellectual property rights throughout the world.

Filing, prosecuting, and defending patents on all of the Company's product candidates throughout the world would be prohibitively expensive. Therefore, EHP has filed applications and/or obtained patents only in key markets such as the U.S., EU, Japan, Canada, and selected other countries. Competitors may use EHP's technologies in jurisdictions where it has not obtained patent protection to develop their own products and, further, may be able to export otherwise infringing products to territories where EHP has patent protection but where enforcement is not as strong as that in the U.S. Recent U.S. case law indicates that patent enforcement may not provide enough protection against resale of lower priced drugs in the U.S. made in extraterritorial jurisdictions. These products may compete with the Company's products in jurisdictions where it does not have any issued patents and its patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Patent terms may be inadequate to protect EHP's competitive position on its product candidates for an adequate amount of time.

Given the amount of time required for the development, testing, and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. EHP expects to seek extensions of patent terms in the U.S. and, if available, in other countries where it is prosecuting patents. In the U.S., the Drug Price Competition and Patent Term Restoration Act of 1984 permits a patent term extension of up to five years beyond the normal expiration of the patent, which is limited to the active ingredient and approved indication (or any additional indications approved during the period of extension). However, the applicable authorities, including the FDA and the USPTO, and any equivalent regulatory authorities in other countries, may not agree with the Company's assessment of whether such extensions are available, and may refuse to grant extensions to its patents, or may grant more limited extensions than it requests. If this occurs, the Company's competitors may be able to take advantage of its investment in development and clinical trials by referencing its clinical and preclinical data and launch their product earlier than might otherwise be the case.

RISKS RELATED TO THE COMPANY

EHP has a very limited operating history on which to judge its business prospects and management.

The Company was incorporated on March 2, 2017, and only commenced operations thereafter. Accordingly, it has a very limited operating history upon which to base an evaluation of its business and prospects. Operating results for future periods are subject to numerous uncertainties and EHP cannot guarantee that the Company will achieve or sustain profitability. The Company's prospects must be considered in light of the risks encountered by companies in the early stage of development, particularly companies in new and rapidly evolving markets. Future operating results will depend upon many factors, including the Company's success in attracting and retaining motivated and qualified personnel, its ability to establish short term credit lines or obtain financing from other sources, its ability to develop and market new products, control costs, and general economic conditions. EHP cannot guarantee that the Company will successfully address any of these risks.

EHP's financial situation creates doubt whether it will continue as a going concern.

Since inception, the Company has not generated revenues, has incurred losses, and has an accumulated deficit of $47.8 million as of June 30, 2021. Further, EHP expects to incur a net loss for the fiscal year ending December 31, 2021, and thereafter, primarily as a result of increased operating expenses related to the expected clinical trials. There can be no assurances that EHP will be able to achieve a level of revenues adequate to generate sufficient cash flow from operations or obtain funding or additional financing through private placements, public offerings, and/or bank financing necessary to support the Company's working capital requirements. To the extent that funds generated from any private placements, public offerings, and/or bank financing are insufficient, EHP will have to raise additional working capital. No assurance can be given that additional financing will be available, or if available, will be on acceptable terms. These conditions raise substantial doubt about EHP's ability to continue as a going concern. If adequate working capital is not available, the Company may be forced to discontinue operations, which would cause investors to lose their entire investment.

The Company will need (but may be unable to obtain) additional funding on satisfactory terms, which could dilute its stockholders or impose burdensome financial restrictions on its business.

EHP's significant (former majority) stockholder is Emerald Health Sciences, a private entity focused on building companies advancing the development of cannabis and cannabinoids. EHP has relied upon its significant stockholder and its Regulation A+ offering to finance its operations to date, and in the future, it plans to rely on additional sources to fund all of the cash requirements of its activities. However, there can be no assurance that the Company's current funding sources or activities will continue to finance its operations or that it will be able to generate any significant cash from its operating activities in the future.

