Herantis Pharma Company Presentation

16 December 2020

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Herantis Pharma at the Forefront of Biologic & Gene Therapies

Company Background

- Founded in 2008 in Helsinki, Finland
- Listed on Nasdaq First North Finland & Sweden
- Assets originate from world leading research at University of Helsinki
  - Published in top tier journals

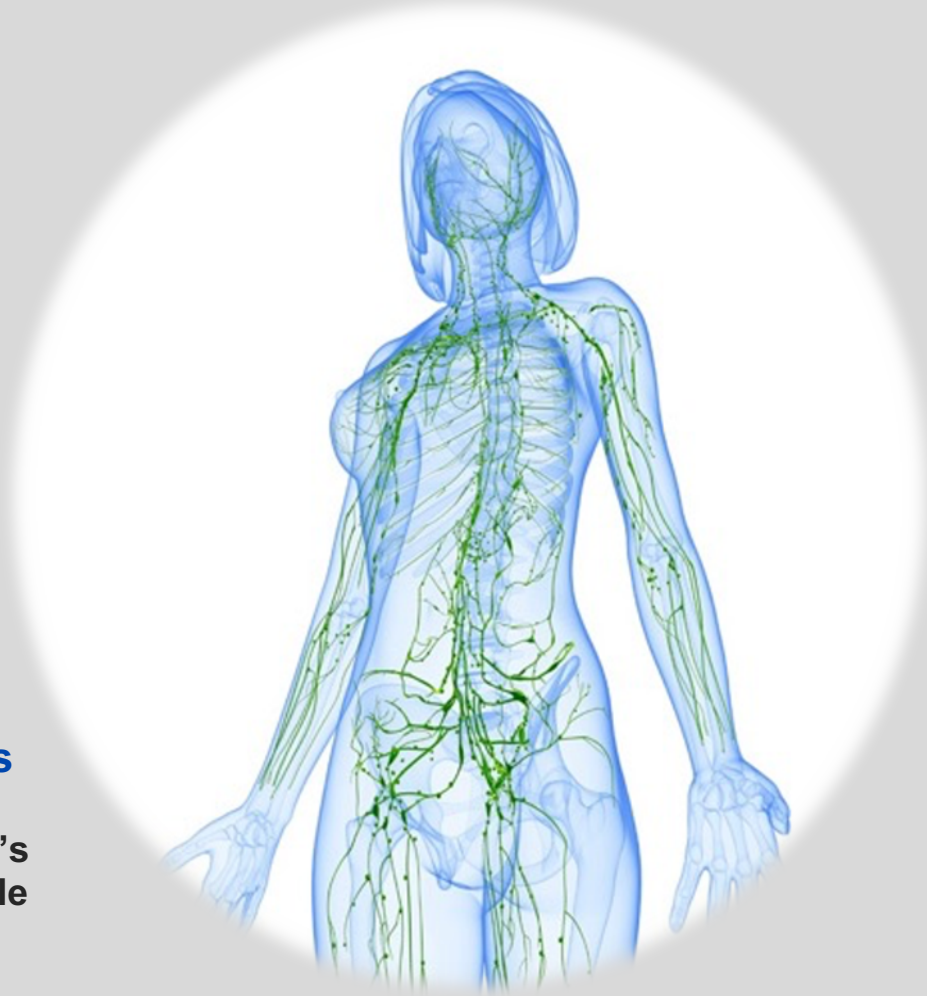
nature | Science | nature immunology | JPRAS

