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Lexaria BIOSCIENCE

Drug Delivery Platform Innovator
With Multiple Mainstream Applications

Investor Presentation
Q1 2024

Lexaria Bioscience Corp.
NASDAQ:LEXX | NASDAQ:LEXXW

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No statement within has been evaluated by the Food and Drug Administration, and no product or service is yet commercially approved and intended to diagnose, treat, cure or prevent any disease.

Table of Contents

Lexaria's Drug Delivery Platform Technology 01

Lexaria's Drug Delivery Platform Technology - DehydraTECH

Lexaria's **DehydraTECH:**

- is a **versatile drug delivery platform technology** that provides a more predictable time of delivery of Active Pharmaceutical Ingredients ("APIs") into the **bloodstream** and into **brain tissue**;
- **enhances** the **pharmacokinetic performance** of APIs, **increasing** bioavailability, **improving** speed of onset and **increasing** brain absorption;
- has **multiple ℞ applications** in hypertension, diabetes and weight loss and others;
- can be applied to **topicals** and **multiple oral/intraoral product formats** such as tablets, capsules, oral suspensions, mouth-melts and others;
- focused on commercialization through **partnerships** and **licensing**
- has been awarded **39 patents granted** and many more pending around the world for use with a broad range of bioactive molecules

Upcoming 2024 Catalysts:

Hypertension:

- FDA Investigational New Drug opening study HYPER-H23-1

GLP-1 (Diabetes/Weight Loss):

- Human Pilot Study #2
- Animal Study WEIGHT-A24-1
- Human Pilot Study #3
- Chronic Dosing Human Study
- Long Term Stability Study

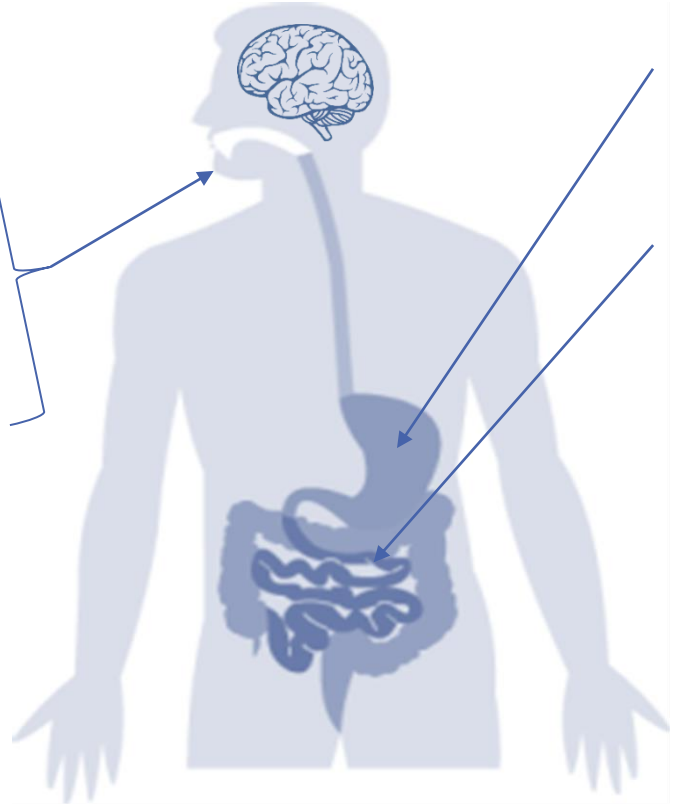
DehydraTECH Proposed Mechanism of Action

Dissolvable Orals

LCFAs are believed to block and shunt associated APIs away from bitter taste receptors for APIs that need flavor masking(1)

LCFAs influence permeability in the oral cavity(2) (i.e., sublingually and/or buccally)

Adjunct ingredients are added to enhance oral cavity permeability performance



Ingestible Solid Orals / Liquids

LCFAs influence gastric cholecystokinin production and motility(4)

Small intestine quickly absorbs LCFA-associated APIs into the bloodstream via the lymphatics bypassing first pass liver effect(5)

Adjunct ingredients added to enhance stomach or small intestine uptake depending on desired site of absorption

Enhanced brain absorption

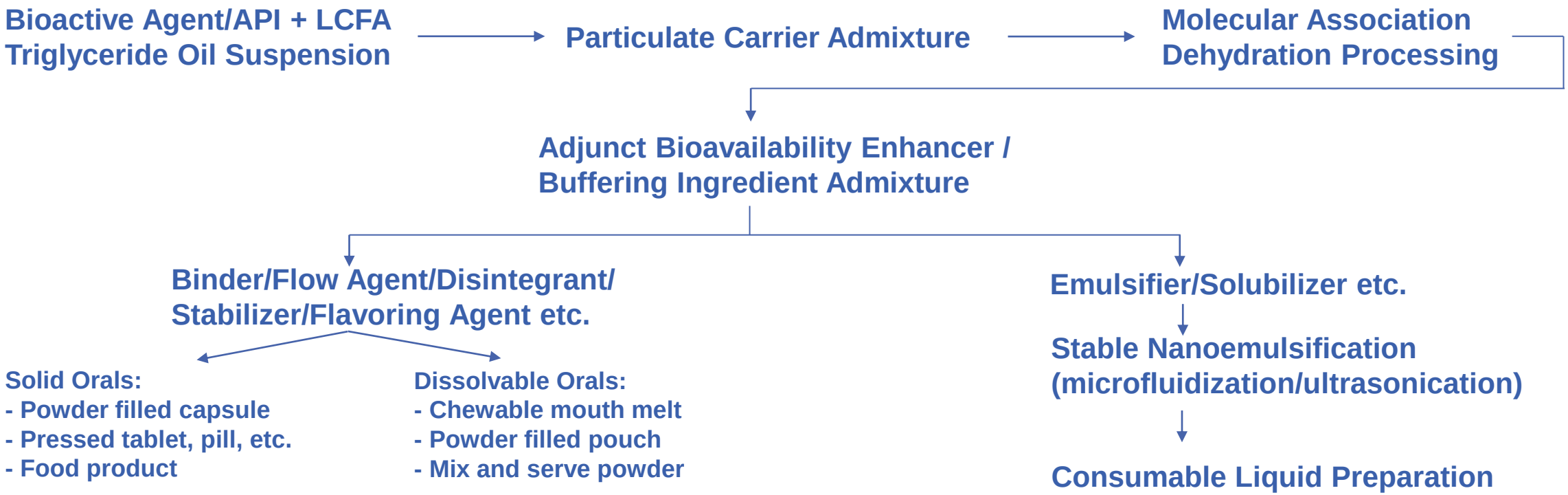
Once absorbed systemically through dissolvable or solid oral form factors, LCFA-associated APIs are believed to enter brain preferentially through fatty acid transport proteins(3)