Future financings may not be available on a timely basis, in sufficient amounts, or on terms acceptable to the Company, if at all. Any debt financing or other financing of securities senior to the Common Stock will likely include financial and other covenants that will restrict EHP's flexibility. Any failure to comply with these covenants would have a material adverse effect on the Company's business, prospects, financial condition, and results of operations because EHP could lose its existing sources of funding and impair its ability to secure new sources of funding. However, there can be no assurance that the Company will be able to generate any investor interest in its securities. If it does not obtain additional financing, its business will never commence, in which case an investor would likely lose the entire investment.

EHP will incur increased costs as a result of its public reporting obligations, and its management team will be required to devote substantial time to new compliance initiatives.

The Company is currently subject to the periodic reporting requirements of Regulation A for qualified issuers. Particularly after it is no longer an "emerging growth company," EHP will continue to incur significant legal, accounting, and other expenses that it did not incur as a private company. EHP's management and other personnel would need to devote a substantial amount of time to comply with the reporting obligations. Moreover, these reporting obligations will increase EHP's legal and financial compliance costs and will make some activities more time-consuming and costly.

EHP's internal computer systems, or those of its third-party CROs or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of the Company's product candidates' development programs.

Despite the implementation of security measures, the Company's internal computer systems and those of its third-party CROs and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war, and telecommunication and electrical failures. While EHP has not experienced any such system failure, accident, or security breach to date, if such an event were to occur and cause interruptions in its operations, it could result in a material disruption to its programs. For example, the loss of clinical trial data for its product candidates could result in delays in its regulatory approval efforts and significantly increase its costs to recover or reproduce the data. To the extent that any disruption or security breach results in a loss of or damage to its data or applications or other data or applications relating to its technology or product candidates, or inappropriate disclosure of confidential or proprietary information, EHP could incur liabilities and the further development of its product candidates could be delayed. The sharing of important clinical data can raise significant Health Insurance Portability and Accountability Act (HIPAA) privacy and security compliance issues. Also, General Data Protection Regulation (GDPR) severely restricts the sharing of the personal health information related to EU residents or transferring that data outside of the EU. HIPAA and GDPR compliance can increase costs and liabilities as we collect and analyze data.

RISKS RELATED TO EHP'S COMMON STOCK

The Company has a significant stockholder, which may limit the ability of investors to influence corporate matters and may give rise to conflicts of interest.

As of June 30, 2021, Emerald Health Sciences owned approximately 48% of the Company's outstanding Common Stock. Accordingly, Emerald Health Sciences has significant influence over the Company and any action requiring the approval of the holders of its Common Stock, including the election of directors and amendments to organizational documents, such as increases in authorized shares of Common Stock and approval of significant corporate transactions. This concentration of ownership may prevent or discourage unsolicited acquisition proposals or offers for EHP's Common Stock that stockholders may feel are in their best interest. Furthermore, the interests of Emerald Health Sciences may not always coincide with investors' interests or the interests of other stockholders and Emerald Health Sciences may act in a manner that advances its best interests and not necessarily those of other stockholders, including seeking a premium value for its Common Stock, which might affect the prevailing market price for EHP's Common Stock.

EHP will use its best efforts to list its Common Stock for trading on a securities exchange. However, it is uncertain when the Company's Common Stock will be listed on an exchange for trading, if ever.

There is currently no public market for the Company's Common Stock and there can be no assurance that one will ever develop. EHP's Board of Directors, in its sole discretion, may choose to take actions necessary to list the Company's Common Stock on a national securities exchange, but is not obligated to do so. If EHP's Common Stock is not listed on an exchange it may be difficult to sell or trade in shares of its Common Stock.

EHP does not intend to pay dividends on its Common Stock and, consequently, an investor's ability to achieve a return on its investment will depend on appreciation in the price of the Company's Common Stock.

EHP has never declared or paid any cash dividend on its Common Stock and does not currently intend to do so in the near future. The Company currently anticipates that it will retain future earnings for the development, operation, and expansion of its business and does not anticipate declaring or paying any cash dividends in the near future. Therefore, the success of an investment in the Shares will depend upon any future appreciation in their value. There is no guarantee that the Shares will appreciate in value or even maintain their price.