Regenerative Disease Modifying Science

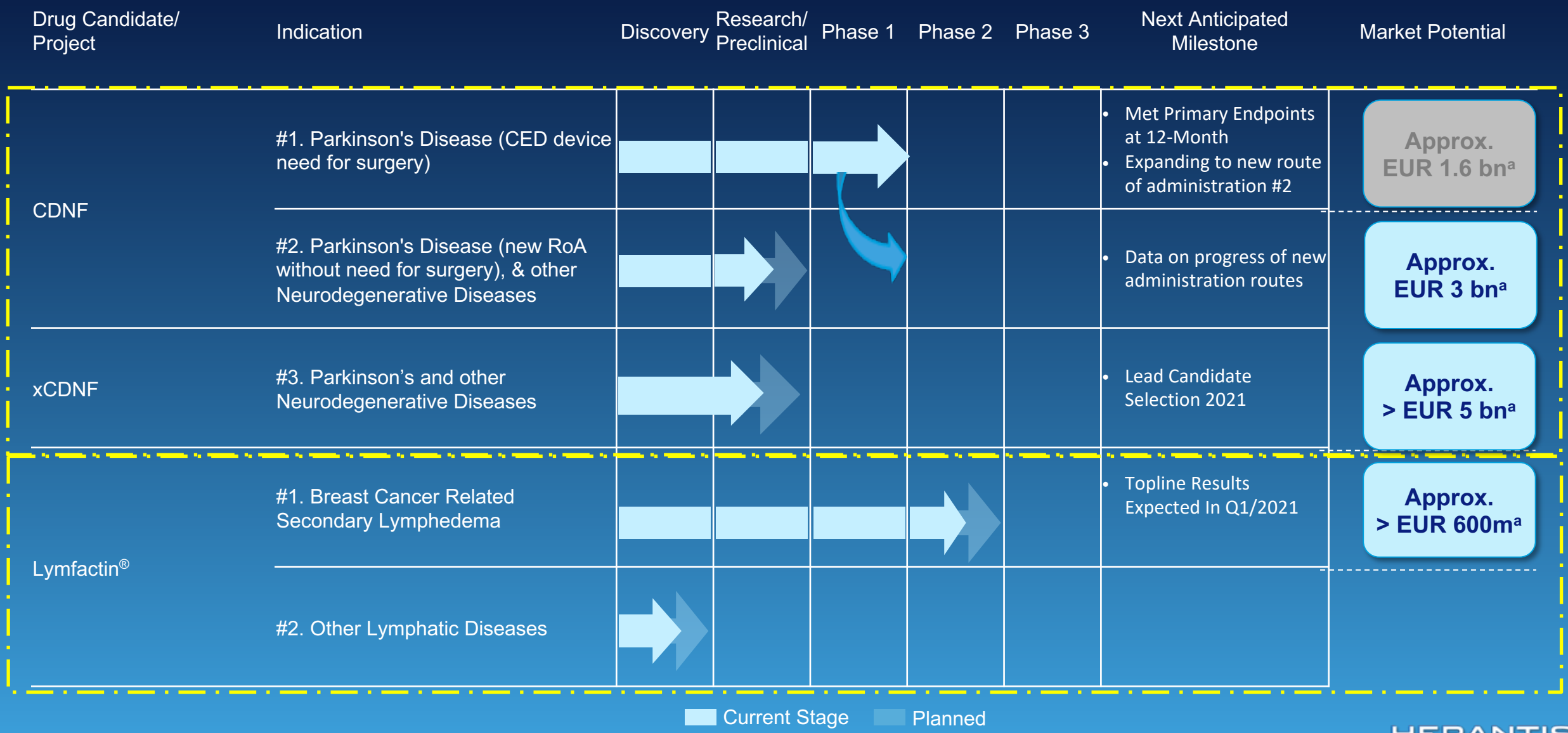
- Focused on slowing, stopping, or reversing disease pathology
- **CDNF (Cerebral Dopamine Neurotrophic Factor)**
  - Ground-breaking biological therapy for neurodegenerative diseases
- **Lymfactin® (VEGF-C)**
  - Cutting-edge gene therapy for lymphatic diseases

Establishing New Frontiers of Care in Debilitating Diseases

- Herantis aiming to bring treatments into the 21st century
  - **Parkinson's Disease CDNF – same standard of care since 1950's**
  - **Lymphedema VEGF-C – no medical therapies currently available**
- Both programs into the clinic, demonstrated safety, and now moving to establish efficacy



Focused Pipeline Targeting Unmet Medical Needs



[a] Source: Management estimate.

Experienced Leadership Team to Lead Herantis to Success

The Key Ingredient to Building a Successful Bioscience Company

Craig Cook

Chief Executive Officer
MD, MBA

Serial CEO in public and private sectors, a respected track record of financing at scale, positioning high science companies for commercial success and exits, and successfully taking sophisticated programs through development

Joined Herantis Pharma in 2020

Previously CEO, COO, CMO at Midatech Pharma; Founder CEO at SpaceCode Healthcare Technologies; Founder CEO Swisscare Health; Increasingly senior positions at major pharma including Eli Lilly, J & J, Novartis, Serono.

Tone Kvåle

Chief Financial Officer
CA

Serial public company CFO with impressive track record of significant fundraising, exemplary investor relations, multiple asset monetization transactions, and sound management of investor funds

Joined Herantis Pharma in 2020

Previously CFO at Nordic Nanovector, Nordiag, Dynal Biotech

Antti Vuolanto

Chief Operating Officer
D. Sc

A pioneering world expert in lymphatic diseases and VEGF-C gene therapy; accomplished track record in building programs and functions to deliver successful drug development results

Joined Herantis Pharma in 2018

Previously at COO at Valo Therapeutics, Executive VP at Targovax ASACOO and Co-founder at Oncos Therapeutics

Henri Huttunen

Chief Scientific Officer
PhD

Distinguished world expert in neurobiology and CDNF, several top tier publications, intellectual brilliance, and rich track record in translating discovery science into treatments for severe neurodegenerative diseases

Joined Herantis Pharma in 2008

Previously Founder CEO Herma Pharma, Docent in Neurobiology at University of Helsinki, Massachucetts General Hospital & Harvard Medical School, PhD

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Parkinson’s Disease & Other Neurodegenerative Diseases

CDNF & xCDNF

Significant Unserved Market Needing Disease Modifying Treatments

Total Neurodegenerative Disease Market 2018 Estimated $35 Billion, Projected $63 Billion 2026; CAGR of 7.2% [2]

Parkinson's Large Unmet Need Affecting > 10 Million Patients Worldwide, ~1 Million Patients in the US Alone [1]

Global Parkinson's Disease Treatment Market is Expected to Reach USD 5.69 billion by 2022 from USD 4.24 Billion in 2017, at a CAGR of 6.1% [3]

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Obtainable Market for Herantis Products Estimated Could be in Excess of USD 3 Billion [4]

Current Treatments Cause Undesirable Side-Effects and Only Somewhat Manage Symptoms

CDNF & xCDNF's Disease Modifying Regenerative Potential Put Herantis at the Forefront of New Emerging Therapeutic Strategies Targeting Parkinson's and Other Neurodegenerative Diseases