LCFA = Long Chain Fatty Acid

(1) Coupland & Hayes (2014). Pharm Res. Nov 31(11); 2921-2939 (2) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6321376/ (3) https://onlinelibrary.wiley.com/doi/10.1111/j.1471-4159.2011.07245.x (4) https://www.gastrojournal.org/article/S0016-5085(99)70227-1/fulltext#back-bib2 (5) Based on dynamic light scattering particle size evaluation studies conducted by Canada's National Research Council as announced July 16, 2020 / https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3202979/pdf/nihms330214.pdf" .

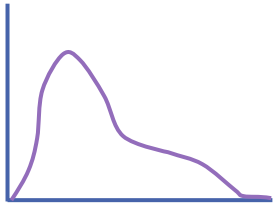
DehydraTECH Drug Delivery Technology Overview

✓ Speeds onset ✓ Increases bioavailability ✓ Improves potency/effectiveness/palatability/tolerability



LCFA = Long Chain Fatty Acid
API = Active Pharmaceutical Ingredient

DehydraTECH - Patented Technology Potential Benefits

Masks unwanted taste (1)	Improves speed of onset	Increases bioavailability	Increases brain absorption	Reduces Drug Administration Costs
				
Eliminates the need for sugar-filled edibles	Effects are felt in minutes(2)	Much more effective at delivering drug into bloodstream(3)	Testing suggests up to 17x improvement(4)	Higher ratio of drug delivery expected to lower overall drug costs

Patented drug delivery technology improves oral administration of Active Pharmaceutical Ingredients

(1) Based on subjective clinical testing in 29 human volunteers with CBD, THC and nicotine formulations and hundreds of thousands of commercial product servings of CBD and THC formulations by Lexaria's licensing partners.
(2) Based on subjective clinical testing in 82 human volunteers with CBD, THC and nicotine formulations and hundreds of thousands of commercial product servings of CBD and THC formulations by Lexaria's licensing partners.
(3) Based on objective clinical testing in 13 human volunteers with CBD formulations, and in vivo animal testing in 316 rodents with CBD and nicotine formulations
(4) https://ir.lexariabioscience.com/news-events/press-releases/detail/128/lexaria-issues-successful-results-from-first-2021-study

Commercial Opportunities

- Lexaria management and directors have extensive experience in building relationships with "**Fortune 500**" companies
- Actively developing **lead product pipeline candidates** in the areas of:
    - **Hypertension** and potentially heart disease
    - **GLP-1 drugs**/diabetes and weight loss
- Lexaria is currently engaged with other companies, exploring opportunities with their specific APIs of interest
- **Lexaria out-licenses its technology** in exchange for **up-front fees, milestone payments** and/or **royalty payments**
- **Lexaria** is **generating revenues** now through the manufacture of corporate customer specified **DehydraTECH** formulations

DehydraTECH Pipeline and Market Investigations 02

DehydraTECH Pipeline

Identification	Modality	Therapeutic / Commercial Use	Potential Indication(s)	Status: Formulation --> Animal PK --> *in vitro* / Animal PD --> Human POC --> Registered Trials
DehydraTECH-CBD	**Small Molecule**	**Cardiovascular**	**St. 1/2 Hypertension***	
DehydraTECH-Nicotine	Small Molecule	Nicotine Replacement	N/A	
DehydraTECH-GLP-1	**Peptide**	**Metabolic Disorders**	**Diabetes / Weight Loss Management**	
DehydraTECH-CBD	**Small Molecule**	**Metabolic Disorders**	**Diabetes / Weight Loss Management**	
DehydraTECH-CBD	Small Molecule	Neurology	Seizure Disorders	
DehydraTECH-Antiviral	Small Molecule	Antiviral	HIV/Covid-19/etc.	
DehydraTECH-PDE5	Small Molecule	Cardiovascular	Erectile Dysfunction	
DehydraTECH-Estradiol	Small Molecule	Hormone Therapy	HRT and Menopause	

2024 Objectives (red):
- HYPER-H23-1 Phase Ib IND Authorization and Execution**
- Comprehensive series of animal and human acute and chronic dosing GLP-1 PK/PD/POC studies**

Bold black line items signify active 2024 programs

PK = Pharmacokinetic
PD = Pharmacodynamic
POC = Proof of Concept
CBD = Cannabidiol
CPG = Consumer Packaged Good product

GLP-1 = Glucagon-Like Peptide 1 Agonists
PDE5 = Phosphodiesterase 5
HIV = Human Immunodeficiency Virus
HRT = Hormone Replacement Therapy
*For the treatment of stage 1 or stage 2 hypertensive patients not adequately managed with existing treatments
** Pending Additional Funding