RISKS RELATED TO EHP'S DEPENDENCE ON THIRD PARTIES

EHP relies on third parties—CROs, clinical data management organizations, and consultants—to design and/or conduct its research, preclinical studies, and current and expected clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, the Company may not be able to obtain regulatory approval for or commercialize its product candidates. EHP and its CROs are required to comply with various regulations which are enforced by the FDA and other regulatory agencies, including GCP and Good Laboratory Practices (GLP), and guidelines of the Competent Authorities of Member States of the EEA and comparable foreign regulatory authorities to ensure that the health, safety, and rights of animals and patients are protected in preclinical studies, clinical development, and clinical trials, and that trial data integrity is assured.

EHP's reliance on third parties that it does not control does not relieve it of these responsibilities and requirements. If the Company or any of its CROs fail to comply with applicable requirements, the clinical data generated in the clinical trials may be deemed unreliable and the FDA, the EMA, or other comparable foreign regulatory authorities may require EHP to perform additional clinical trials before approving its marketing applications. The Company cannot guarantee that upon inspection by a given regulatory authority, such regulatory authority will determine that any of its clinical trials comply with such requirements. In addition, the Company's clinical trials must be conducted with products produced under cGMP requirements, which mandate, among other things, the methods, facilities, and controls used in manufacturing, processing, and packaging a drug product to ensure its safety and identity. Failure to comply with these regulations may require EHP to repeat preclinical studies and clinical trials, which would delay the regulatory approval process.

The Company's CROs are not employees, and except for remedies available to EHP under its agreements with such CROs, it cannot control whether they devote sufficient time and resources to the Company's ongoing research, preclinical, and clinical programs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to clinical protocols, regulatory requirements, or for other reasons, EHP's clinical trials may be extended, delayed, or terminated and it may not be able to obtain regulatory approval for or successfully commercialize its product candidates. As a result, the Company's operations and the commercial prospects for its product candidates would be harmed, its costs could increase and its ability to generate revenue could be delayed or reduced. If their facilities are unable to operate because of an accident or incident, even for a short period of time, some or all of its research and development programs may be harmed or delayed, and its operations and financial condition could suffer.

In addition, the use of third-party service providers requires the Company to disclose its proprietary information to these parties, which could increase the risk that this information will be misappropriated. Though EHP carefully manages its relationships with its CROs, there can be no assurance that the Company will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on its business, financial condition, and prospects.

EHP relies on third-party manufacturers and suppliers to produce preclinical and clinical supplies and intend to rely on third-party manufacturers for commercial supplies and final dosage forms for EHP-101 and EHP-102, if approved.

The Company relies on third parties to supply the materials for (and manufacture) its research and development, and preclinical and clinical trial APIs. EHP does not own manufacturing facilities or supply sources for such components and materials. There can be no assurance that its supply of research and development, preclinical, and clinical development drugs and other materials will not be limited, interrupted, restricted in certain geographic regions or of satisfactory quality or continue to be available at acceptable prices. In particular, any replacement of the Company's API manufacturer could require significant effort and expertise because there may be a limited number of qualified manufacturers.

The manufacturing process for EHP's product candidates is subject to review by the FDA, EMA, and other foreign regulatory authorities and potentially the DEA. Suppliers and manufacturers must meet applicable manufacturing requirements and undergo rigorous facility and process validation tests required by regulatory authorities in order to comply with regulatory standards, such as cGMP. In addition, the Company's manufacturers must ensure consistency among batches, including preclinical, clinical and, if approved, commercial batches. Demonstrating such consistency may require typical manufacturing controls as well as clinical data. EHP's manufacturers must also ensure that its batches conform to release specifications.