CDNF Can Protect Neurons From Degeneration and Restore The Function Of Already Degenerating Neurons

Technology Platform with Potential for Treating Other Neurodegenerative Diseases

[1] Parkinsons Foundation www.parkinsons.org ; [2] Fortune Business Insights https://www.fortunebusinessinsights.com/industry-reports/neurodegenerative-diseases-drugs-market-100661 ; [3] Parkinson's Disease Treatment Market. (n.d.). Retrieved from https://www.marketsandmarkets.com/Market-Reports/parkinson-disease-treatment-market-47265247., [4] Source: Management estimate html

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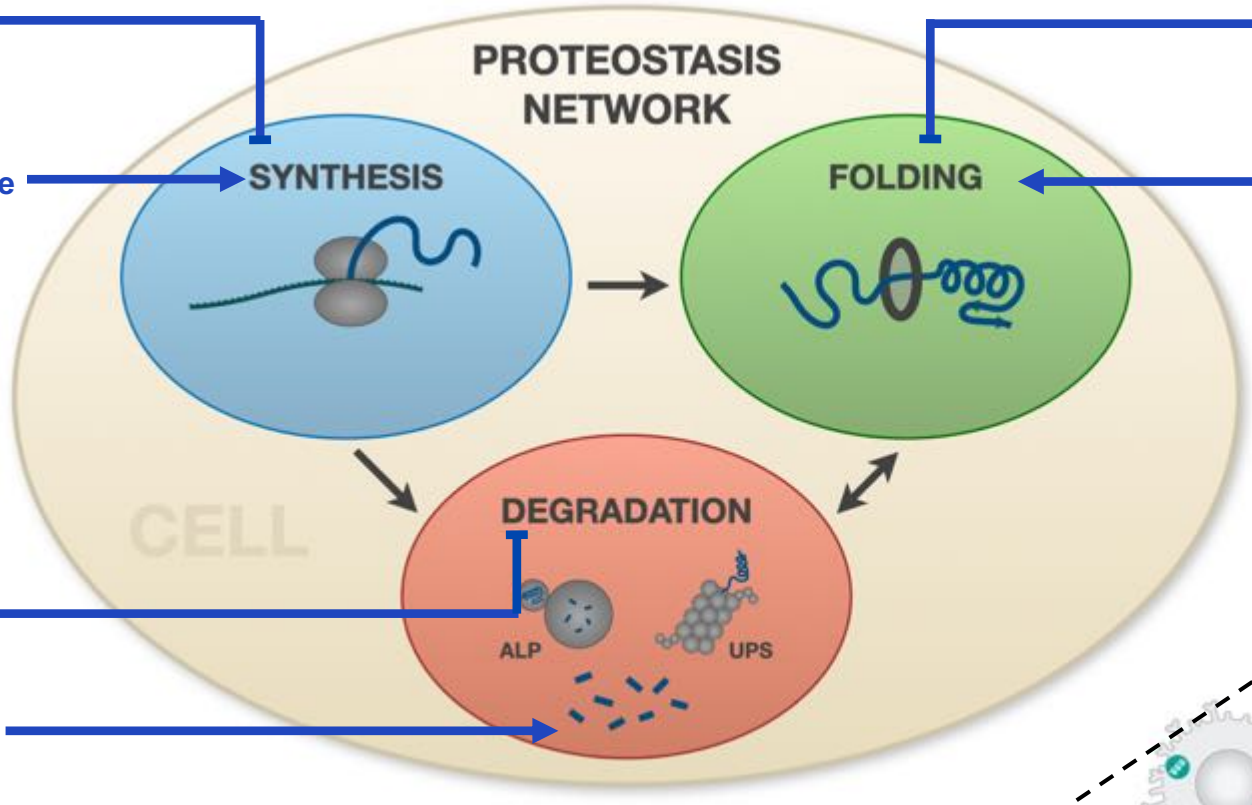
A Word on the Mechanism of Action CDNF & Proteostasis

Proteins are the building blocks of everything in the body. Functionality of all cells (particularly neurons) depends on the balance of the three cornerstones of proteome regulation: synthesis, folding and degradation.
If any of these becomes dysfunctional, problems will follow

Accumulation of misfolded proteins and ER stress result in reduced protein synthesis

1

CDNF adjusts the cellular response to support protein synthesis and functionality of cells



Compromised protein folding contributes to cell dysfunction, which if prolonged can kill cells

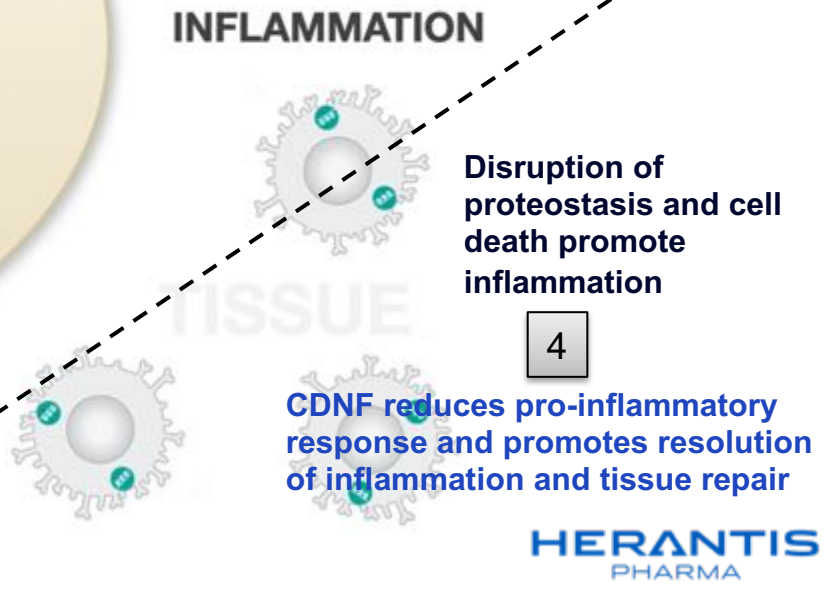
2

CDNF adjusts the cellular response to support cellular functionality and prevents cell death