Market Value of 2024 DehydraTECH Investigations

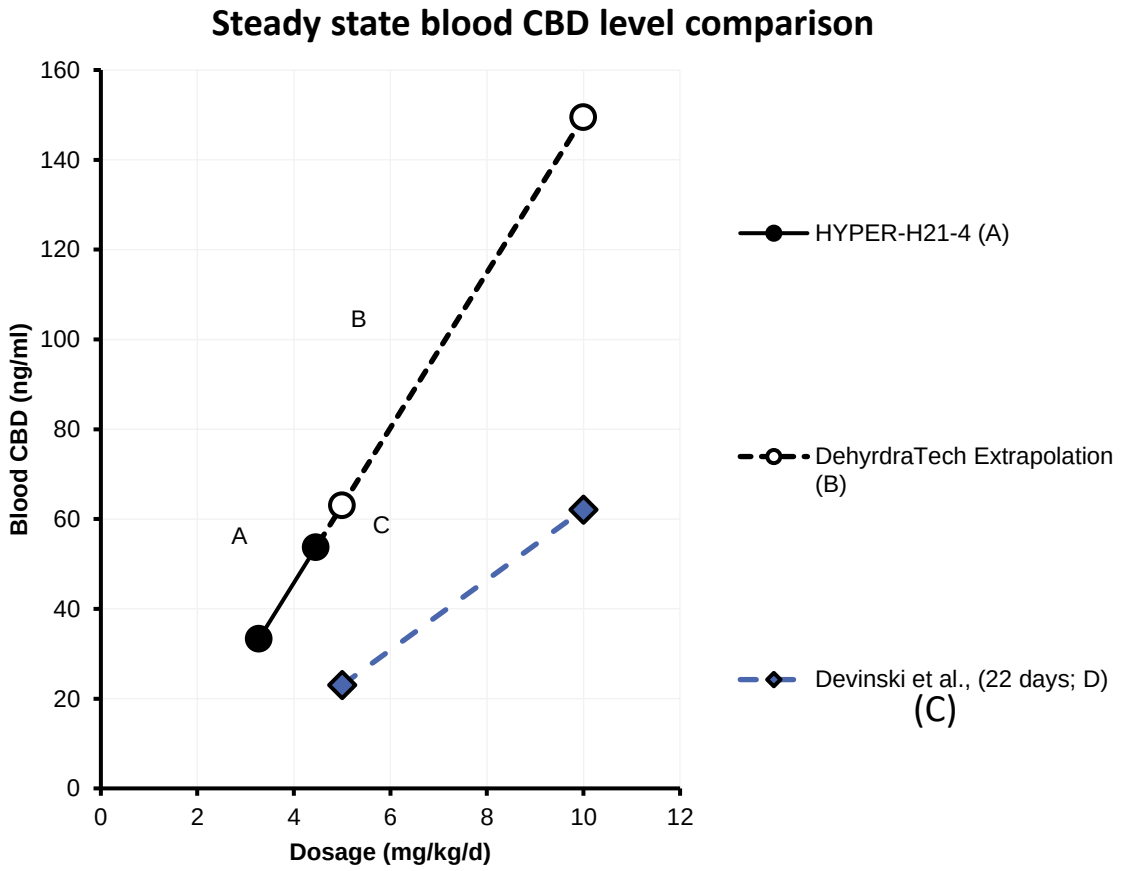
Pharmacokinetic studies are evaluating **DehydraTECH's ability to improve quantity** of drug delivered and **speed** with which it is delivered, **in all of these areas:**

	Size		Future Size	
DehydraTECH Markets	**US $bn**	**Year**	**US $bn**	**Year**
Diabetes[1]	79.3	2023	**134.1**	2030
Cardiovascular Drugs[2]	85.8	2023	**115.8**	2028
GLP-1[3]	18.0	2023	**100.0**	2028
Epilepsy[4]	7.0	2023	**9.5**	2032
Human Hormones[5]	3.7	2023	**7.3**	2032
PDE5 Inhibitors[6]	3.4	2023	**6.1**	2032

(1) https://www.fortunebusinessinsights.com/industry-reports/diabetes-drugs-market
(2) https://www.researchandmarkets.com/reports/5410400/global-cardiovascular-drugs-market-2023-2028
(3) https://www.reuters.com/business/healthcare-pharmaceuticals/novo-nordisk-rivals-see-room-compete-100-bln-weight-loss-drug-market-2023-05-04/
(4) https://www.precedenceresearch.com/epilepsy-drug-market
(5) https://www.globenewswire.com/en/news-release/2023/05/23/2674523/0/en/8-1-CAGR-of-Human-Growth-Hormone-Market
(6) https://www.globenewswire.com/en/news-release/2023/04/06/2642598/0/en/Erectile-Dysfunction-Drugs-Market-Value

DehydraTECH-CBD PK compared to Epidiolex®

- HYPER-H21-4 evidenced superior steady-state pharmacokinetics relative to Epidiolex in published literature comparison;
- Study assessed 3.38 mg/Kg and 4.46 mg/Kg DehydraTECH-CBD daily dose levels over a 5 week treatment period (2.5 wks / dose period);
- Almost 3X higher CBD levels shown in bloodstream at 4.46 mg/Kg dose when compared to published 5 mg/Kg Epidiolex dose and extrapolated to 10 mg/Kg dose(1);