In the event that any of the Company's suppliers or manufacturers fails to comply with such requirements or to perform its obligations to EHP in relation to quality, timing, or otherwise, or if its supply of components or other materials becomes limited or interrupted for other reasons, the Company may be forced to manufacture the materials itself, for which it currently does not have the capabilities or resources, or enter into an agreement with another third party, which it may not be able to do on reasonable terms, if at all. In some cases, the technical skills or technology required to manufacture EHP's product candidates may be unique or proprietary to the original manufacturer and the Company may have difficulty, or there may be contractual restrictions prohibiting it from transferring such skills or technology to another third party and a feasible alternative may not exist. These factors would increase EHP's reliance on such manufacturer or require it to obtain a license from such manufacturer in order to have another third party manufacture its product candidates. If EHP is required to change manufacturers for any reason, it will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect EHP's ability to develop product candidates in a timely manner or within budget.

EHP expects to continue to rely on third-party manufacturers if it receives regulatory approval for any product candidate. To the extent that it has existing, or enters into future manufacturing arrangements with third parties, EHP will depend on these third parties to perform their obligations in a timely manner consistent with contractual and regulatory requirements, including those related to quality control and assurance. If the Company is unable to obtain or maintain third-party manufacturing for product candidates, or to do so on commercially reasonable terms, it may not be able to develop and commercialize its product candidates successfully.

EHP's third-party manufacturers also may use hazardous materials, including chemicals and compounds that could be dangerous to human health and safety or the environment, and their operations may also produce hazardous waste products. In the event of contamination or injury, the Company's third-party manufacturers could be held liable for damages or be penalized with fines in an amount exceeding their resources, which could result in EHP's clinical trials or regulatory approvals being delayed or suspended.

Glossary

Ajulemic Acid (AjA)—A non-psychoactive synthetic cannabinoid that shows anti-fibrotic and anti-inflammatory effects in preclinical studies without causing a subjective "high."

Amyotrophic Lateral Sclerosis (ALS)—A progressive disease affecting motor neurons in the brain and the spinal cord, which causes progressive weakness, loss of muscle control, and atrophy of muscles. ALS is often called Lou Gehrig's disease.

Angiotensin II—A protein with vasoconstrictive activity that increases blood pressure, stimulates the release of aldosterone, and is the physiologically active form of angiotensin.

B55α/PP2A—One of the major phosphatases regulating cell division, with a role in vascular remodeling and network formation.

Bleomycin (BLM)—An antitumor antibiotic used as a chemotherapy drug to treat various forms of cancer. Bleomycin is also used in research to induce pulmonary fibrosis in mice.

Blood Brain Barrier (BBB)—A naturally occurring barrier created by the modification of brain capillaries that prevents many substances from leaving the blood and crossing the capillary walls into the brain tissues, blocking the passage of harmful substances into the brain. The blood-brain barrier lets some substances, such as water, oxygen, carbon dioxide, and general anesthetics, pass into the brain. It also keeps out bacteria and other substances, such as many anticancer drugs.

Cannabidiol (CBD)—A non-intoxicating cannabinoid found in the cannabis plant. CBD is the second-most abundant cannabinoid in the plant after tetrahydrocannabinol (THC). It has many potential therapeutic benefits, including anti-inflammatory, analgesic, anti-anxiety, and seizure-suppressant properties.

Cannabigerol (CBG)—A non-intoxicating cannabinoid found in the cannabis plant. CBG has many potential therapeutic benefits, including antibacterial, antimicrobial, and anti-inflammatory qualities. Interest in CBG is on the rise due to its non-psychoactive properties and pharmacological potential.

Cannabinoids—Naturally occurring plant-derived chemical compounds found in the Cannabis sativa plant. At least 120 distinct cannabinoids have been isolated from cannabis. Cannabinoids affect the body by binding with specific receptors located throughout the body. Different cannabinoids have different effects depending on which receptors they bind to.

Cannabinoid Type 2 Receptor (CB2)—An essential component of the body's endocannabinoid system (ECS). CB2 is expressed primarily in the immune system and immune cells that travel throughout the body and plays an important role in fighting inflammation.

Cerebral Ischemia Reperfusion—The tissue damage caused when blood supply returns to tissue after a period of ischemia or lack of oxygen (anoxia or hypoxia). The absence of oxygen and nutrients from blood during the ischemic period creates a condition in which the restoration of circulation results in inflammation and oxidative damage.