Protein aggregates overwhelms the degradation machinery and promote cell death

3

CDNF adjusts the cellular response to support degradation of 'bad proteins'



Disruption of proteostasis and cell death promote inflammation

4

CDNF reduces pro-inflammatory response and promotes resolution of inflammation and tissue repair

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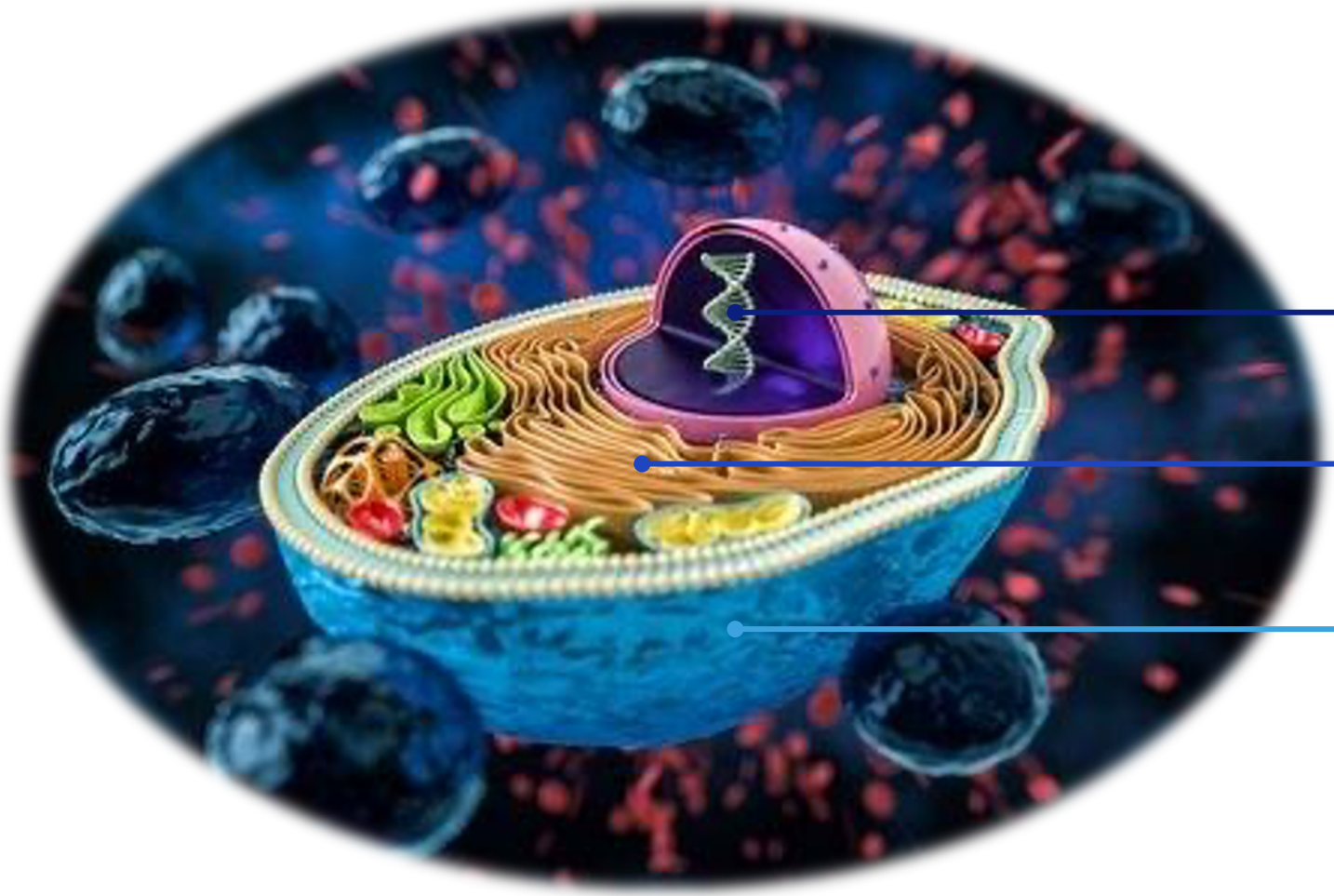
Key CDNF Target is the Endoplasmic Reticulum, the Largest Organelle in Cells