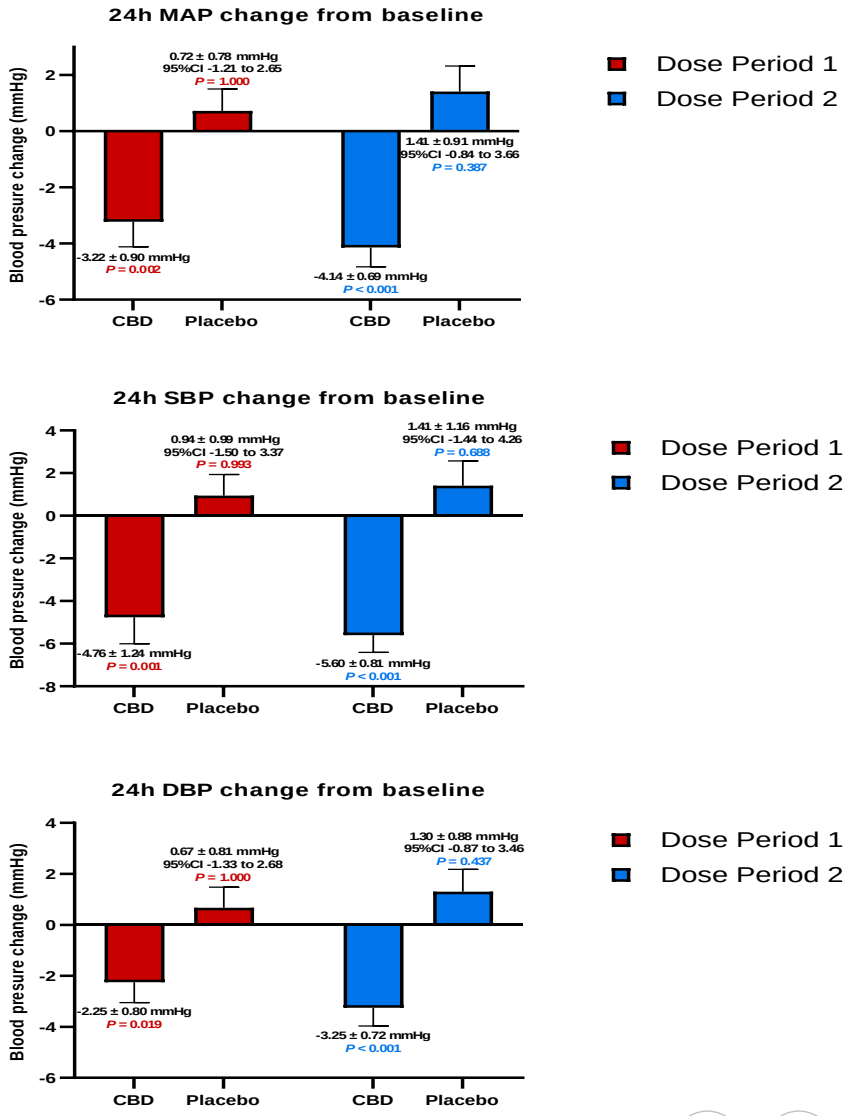


(1)Devinsky Study https://pubmed.ncbi.nlm.nih.gov/28538134/

DehydraTECH for Hypertension 03

DehydraTECH for Stage 1 and 2 Hypertension

- Randomized, placebo-controlled investigator-initiated study HYPER-H21-4 in 66 patients with stage 1 or 2 hypertension
- 5-week treatment duration (i.e., a 2.5-week dose period @ 3.38 mg/Kg TID followed by 2.5-week dose period @ 4.46 mg/Kg TID);
- Significant reductions shown in mean arterial (MAP), systolic (SBP) and diastolic blood pressure ($p<0.05$);
- Other published research has shown reductions of ~4.6 mmHg for SBP and ~2.2 mmHg for DBP as clinically significant to reduce risk of MI, stroke and CHF. **DehydraTECH**-CBD exceeded these thresholds;
- Potential novel mechanism of action in reducing blood pressure and a reduction in pro-inflammatory biomarkers;
- Enhanced central delivery attributes of **DehydraTECH** may improve BP regulation;
- Study also suggested potential additive BP reduction benefits with standard of care medications; and
- Zero serious adverse events were recorded.



BP = Blood Pressure
MAP = Mean Arterial Pressure
SBP = Systolic Pressure
MI = Myocardial Infarction
CHF = Congestive Heart Failure
TID = Three Times Daily Dosing

DehydraTECH FDA Phase 1b IND Program

IND Opening Study – Stage 1/2 Hypertension

- Successful pre-IND meeting with the FDA in 2022 with 505(b)(2) NDA regulatory pathway confirmed;
- Received FDA clearance for IND opening study HYPER-H23-1:
  - Phase 1b randomized, double-blind, placebo-controlled study of the safety, pharmacokinetics, and pharmacodynamics of **DehydraTECH**-CBD for the treatment of stage 1 or 2 hypertension;
- Only a handful of other published studies have investigated resting blood pressure impacts of CBD; none have reported sustained reductions except **DehydraTECH**-CBD;
- FDA has issued clear guidelines defining the need for new antihypertensives that offer novel modes of action;
- Treatment of Stage 1 or 2 hypertensive patients not adequately managed with existing treatments.

Possible Future Studies

- Lexaria envisions potential additional new human clinical studies of **DehydraTECH**-CBD under IND based on its animal study successes:
  - Study EPIL-A21-1 demonstrated suppressed seizure activity at lower doses and more rapidly than Epidiolex
  - Study DIAB-A22-1 evidenced suppressed body weight, improved triglyercide/cholesterol levels and reduced blood glucose levels

