“The need has never been more urgent. More than 50 million adults in the U.S. are living with chronic pain at an estimated annual cost of $560 billion in medical care, lost productivity and disability programs, according to federal data. Unlike acute pain—the sharp, instantaneous sensation that alerts the body to injury or trauma—chronic pain can persist long after normal healing, lasting for months or years....”

- A New Prognosis for Pain Care -
WSJ, February 6, 2019
Disclaimer

Certain statements contained in this presentation constitute forward-looking statements. The words “anticipate”, “continue”, “estimate”, “expect”, “may”, “will”, “project”, “should”, “believe” and similar expressions typically are used to identify forward-looking statements. The use of forward-looking statements reflects our current views, expectations, estimates and/or projections with respect to our performance, business and future events, and in this presentation includes statements relating to, among others: expectations regarding our business; expectations relating to our business goals, objectives and schedules; expectations regarding interactions with regulatory authorities; expectations regarding our pre-clinical programs and clinical development plans; and expectations regarding development of new intellectual property. Forward-looking statements are based on the then-current expectations, forecasts and assumptions about the business and the industry and markets in which we operate, including, among others: that there will be no unforeseen delays, disruptions, market forces, regulations or laws that will prevent us from operating our business; and that we will be able to obtain the capital we require. Forward-looking statements are not guarantees of future performance and involve risks, uncertainties and assumptions which are difficult to predict, including, without limitation: that we may experience unforeseen delays, financing difficulties or costs that will impact our projects, operations, financial performance or liquidity; that we will not be able to advance our business plan or continue operations; that we will not be able to protect our intellectual property; that we will not be able to recruit and enroll patients for clinical trials; that we will not be able to successfully complete our clinical studies; that during clinical trials for products developed under our intellectual property may cause undesirable and potentially serious side effects which may delay or prevent regulatory approval, commercialization and market acceptance; that regulatory approvals of products developed from our intellectual property may result in significant delays; and those risks relating to the occurrence of national disasters, hostilities, acts of war or terrorism, our reputation, our key personnel, competition, employee relations, potential downturns in economic conditions, foreign exchange fluctuations, fluctuations in the currency markets, inflationary pressures, or changes in interest rates. These risks, as well as others, could cause actual results and events to differ materially from those anticipated in such forward-looking statements. Accordingly, readers should not place undue reliance on forward-looking statements and information, which are qualified in their entirety by this cautionary statement. These statements speak only as of the date of this presentation and we do not undertake any obligations to update such forward-looking statements, except as required by applicable securities law.

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Overview

Development stage pharmaceutical company preparing for the first clinical trial and human proof of concept

- Commercializing novel, patented, non-addictive endocannabinoid-boosting therapeutics.
- The therapeutics were developed at the University of California, Irvine and result from over $10M in past R&D spending.
- Targeting significant unmet medical needs in multi-billion dollar markets.
- Supported by non-dilutive grant funding.
- Expecting to be in clinical testing within 9 months.
- Managed by a team of experienced biotech executives and entrepreneurs.

Exxel Pharma is currently raising capital to complete a phase I clinical trial, and ready the Company for an exit or out licensing opportunity.
Company Focus: Chronic Pain

Peripheral Neuropathic Pain

The Problem

- Neuropathic pain (NP) is a chronic pain condition that affects 7-10% of the general population, with symptoms ranging from numbness to debilitating pain.
- Peripheral NP is caused by injury to peripheral nerves (nerves that reside outside the CNS) or pathological change in the peripheral nervous system.
- Common forms include diabetic peripheral neuropathy, chemotherapy-induced peripheral neuropathy, HIV-associated neuropathy and post-herpetic neuropathy.
- First line therapies are estimated to provide pain relief in less than 50% of patients.
- Opioid type drugs are not typically recommended, but are used as second line therapies.

The Solution

- URB937 – A peripheral FAAH inhibitor drug for safe and non-addictive treatment of chronic and acute pain.