Proteostasis – Remember The Word



Nucleus

Endoplasmic Reticulum (ER)*

CDNF's Big Ally

Cell Membrane

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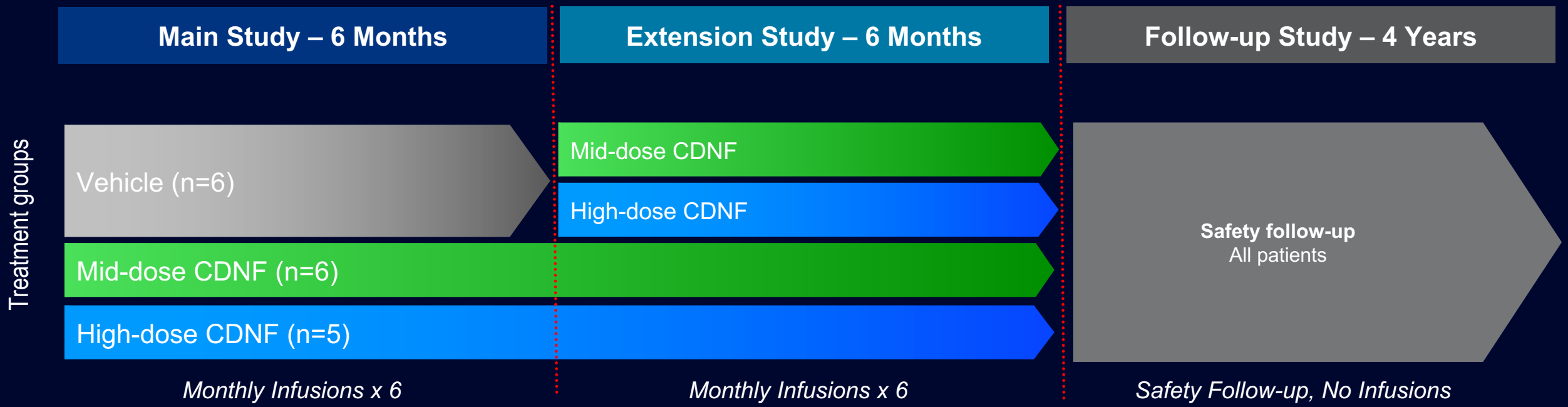
CDNF First-in-Human Study



Characteristic (n = 18)	**Placebo** n=6	**CDNF** (low-mid-mid) n=6	**CDNF** (low-mid-high) n=5
Age (years)	63.8 ± 6.4	63.2 ± 8.9	57.8 ± 6.7
Disease duration since first motor symptoms (years)	10.5 ± 2.7	10.7 ± 3.1	10.8 ± 2.3

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Primary Endpoint Met

- ☑ Majority of the Reported Drug-Related TEAE's Were Mild And Have Recovered
- ☑ Similar Safety Profile in Main (0 – 6 Months) And Extension (6 – 12 Months) Study
- ☑ Similar Safety Profile Between Dose-Groups
- ☑ No Dose-Limiting Toxicities Related To CDNF
- ☑ SAE's Related To Device, Improvements Made To Use And Preparation
- ☑ Not an Efficacy Study
  - other than to say no worsening of disease, and promising biological signals in some patients

"In addition to the study's favourable safety profile, it is encouraging to observe an improvement in the UPDRS motor score as well as an indication of a biological response compared to baseline, which may be clinically relevant. In chronic diseases, such as Parkinson's, where patients continue to decline over time despite receiving treatment, the differences observed in this study present a potential opportunity for the development of meaningful therapeutic effects."

— Prof Per Svenningsson, Karolinska University Hospital (Study Principal Investigator)

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Solid Foundation for a Winning CDNF Program

Three Key Pillars

Develop Standalone CDNF Product

- Move away from invasive surgical drug-device combination to patient friendly, regulator friendly, physician friendly RoA
- Focus on ongoing development of alternative routes of administration
  1. **Nose-to-Brain (intranasal)**
  2. **Skin injection (subcutaneous)**
- Back CDNF (and xCDNF) without relying on invasive surgical device

Accelerate Development and Time to Partnerability

- Administration routes focus on increasing chances of successful and quicker development, approval, commercialization
- Accelerates time to potential partnering transaction

Target Earlier Stage Patients

- Expand target population to earlier disease patients with more dopaminergic neuron populations to rescue
- This is the target for CDNF

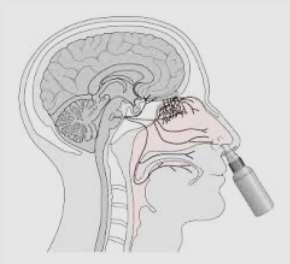
Leveraging Proteostasis + Blood Brain Barrier Traversal

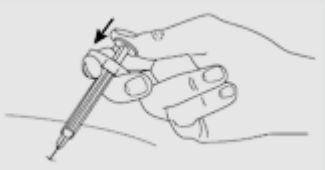
Three Key Programs

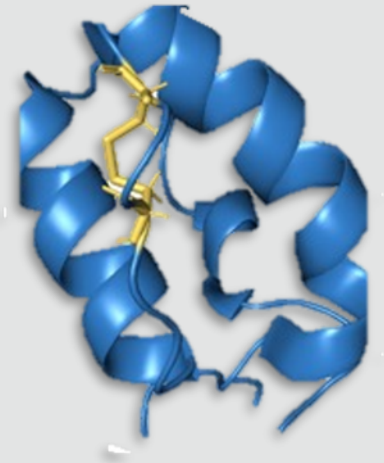
1 Intranasal (Nose-to-Brain)