Chicken ovalbumin upstream promoter transcription factor-interacting protein (Ctip2)—Regulatory proteins with a multiplicity of functions expressed in specific regions of the CNS. Ctip2 is a fundamental transcription factor in fetal development, with important roles for the differentiation and development of various neuronal subtypes. Ctip2 has been implicated in a number of disease states including HD, Alzheimer's disease, HIV, and T-Cell malignancy, amongst others.

Demyelination—Damage caused to myelin by recurrent attacks of inflammation. Demyelination ultimately results in nervous system scars, called plaques, which interrupt communications between the nerves and the rest of the body.

Delta-9-tetrahydrocannabinol (THC)—A crystalline compound that is the most prevalent cannabinoid in cannabis and the principal psychoactive constituent of the plant. THC binds with the cannabinoid 1 (CB1) receptors in the brain and produces a high or sense of euphoria.

Diffuse Cutaneous Systemic Sclerosis (dcSSc)—A subtype of Systemic Sclerosis (SSc) in which the fibrosis affects large areas of skin, including the torso and the upper arms and legs, and often involves internal organs. In patients with dcSSc, the condition worsens quickly and organ damage occurs earlier than in other types of SSc.

Dopamine—A compound present in the body as a neurotransmitter and a precursor of other substances, including epinephrine that plays several important roles in the brain and body.

Endocannabinoid System (ECS)—A complex cell-signaling biological system identified in the early 1990s and composed of three core components: endocannabinoids, receptors, and enzymes. The endocannabinoid system remains under preliminary research, but studies revealed it may be involved in regulating a broad range of physiological and cognitive processes, including pain, stress, appetite, energy, metabolism, inflammation, cardiovascular function, learning and memory, reproduction and fertility, muscle formation, bone remodeling and growth, liver function, and sleep. These functions all contribute to homeostasis, which refers to stability of the body's internal environment.

Extracellular signal-regulated kinases 1 and 2 (ERK1/2) pathway —A chain of proteins in the cell that communicates a signal from a receptor on the surface of the cell to the DNA in the nucleus of the cell. The signaling pathway plays an important role in delivering extracellular signals from a diverse range of stimuli to the nucleus of the cell, eliciting an appropriate physiological response, including cellular proliferation, differentiation, development, inflammatory responses, and apoptosis.

Fast Track designation—An FDA status reserved for products that demonstrate the potential to treat a serious or life-threatening condition and demonstrate the potential to address unmet medical needs for that condition. Fast track designation, which was mandated by the FDA Modernization Act of 1997, can potentially facilitate development and expedite the review of Biologics License Applications (BLAs).

Friedreich's Ataxia—A genetic disorder that affects some of the body's nerves. Symptoms often begin in late childhood and can include trouble walking, fatigue, changes in sensation, and slowed speech.

Huntington's Disease (HD)—A progressive hereditary disease that causes the progressive breakdown (degeneration) of nerve cells in the brain, resulting in movement, thinking (cognitive), and psychiatric disorders. HD is characterized by jerky involuntary movements and mental deterioration, leading to dementia.

Hypoxia Inducible Factor (HIF) pathway—A protein complex that plays an integral role in the body's response to low oxygen concentrations, or hypoxia. HIF is among the primary genes involved in the homeostatic process, which can increase vascularization in hypoxic areas, such as localized ischemia and tumors. HIF is also essential for immunological responses and is a crucial physiological regulator of homeostasis, vascularization, and anaerobic metabolism. The HIF pathway is being studied as a therapeutic target for its role in certain illnesses, including anemia, inflammatory conditions, cancer, and neurological disorders.

Levodopa—A prodrug that is a precursor of dopamine and can cross the blood-brain barrier (BBB). When in the brain, levodopa is converted into dopamine, thereby compensating for the depleted supply of endogenous dopamine seen in PD.

Macrophage—A type of white blood cell that engulfs and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells.