Exxel Pharma’s URB937 has potential as a safe therapeutic for chronic and acute pain.
Company Focus: PTSD

Post Traumatic Stress Disorder

The Problem

- PTSD develops in some people who have experienced a shocking, scary or dangerous event.
- An estimated 8 million Americans, or 3.5% of the US population, suffer from PTSD at any given time.
- For veterans, the prevalence was estimated to 26.9-30.9% for the Vietnam war, 12.1% for the Gulf war, and 13.8% for the Operation Iraqi Freedom (Iraqi/Afghan wars).
- Sertraline (Zoloft) and Paroxetine (Paxil) are currently approved by the FDA for treatment of PTSD; these only provide relief from symptoms in some patients, leaving a significant unmet medical need for new therapeutics.

The Solution

- URB597 – A global FAAH inhibitor drug for treatment of PTSD, anxiety and other diseases of the central nervous system.

Exxel Pharma’s URB597 has potential as a safe therapeutic for PTSD and substance use disorders.
Our Therapeutic Target: The Endocannabinoid System

The human endocannabinoid system (ECS) is a biological system necessary for maintaining overall health and homeostasis.

The Endocannabinoid System functions throughout the body

The ECS impacts:
- Pain
- Mood
- Anxiety
- Appetite
- Inflammation
- Insomnia
- Substance addiction
The Endocannabinoid System: A Natural Opportunity

The Endocannabinoid System

- The Endocannabinoid System (ECS) consists of
  I. Endocannabinoids
  II. Cannabinoid receptors
  III. FAAH

- Endocannabinoids are neurotransmitters that activate the cannabinoid receptors; where and when needed
- Cannabinoid receptors 1 and 2 (CB1 & CB2) are GPCRs found throughout the body
- The body's main endocannabinoid is called Anandamide and is produced in response to different types of stress and pain
- FAAH (fatty acid amide hydrolase) metabolizes Anandamide limiting its effects and duration

FAAH inhibitors boost Anandamide’s therapeutic effects

- FAAH breaks down Anandamide, limiting its therapeutic effects, making FAAH an attractive pharmaceutical target
- Inhibition of FAAH results in elevated Anandamide levels, which produces multiple therapeutic effects
In this example, a patient without FAAH shows pain insensitivity and lack of anxiety, mirroring Exxel’s animal data and supporting the extraordinary therapeutic and commercial potential of targeting FAAH.
URB937: A first-in-class peripheral FAAH inhibitor

- Developed by Professor Daniele Piomelli at the University of California, Irvine.
- Protected by issued and pending patents, covering composition of matter and use.
- Therapeutic and commercial potential:
  - Chronic pain (neuropathy), migraine headache, hyperactive bladder, wound healing.
- In contrast to all other FAAH inhibitors, this therapeutic is excluded from the CNS and brain which provides a unique mechanism of action and superior pain management.
- Supported by non-dilutive NIH grant funding.

The combination of published animal data, patent protection and non-dilutive grant funding makes URB937 a significantly derisked asset with high commercial potential.
**URB937: Overview**

**URB937**

- URB937 is a novel, peripherally restricted FAAH inhibitor (NCE) with high potency (IC$_{50}$=26.8 nM) and oral bioavailability.
- The drug does not cross the blood brain barrier and is absent from the brain, spinal cord, testes and fetus.
- Profound analgesic effects in animal models of neuropathic pain and migraine headache (ED$_{50}$ 0.3-3.4 mg/kg).
- No toxicity observed in genotox, hERG, MTD/DRF, 28-day repeat dosing at up to 2000 mg/kg.
- No centrally mediated side effects; unexpected efficacy and remarkable safety by being entirely excluded from the CNS.
- Superior analgesic activity compared to opiates, NSAIDs, gabapentinoids and global FAAH inhibitors.
- In contrast to global FAAH inhibitors, URB937 does not cause anandamide-mediated spinal sensitization.
- GLP safety/pharmacology studies completed; Pre-IND meeting completed on May 1 2019; IND submission anticipated by Q4 of 2019.

URB937 exhibits a unique and novel mechanism of action with unexpected efficacy and remarkable safety by being entirely excluded from the CNS.
## Early Clinical Development Plan (ECDP)

Exxel Pharma targets a 505(b)(1) NDA application for URB937 in the treatment of chemotherapy induced peripheral neuropathic pain.