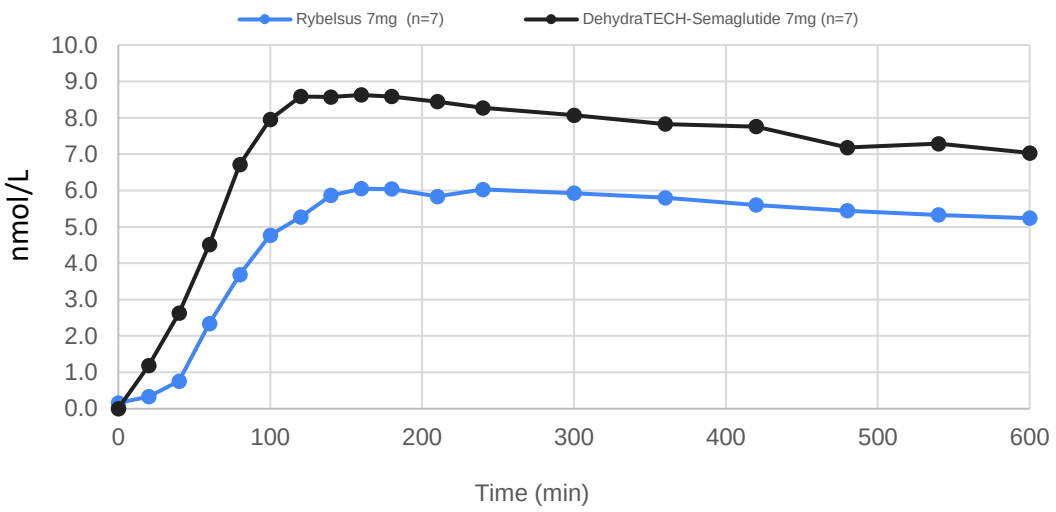
NDA = New Drug Application

DehydraTECH for Diabetes and Weight Loss 04

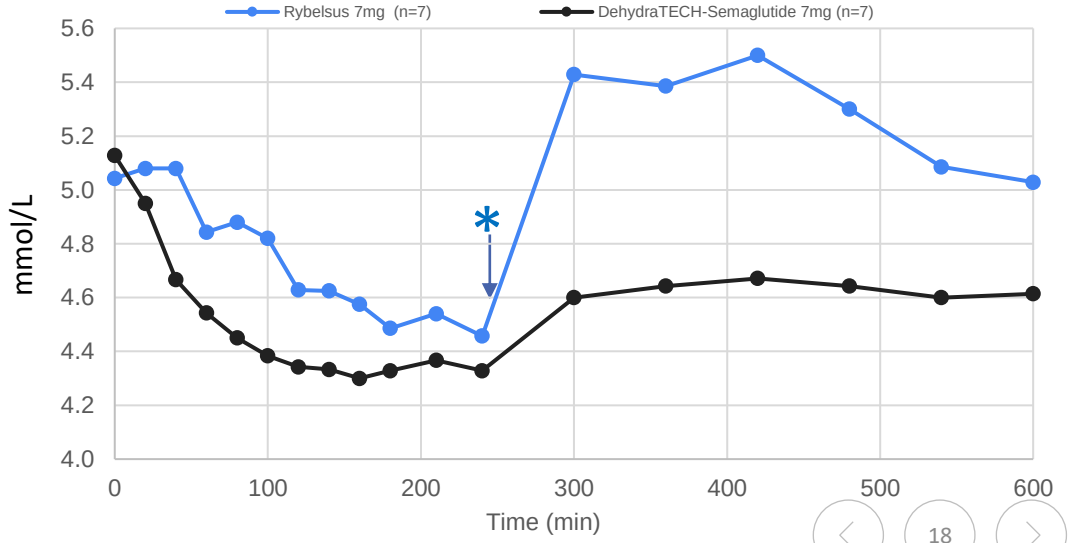
DehydraTECH for Diabetes and Weight Loss

- Randomized, cross-over, single-dose, Investigator-initiated pilot study in 7 healthy volunteers (completed in 2023):
  - **Rybelsus** 7mg tablets **vs. DehydraTECH**-Semaglutide 7 mg compound formulated capsules;
- Blood sampled at 18 intervals from T=0 to T=600 min and again at T=24hr post-dose follow up (figures do not show T-24hr data);
- Higher blood semaglutide levels / AUC demonstrated throughout the study duration with **DehydraTECH** ($p<0.05$);
- Blood glucose levels lower throughout the study with **DehydraTECH** ($p<0.05$); most notably post prandially*;
- Enhanced central delivery attributes of **DehydraTECH** may have contributed to the pronounced GLP-1 effect profile witnessed;
- Apparent improvements in gastrointestinal tolerability witnessed:
  - Zero instances of moderate nausea/diarrhea with **DehydraTECH**-Semaglutide;
  - Moderate nausea (n=2) and moderate diarrhea (n=1) only reported with Rybelsus treatment.

Blood semaglutide levels



Blood glucose levels



2024 Planned GLP-1 Work Program

Human Pilot Study #2 (Targeted start: April)

- Up to 8 healthy human volunteers; placebo-controlled investigation that will compare three dose formulations each at a 7 mg semaglutide dose. Study an oral dissolvable **DehydraTECH**-semaglutide tablet formulation (dissolvable into sublingual/buccal tissue) to determine whether GLP-1 drug absorption via this route is effective and well tolerated. Tolerability, blood levels of semaglutide, and blood glucose levels will all be evaluated.

Animal Study WEIGHT-A24-1 (Targeted start: April)

- An obese rat diabetic-conditioned study with 12 study arms and 6 animals per arm. Study will run for 12 weeks to evaluate PK, body weight, blood glucose and brain tissue to help determine whether **DehydraTECH** processing results in higher brain absorption than non-**DehydraTECH** arms. **DehydraTECH** formulations of semaglutide and liraglutide, alone and together with **DehydraTECH**-CBD, will be evaluated. Lexaria will also evaluate **DehydraTECH**-processed semaglutide with and without the salcaprozate sodium ("SNAC") technology currently found within Rybelsus® tablets.

Human Pilot Study #3 (Targeted start in May/June)

- Up to 8 healthy human volunteers; a single dose of oral ingested tirzepatide (Zepbound® by Eli Lilly) to evaluate tolerability, PK, and blood sugar. Zepbound® is currently administered by injection only and will be used as the tirzepatide input material for production of the **DehydraTECH**-tirzepatide capsules. This study will evaluate **DehydraTECH** effectiveness in humans with a dual action GLP-1 + glucose-dependent insulintropic peptide ("GIP") drug while also doing so without the SNAC ingredient found in the Rybelsus® semaglutide composition from Human Pilot Studies 1 and 2.