Mast Cell—A type of white blood cell that is found in connective tissues all throughout the body, especially under the skin, near blood vessels and lymph vessels, in nerves, and in the lungs and intestines.

Multiple Sclerosis (MS)—A chronic autoimmune disease of the CNS in which gradual destruction of myelin occurs in patches throughout the brain or spinal cord or both, interfering with the nerve pathways and causing muscular weakness, loss of coordination, and speech and visual disturbances.

Mutant Huntingtin (mHTT)—A protein coded by the HTT gene, found in many of the body's tissues, with the highest levels of activity in the brain. Although the exact function of this protein is unknown, it appears to play an important role in nerve cells (neurons). The inherited mutation in the HTT gene, resulting in mutated huntingtin (mHTT), is the cause of HD and has been investigated for this role and also for its involvement in long-term memory storage.

Myelin—A fatty covering insulating nerve cell fibers in the brain and spinal cord, myelin facilitates the smooth, high-speed transmission of electrochemical messages between these components of the central nervous system and the rest of the body. In MS, myelin is damaged through a process known as demyelination, which results in distorted or blocked signals.

Myofibroblast—An atypical fibroblast (a cell in connective tissue which produces collagen and other fibers and helps maintain a structural framework for many tissues and plays an important role in healing wounds) that combines the ultrastructural features of a fibroblast and a smooth muscle cell. Fibroblast to myofibroblast differentiation is a key process during wound healing and is dysregulated in lung diseases. Myofibroblasts are also involved in fibrosis.

New Chemical Entities (NCEs)—Patented pharmaceutical compounds that may be produced only by the patent holder or any company authorized for their production or usage.

Orphan Drug Status—Designation given to either a rare disease that affects fewer than 200,000 people, or a common disease that has been ignored because it is less prominent in the U.S., compared with developing nations. According to the NIH, there are approximately 6,000 of these diseases.

Parkinson's Disease (PD)—A chronic progressive nervous disease that is linked to decreased dopamine production in the substantia nigra and is marked by tremor and weakness of resting muscles and by a shuffling gait.

Peroxisome Proliferator-Activated Receptor Gamma (PPARγ)—In the field of molecular biology, the peroxisome proliferator-activated receptors (PPAR) are a group of nuclear receptor proteins that function as transcription factors regulating the expression of genes. PPAR plays a major regulatory role in energy homeostasis and metabolic function. PPAR gamma (PPARγ), in particular, regulates fatty acid storage and glucose metabolism and has been found to decrease the inflammatory response. PPARγ has been implicated in the pathology of numerous diseases, including obesity, diabetes, atherosclerosis, cancer, and inflammatory conditions.

Scleroderma—A connective tissue disorder characterized by tightening of the skin of the arms, face or hands, puffy hands and feet, and joint stiffness and pain.

Striatal—Of or relating to the striatum.

Striatal Medium Spiny Neurons (MSN)—Medium-sized neurons representing 95% of neurons within the human striatum, a striped mass of white and grey matter in the brain which controls movement and balance.

Striatum—A striped mass of white and grey matter in the brain which controls movement and balance.

Synthetic—A compound or substance made artificially by chemical reactions, especially to imitate a natural product.

Systemic Sclerosis (SSc)—An autoimmune, chronic disease that is marked by hardening and thickening of skin, connective tissue, joints, blood vessels, and organs (especially the esophagus, lower gastrointestinal tract, lungs, heart, and kidneys). Also called systemic scleroderma.

Vasculogenesis—The process of blood vessel formation in the embryo and the first stage of the formation of the vascular network.

About Our Firm: For the past two decades, Crystal Research Associates, LLC has successfully articulated the exceptional stories of small- and mid-cap companies to the Wall Street investor community. Our methods are well-established and diverse, from compiling and disseminating objective, factual information for both institutional and retail investor audiences to capitalizing on our expansive line of targeted distribution channels, which include industry-leading financial data and information providers. Our distribution efforts are accompanied by the use of prominent social media channels and by strategic and targeted appearances on national news programs and print media.

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