### Early Q1 2020: Phase I SAD

**First-in-Human, Single Ascending Dose (SAD), Safety, Toleration, PK and PD Study in Fasting Normal Healthy Volunteers**

- **Design:** A Single-Center, Two-part, Sentinel (2 sequentially dosed subjects) followed by 4-5 Dose-Rising Randomized Placebo-controlled cohorts
- **N = 2** (Sentinel) followed by approximately 4-5 additional cohorts, each with 6 active and 2 placebo subjects  
- **Objectives:** identify safe and tolerable dose(s),
  - Measure Safety/Tolerability endpoints (exploring MTD)
  - Characterize PK and PD of URB 937 and active metabolite following escalating single fasting orally administered doses
  - Characterize relationship to PD markers
- **Dose Escalation and Safety Monitoring Committee (DESMC):** Chartered to assure subject safety (14 day Safety and PD assessments between each dosing cohort)

### Late Q1 2020: Phase I MAD

**Multiple Ascending Dose (MAD) study to determine Safety Tolerability, PK and PD and preliminary food-effect in Normal Healthy Volunteers**

- **Design:** A Single-Center, Randomized, Placebo Controlled, Low, Medium, and High dose (determined from SAD) sequential in four dose rising cohorts plus one additional cohort to assess preliminary food-effect PK at the highest dose level.
- **Treatment Duration:** QD oral AM dosing X 7 days (TBD) with 14 day safety review interval between dose levels
- **N = 6** active and 2 placebo per cohort. Approximately 32 total subjects
- **Objectives:** Safety/tolerability, identify maximum tolerated dose (MTD), PK and PD, variability, linearity, steady-state parameters (accumulation, time-dependency) and preliminary exploration of drug elimination (urine PK, metabolite identification) and assess preliminary food-effect data.

### FDA IND: Division of Anesthesia, Analgesia, and Addiction Products (DAAAP) and The Division of Oncology Products 1 (DOP1)

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URB937 versus global FAAH inhibitors

### URB937

- High potency and duration of action, similar to other FAAH inhibitors.
- No access to the brain, spinal cord, testes and fetus.
  - All other FAAH inhibitors in development are globally active.
- No centrally mediated side effects.
  - Most FAAH inhibitors are liable to abuse and could be subject to CSA scheduling.
- Superior analgesic activity compared to global FAAH inhibitors.
  - URB937 does not cause spinal sensitization.
- Superior activity in models of urinary bladder dysfunction.

URB937 exhibits a unique and novel mechanism of action compared to other, global FAAH inhibitors currently in development.
# Current Treatments for Peripheral Neuropathic Pain

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Generic Name</th>
<th>Therapeutic category</th>
<th>Global Sales</th>
<th>Patent Expiration</th>
<th>Marketed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyrica</td>
<td>Pregablin</td>
<td>Anti-epileptics</td>
<td>$5B</td>
<td>June, 2019</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Cymbalta</td>
<td>Duloxetine</td>
<td>SNRI Anti-depressant</td>
<td>$940M</td>
<td>December, 2013</td>
<td>Eli Lilly</td>
</tr>
<tr>
<td>Neurontin</td>
<td>Gabapentin</td>
<td>Anti-epileptics</td>
<td>$123M</td>
<td>July, 2000</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Celebrex</td>
<td>Celexoxib</td>
<td>NSAID</td>
<td>$1.1B</td>
<td>December, 2014</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Nucynta</td>
<td>Tapentadol</td>
<td>Narcotic analgesics</td>
<td>$375M</td>
<td>August, 2022</td>
<td>Grünenthal Gruppe</td>
</tr>
<tr>
<td>Lidoderm</td>
<td>Lidocaine Patch</td>
<td>Anaesthetics</td>
<td>$330M</td>
<td></td>
<td>Grünenthal Gruppe</td>
</tr>
<tr>
<td>Qutenza</td>
<td>Capsaicin</td>
<td>Non-narcotic analgesics</td>
<td>$5M</td>
<td></td>
<td>Grünenthal Gruppe</td>
</tr>
</tbody>
</table>

Source: EvaluatePharma

The Opportunity: Competing, marginally effective treatments have large global sales but limited remaining patent life
URB597 enters the Central Nervous System (CNS), enabling treatment of neurological disorders such as PTSD, substance addiction, MS, anxiety and insomnia.

PTSD-focused R&D in Professor Piomelli’s laboratory is sponsored by the US Department of Defense.

URB597 was previously approved for a phase I clinical trial by Health Canada.

Preclinical safety and efficacy supported by >400 peer-reviewed publications.