2024 Planned GLP-1 Work Program (cont'd)

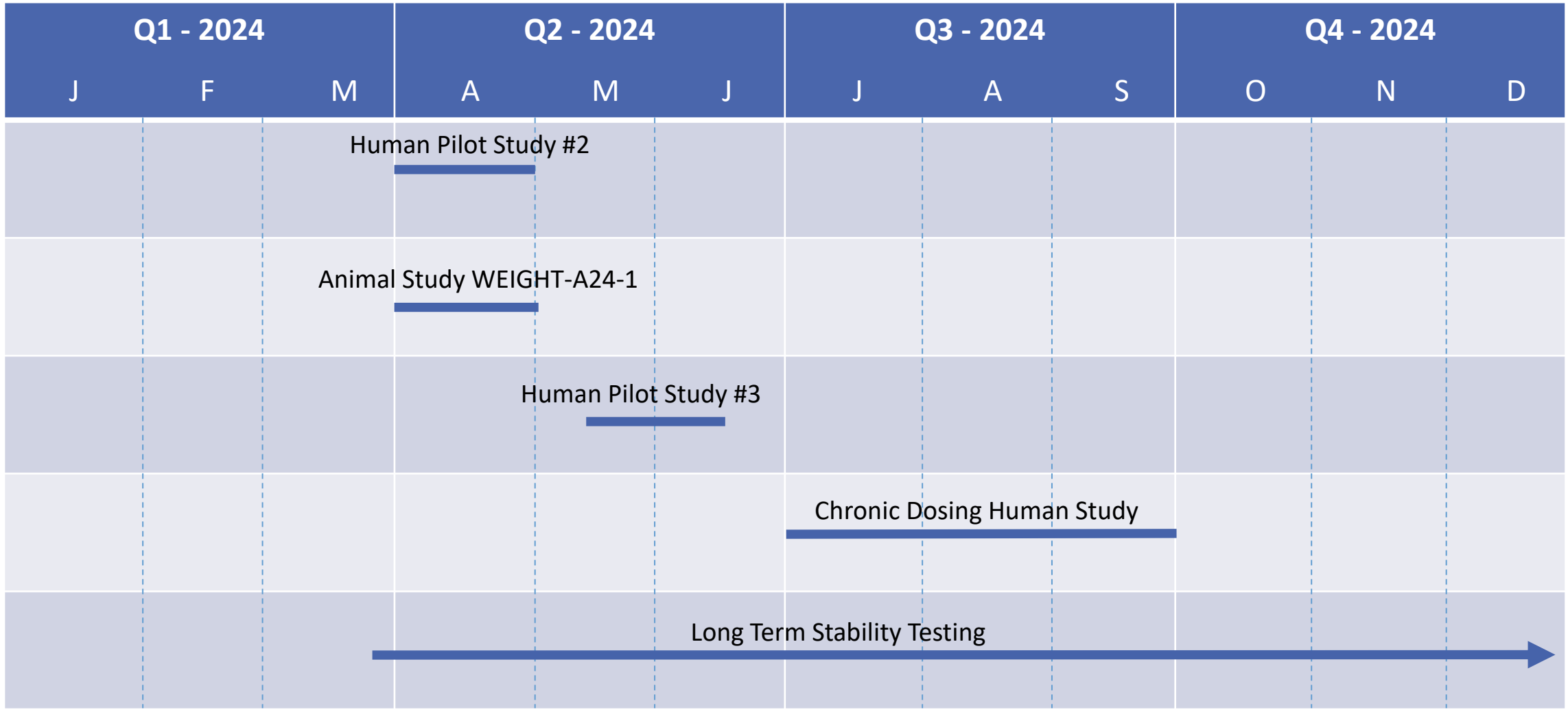
Chronic Dosing Human Study (Targeted start Q3)

- 70 to 90 pre-diabetic and type-2 diabetic human patients. Duration of 12 weeks to evaluate tolerability, PK, weight loss, blood sugar levels and more. The primary goal of this study will be to compare **DehydraTECH**-processed semaglutide capsules (from compound-formulated Rybelsus® tablets as the semaglutide input material) to **DehydraTECH**-CBD capsules alone - and together in combination - relative to a placebo control over an extended period of time. Inclusion of **DehydraTECH**-CBD in this study will be undertaken to determine if the improvements in glycemic control and weight loss witnessed in Lexaria's previous animal study are evidenced in humans.

Long Term Stability (Targeted start Q1)

- Study the chemical and microbiological purity and stability of select **DehydraTECH** compositions that it prepares for the above planned upcoming animal and human studies over an extended duration of 6-12 months. Along with improved tolerability, PK and efficacy performance, long term stability is crucial if oral variants of GLP-1 drugs are to be seriously considered as replacements for currently injectable versions of these drugs.

GLP-1 R&D Program Targeted Start Dates



Management, Directors and Advisors 05

Executives, Directors, and Advisors With Drug Delivery Technology and Capital Markets Expertise

Chris Bunka Chairman & CEO

- Serial entrepreneur involved in several private and public companies since the late 1980's
- Extensive experience in the capital markets, corporate governance, M&A and finance
- Named inventor on multiple patent innovations

Julian Gangolli Strategic Advisor

- Former President of GW Pharmaceuticals USA and Allergan N.A
- Extensive US and International executive level experience in Large Pharma, Specialty Pharmaceutical, and Start-Up Biotechnology environments
- Board of Directors member of three NASDAQ traded pharmaceutical companies; Revance Therapeutics, Krystal Biotech and Outlook Therapeutics

John Docherty, M.Sc. President

- Specialist in development of drug delivery technologies
- Former President and COO of Helix BioPharma Corp. (TSX: HBP)
- Named inventor on multiple issued and pending patents
- Pharmacologist and toxicologist

Dr. Philip Ainslie Scientific & Medical Advisor

- Co-Director for the Centre for Heart, Lung and Vascular Health, Canada
- Research Chair in Cerebrovascular Physiology and Professor, School of Health and Exercise Sciences, Faculty of Health and Social Development at the University of British Columbia