2 Subcutaneous (Skin)

3 xCDNF







Routes of Administration

Molecular Portfolio

Parkinson's Disease and Chronic Neurodegenerative:
1. Reduced safety risks; patient friendly, physician friendly
2. Access to early stage patients; accelerated route to market
3. Broad applicability in degenerative CNS diseases

Acute Neurodegeneration (such as Stroke & Reperfusion):
1. Protective, immunomodulatory and regenerative effects
2. Treatment for urgent interventions
3. Broad applicability in acute degenerative CNS diseases

In Parkinson's Disease and Other Neurodegenerative:
1. Crosses BBB therapeutic levels; subcutaneous injection
2. Access to early stage patients, large patient populations
3. Broad applicability in degenerative CNS diseases

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1. Nose-to-Brain Administration for Parkinson's & Neurodegenerative Conditions

Four Key Factors Determine The Efficiency:

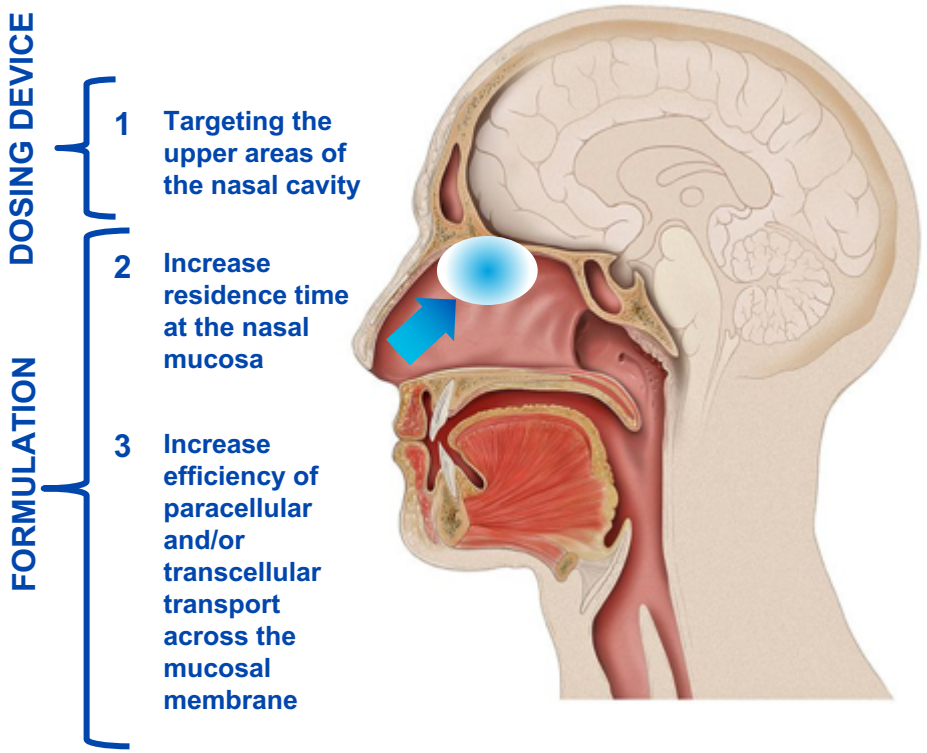
- Lipophilicity of the Drug
- Tight Junction Pass Through
- Reaches Olfactory Region
- Long Residence Time + Crossing Nasal Membrane

Optimized: typically low for proteins
Optimized: CDNF 18.5 kDa
Optimizing: device
Optimizing: formulation

Pre-Clinical Data Suggests Therapeutic Levels In Brain Is Achievable

Penetration % to achieve a pharmacologically active concentration

Direct Pathway Between Olfactory/Trigeminal Neuroepithelium Nasal Mucosa And Brain Striatum



Up to 10% of CDNF Theoretically Targeted to Cross into Brain

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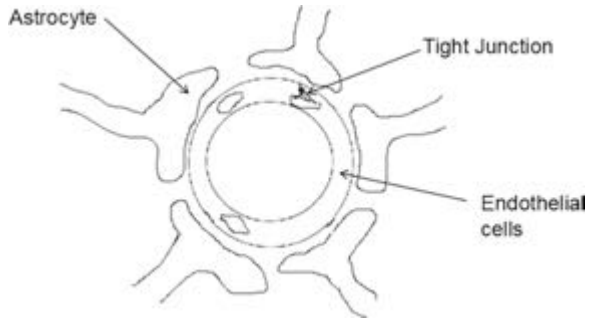
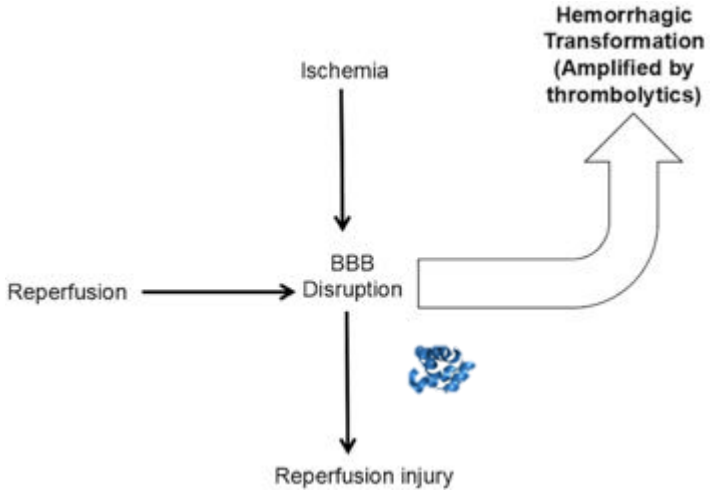
2. Skin Injection for Acute Neurodegenerative Conditions