The combination of research data, prior regulatory approval, patent protection and non-dilutive grant funding supports the commercial potential of URB597.
URB597: Summary

URB597 family of global FAAH inhibitors

- **Nonclinical Pharmacology:** Demonstrated efficacy in several animal models of anxiety (elevated zero maze and isolation-induced ultrasonic emission test) and depression (tail suspension test, chronic mild stress, and forced swim test).

- **Nonclinical Pharmacokinetics:** $T_{\text{max}} = 30-60 \text{ min}$ in rats and monkeys. $T_{1/2} = 30$ in both species.

- **Nonclinical Toxicology:** No toxicity in rats and cynomolgus monkeys at max deliverable oral dose of 1500 mg/kg for up to 28 days.

- **Specificity:** Does not interact in vitro with a broad panel of over 75 receptors, ion channels, transporters and enzymes. No impact on hERG.

- **IP:** Newer, second generation molecules of this drug family have patent coverage to 2035.

- **Lead indication:** PTSD with the DOD sponsoring URB597 research at UC Irvine.

- **Regulatory status:** Prior approval of CTA (Canadian IND equivalent) by Health Canada.

URB597 has significant potential in treatment of CNS disorders and in contrast to competing, global FAAH inhibitors, it does not have abuse liability.
## Development Pipeline

<table>
<thead>
<tr>
<th>PRECLINICAL DEVELOPMENT</th>
<th>CLINICAL DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploratory Research</td>
<td>IND</td>
</tr>
<tr>
<td>Preclinical Development</td>
<td>Phase I</td>
</tr>
<tr>
<td>Safety pharmacology / toxicology</td>
<td>Phase II POC</td>
</tr>
</tbody>
</table>

### URB937 Program

- **Neuropathic Pain**: 2020, 2021
- **Migraine headache**: 2020, 2021
- **Wound healing**: 2020, 2021
- **Opioid sparing**: 2020, 2021

### URB597 Program

- **PTSD**: 2020, 2021/2022

Pipeline may be expanded with additional molecules/technologies.
## Opportunity & Markets

Estimated market sizes for diseases targeted by Exxel Pharma using FAAH inhibitors to boost natural endocannabinoid signaling.

<table>
<thead>
<tr>
<th>DISEASE FOCUS</th>
<th>SEGMENT</th>
<th>ESTIMATED MARKET SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Management (URB937)</td>
<td>Neuropathic pain</td>
<td>$8.3B by 2024 (BioSpace, 2019)</td>
</tr>
<tr>
<td></td>
<td>Acute pain</td>
<td>$14.2B - 2017 (GlobalData Healthcare)</td>
</tr>
<tr>
<td></td>
<td>Post-operative pain</td>
<td>$5.9B - 2010 (GBI Research)</td>
</tr>
<tr>
<td></td>
<td>Chronic pain</td>
<td>$35.1B - 2017 (GBI Research)</td>
</tr>
<tr>
<td>Diseases of the CNS (URB597)</td>
<td>PTSD</td>
<td>$1.7B by 2019 (GlobalData Healthcare)</td>
</tr>
<tr>
<td></td>
<td>Substance use disorders</td>
<td>$2.8B - 2013 (BCC Research)</td>
</tr>
<tr>
<td></td>
<td>Opioid use disorder</td>
<td>$1.2B current (Seeking Alpha)</td>
</tr>
<tr>
<td></td>
<td>Anxiety and depression</td>
<td>$18.3B by 2025 (Grand View Research)</td>
</tr>
<tr>
<td></td>
<td>Insomnia</td>
<td>$5.5B by 2023 (Allied Market Research)</td>
</tr>
</tbody>
</table>

Significant unmet medical needs and blockbuster markets can be addressed with drugs that inhibit FAAH and boost endocannabinoid signaling.
Management Team

**Soren Mogelsvang, PhD**
President and CEO, Director

Dr. Mogelsvang is a biotech executive and entrepreneur with over 15 years of experience. He is the co-founder of several biotech companies and brings a track record in building and leading privately funded and publicly traded companies. Recent positions he has held include President and CEO of Peak Pharmaceuticals, which he built from concept to a profitable veterinary health company; Co-founder and VP of R&D at Serpin Pharma, a clinical stage biotech company; Co-founder and Head of R&D at Caerus Discovery, an immunology company launched with support from BioWa – Kyowa Hakko Kirin and ImmunoCellular Therapeutics; Head of Cell Biology at ATCC; and Director of Laboratory and Production at Affinity BioReagents. Soren has PhD in Biochemistry (Cambridge, UK), and an MSc in Plant Molecular Biology (University of Copenhagen, Denmark).