Investment Highlights and Financial Information 06

Investment Highlights

Multiple Mainstream Applications In Large Markets	Upcoming 2024 Catalysts	Commercialization Through Licensing and Partnerships
• **DehydraTECH** is a **versatile drug delivery platform** • **DehydraTECH** offers **faster and more effective drug absorption** into bloodstream and brain tissues • **DehydraTECH** pipeline **addressing serious unmet patient needs** with substantial market potential • **Large addressable market opportunities** in hypertension, GLP-1 drugs and other APIs	**Hypertension:** • IND opening study HYPER-H23-1 **GLP-1 (Diabetes/Weight Loss):** • Human Pilot Study #2 • Animal Study WEIGHT-A24-1 • Human Pilot Study #3 • Chronic Dosing Human Study • Long Term Stability Study	• **Extensive experience** with **drug delivery technology; capital markets; "Fortune 500" relationships** • **License agreements in place** • **39 patents granted** and many more patent applications pending around the world

Financial Information(1)

NASDAQ:LEXX | NASDAQ:LEXXW

Shares Outstanding	12.4 million
Fully Diluted	19.5 million
Share Price	US $3.45
Insider Ownership	5.0%(2)
Average Volume	387,225(3)
Market Cap	US $42.8 million
Last Financing (February 2024)	US $3.6 million
Cash and Equivalents (Q1 – November 30, 2023)	US ~$1.9 million
Debt	US $0

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ir@lexariabioscience.com

(1) As of 02/29/2024, source Nasdaq
(2) Does not include derivative holdings, as of August 31, 2023
(3) 1-month average volume, as of February 29, 2024

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Drug Delivery Platform Innovator
With Multiple Mainstream Applications

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APPENDIX: Scientific Data 07

DehydraTECH Demonstrates Higher Brain Perfusion with Nicotine

- Lexaria's **DehydraTECH** technology delivered 195% more nicotine orally into exsanguinated brain tissue in rodent study;
- Lexaria's formulation was 4x faster at reaching its peak level in brain tissue than the concentration-matched control formulation; and

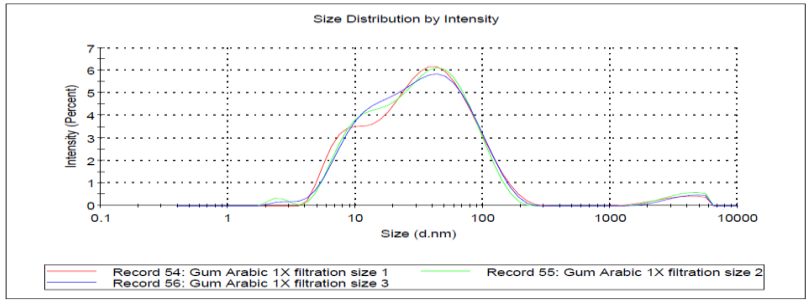
	Lexaria Formulation	Control Formulation
Cmax (ng/g)	1,260 ± 200	427 ± 66.5
Tmax (hr)	1.0	4.0
T1/2 (hr)	21.6	ND
MRTlast (hr)	9.24	7.03
AUClast (hr.ng/g)	12,999 ± 1252	5,881 ± 538

- Similar findings have also been documented with other **DehydraTECH**-processed APIs such as THC and CBD.

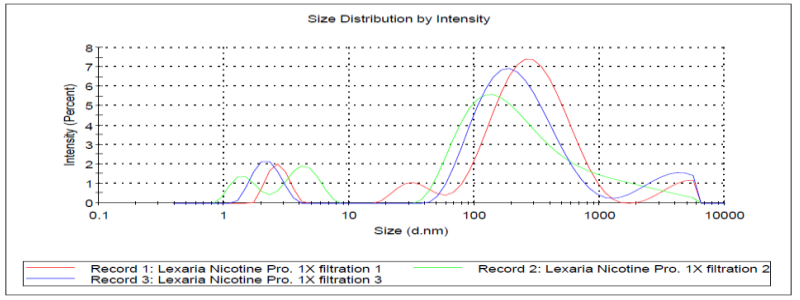
DehydraTECH Molecular Characterization Studies

- DLS and Zeta Potential screening shows formation of unique, negatively charged nanoparticles with **DehydraTECH**-nicotine formulation compared to constituent subparts