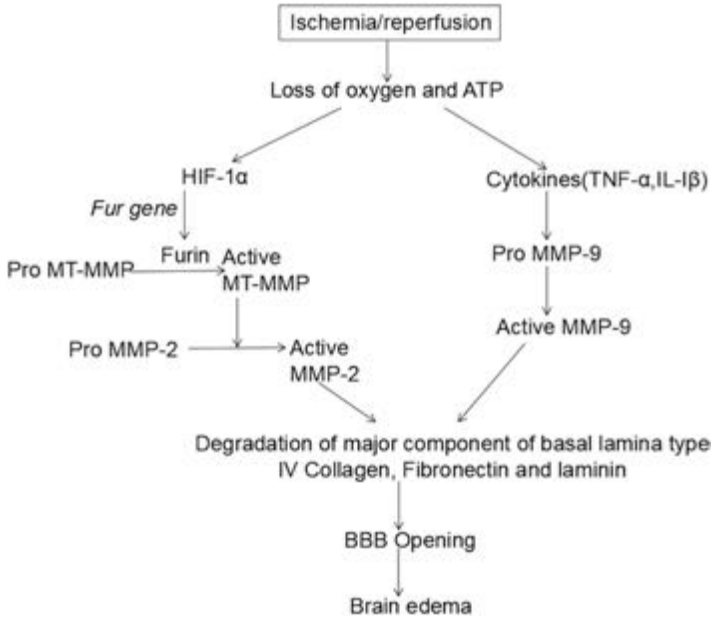
1. **Damage Due to Ischemia Disrupts Blood Brain Barrier (BBB) Membrane Permeability**
2. **Cytotoxic and Vasogenic Mechanisms Break Down and Open The BBB**
3. **CDNF Administered Systemically, Crosses Compromised BBB to Exert Effect**
4. **Pre-clinical Data Supports I.V. and S.C. Delivery and BBB Crossing in Preclinical Models Such as for Stroke**



BBB angioarchitecture prevents paracellular transport



BBB changes in acute ischemic stroke



BBB opening after ischemia/reperfusion injury

Patnaik R, Kumar A, Dwivedi A. *eds* Advancement in the Pathophysiology of Cerebral Stroke, 2019

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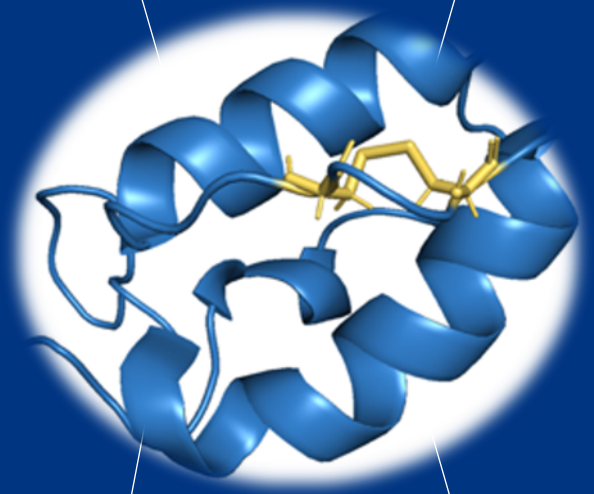
3. xCDNF A Compelling Asset in Parkinson's Disease

Potential Indications in Parkinson's Disease and Several Other Neurodegenerative Diseases

CDNF Results Provide Solid Platform for xCDNF



xCDNF (Small Engineered Fragments of CDNF)

- Retain the biological activity of CDNF
- Penetrate the BBB
- Highly potent molecules
- Engineered for improved metabolic stability