**Daniele Piomelli, PhD, MD (h.c.)**
CSO

Daniele is an Italian-born American scientist. He studied neuroscience in New York City, with James H. Schwartz and Eric R. Kandel at Columbia University College of Physicians and Surgeons (PhD, 1983-1988) and later with Paul Greengard at the Rockefeller University (Post-doc, 1988-1990). Two of his mentors (ERK and PG) received the Nobel Prize for their contributions to medicine in 2000. After working at the INSERM in Paris (1990-1995) and at the Neurosciences Institute in La Jolla (1995-1998) with Nobel Laureate Gerald Edelman, he joined the University of California Irvine School of Medicine, where he is now Louise Turner Arnold Chair in Neurosciences and Professor of Anatomy and Neurobiology, Pharmacology and Biological Chemistry. Daniele is scientific cofounder of Kadmus Pharmaceuticals, Thesan Pharmaceuticals and NeoKera.
Non-Executive Board of Directors

Nitin Kaushal
Director

Mr. Kaushal is a Managing Director in the Deals practice at PwC Canada. Nitin has more than 25 years experience in the financial investing, life sciences, consumer health care, health care services and medical device industries. His experience includes board of directorships with pharmaceutical and health care companies. He has also held senior roles in investment banking, venture capital and consulting firms. Nitin has performed over 50 merger, acquisition, strategic advisory, and licensing assignments. He has been an advisor to many of the leading global pharma companies and has participated in capital market transactions raising in excess of $2Bn.

Guy Yachin
Director

Mr. Yachin is currently the CEO of Serpin Pharma Inc., a privately held, clinical stage Biotech Company in Virginia. Mr. Yachin is a serial entrepreneur who has served as CEO for numerous biomedical companies. His notable achievements include serving as the CEO of MGVS during collaborative funding with Teva Pharmaceuticals in 2009 and co-founding Chasma Inc. which entered into a $600MM licensing agreement with Roche in 2013. He is the former CEO of Naiot Technological Center in Israel where he played an active role in establishing, managing and raising over $50M for over a dozen biomedical startup companies. As CEO of NasVax Ltd. he successfully led the company’s capital acquisition efforts on the public and private markets. Mr. Yachin has sat on the board of multiple companies including Orgenesis, Remon Medical Technologies, Enzymotec and NanoPass. He holds a BSc. and an MBA from Technion – Israel Institute of Technology.

Nancy Retzlaff
Director

Nancy Retzlaff is a seasoned biopharmaceutical executive with over 20 years of experience. She began her career in the pharmaceutical industry with Bayer Healthcare in Canada and has since has since held commercial leadership positions of increasing responsibility at Bayer US, Schering-Plough and Pfizer. She has also held senior level positions at two start-up biopharma organizations. Nancy brings a track record of leading successful product launches globally as well as in the US, Europe, Japan & Canada, and has led a number of high profile brands including Cipro, Remicade, Lyrica, Aricept and Eliquis. She has broad therapeutic expertise in pain, immunology, neurosciences, infectious diseases and cardiology. Her deep commercial experience spans early commercial development through to life cycle management. Nancy has also served as an advisor to global pharma as well as early start-up companies.
**Summary & Value Proposition**

Exxel Pharma is developing novel, non-addictive endocannabinoid-boosting therapeutics.

**The Company has a focused strategy with clear, near-term, value-driving milestones.**

**Targeting diseases with significant unmet medical needs, representing blockbuster markets**
- Pain management, PTSD, Substance abuse

**The company aims to begin clinical trials in the next 6-9 months**
- Advancing from a development stage to clinical stage company
- Enhancing partnering, exit and outlicensing potential

**First-in-class, patent protected, small molecule therapeutics**
- Backed by peer-reviewed science and completed safety pharmacology & toxicology studies

**In-person pre-IND meeting with the FDA completed on May 1, 2019.**

Led by an experienced management team

Industry data and comparables suggest Exxel Pharma has significant near-term upside