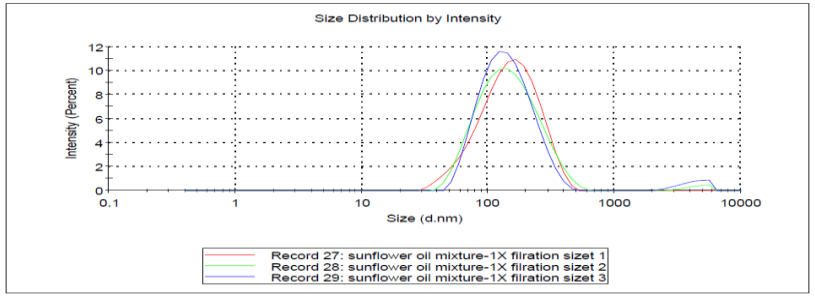
Gum Arabic



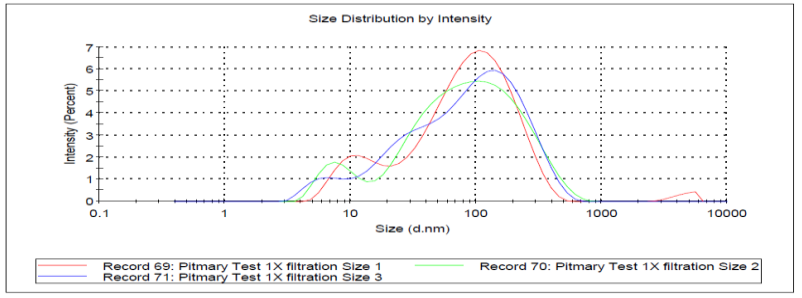
Nicotine Polacrilex



LCFA Oil + Nicotine Polacrilex

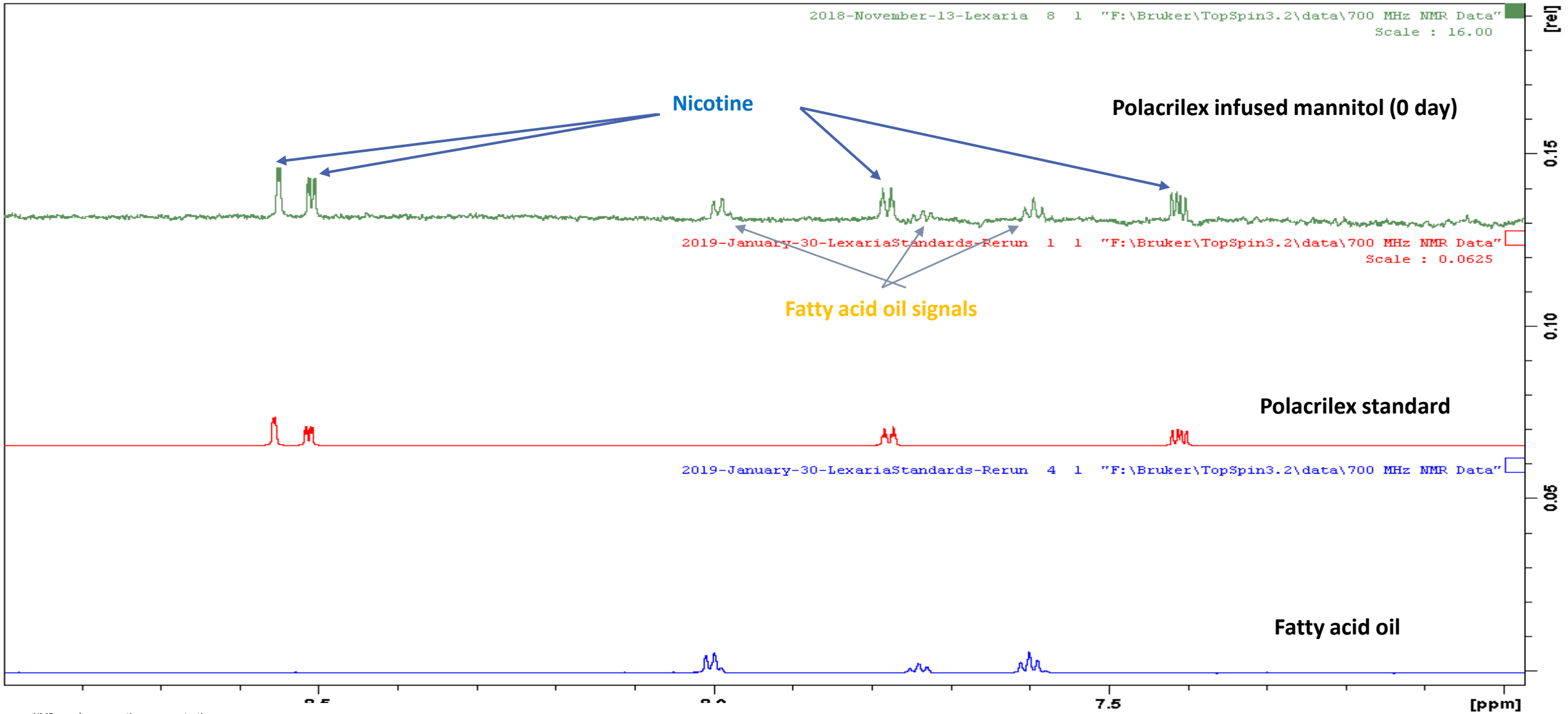


DehydraTECH-Nicotine (“Test Article”)



Product	Size (nm)	Zeta Potential (mV)
Gum Arabic	42	-19
Nicotine Polacrilex	328	-15
LCFA Oil/Nicotine mixture	163	-30
Test Article	117	-30

NMR Testing – No Covalently Bond NME with DehydraTECH-Nicotine



NMR = nuclear magnetic resonance testing.
NME = New molecular entity

List of Scientific Publications

For more information visit: Lexaria Research

Journal of Functional Foods – November 2023
- Antihypertensive effects of CBD are mediated by altered inflammatory response: A sub-study of the HYPER-H21-4 trial.

International Journal of Molecular Sciences – June 2023
- Differences in Plasma Cannabidiol Concentrations in Women and Men: A Randomized, Placebo-Controlled, Crossover Study.

Biomedicine & Pharmacotherapy – June 2023
- Effects of CBD supplementation on ambulatory blood pressure and serum urotensin-II concentrations in Caucasian patients with essential hypertension: A sub-analysis of the HYPER-H21-4 trial.

Advances in Therapy – June 2023
- The Influence of Oral Cannabidiol on 24-h Ambulatory Blood Pressure and Arterial Stiffness in Untreated Hypertension: A Double-Blind, Placebo-Controlled, Cross-Over Pilot Study.

Pharmaceuticals – April 2023
- Trial of a Novel Oral Cannabinoid Formulation in Patients with Hypertension: A Double-Blind, Placebo-Controlled Pharmacogenetic Study.

Cannabis and Cannabinoid Research – April 2023
- Chronic Effects of Oral Cannabidiol Delivery on 24-h Ambulatory Blood Pressure in Patients with Hypertension (HYPER-H21-4): A Randomized, Placebo-Controlled, and Crossover Study.

Biomedicine & Pharmacotherapy – April 2023
- CBD supplementation reduces arterial blood pressure via modulation of the sympatho-chromaffin system: A substudy from the HYPER-H21-4 trial.

Journal of Personalized Medicine – June 2022
- Chronic Effects of Effective Oral Cannabidiol Delivery on 24-h Ambulatory Blood Pressure and Vascular Outcomes in Treated and Untreated Hypertension (HYPER-H21-4): Study Protocol for a Randomized, Placebo-Controlled, and Crossover Study.

Advances in Therapy – September 2019
- Examination of a New Delivery Approach for Oral Cannabidiol in Healthy Subjects: A Randomized, Double-Blinded, Placebo-Controlled Pharmacokinetics Study.