Common Challenge In CNS Diseases is Drug Delivery to the Brain

xCDNF at Final Stages of Compound Selection to Take Forward into Development

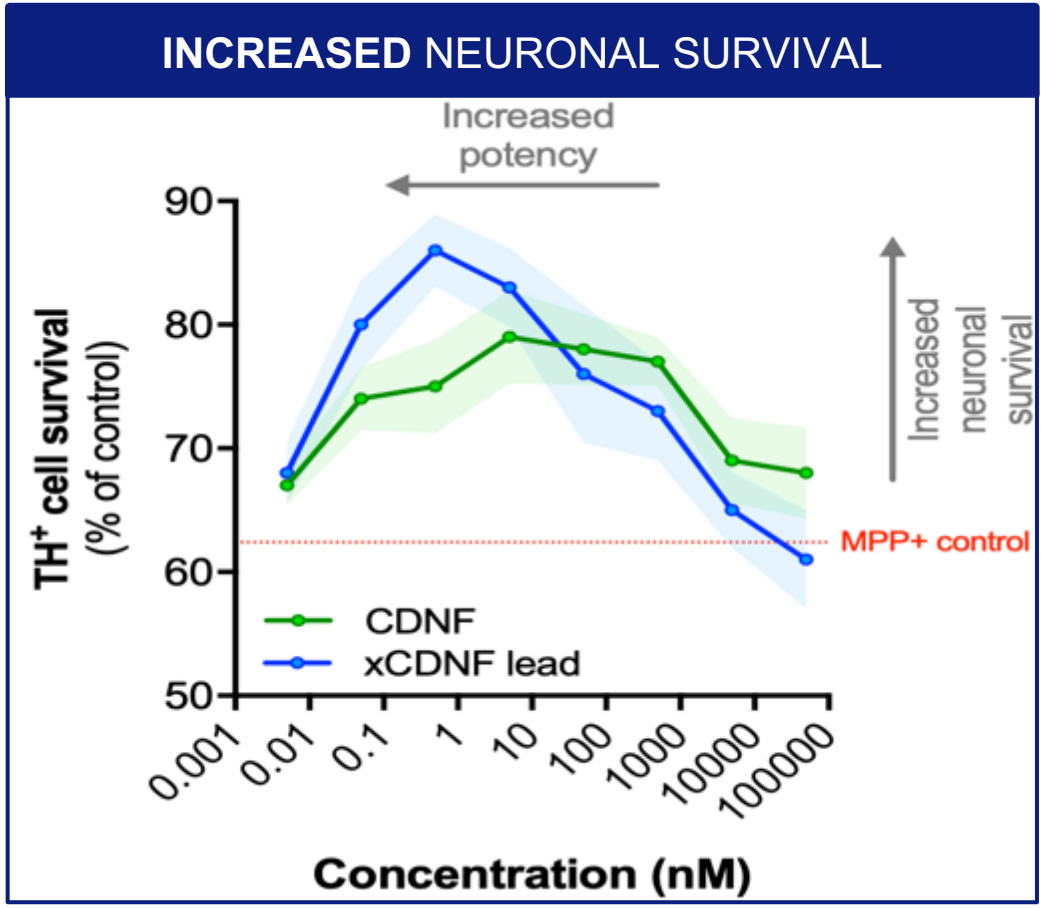
- Will not require surgical device
- Administration via simple injection

CNS: Central Nervous System, BBB: blood-brain barrier that protects the brain from harmful compounds but also prevents many medicines from entering the brain

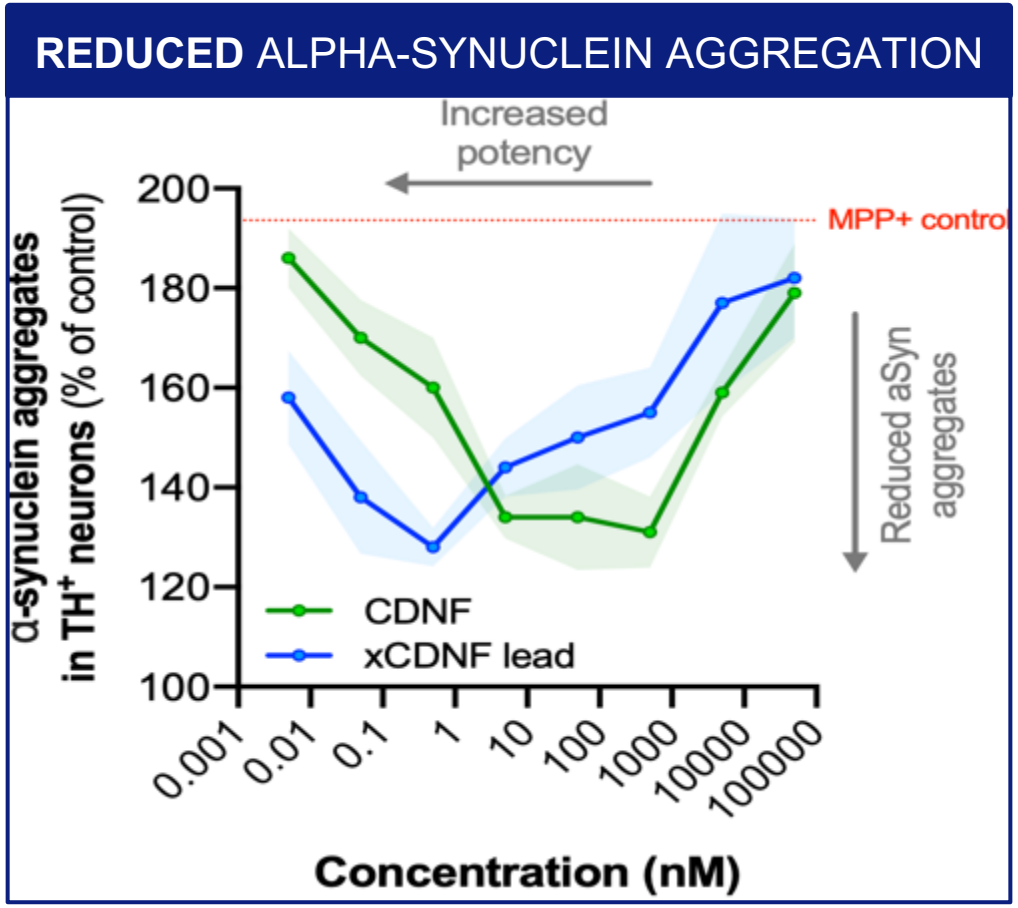
Potency: xCDNF Retains Potency of CDNF (in vitro)

xCDNF Lead Compound's Maximum Effect for In Vitro Neuroprotection at **0.5 nM**

INCREASED NEURONAL SURVIVAL



REDUCED ALPHA-SYNUCLEIN AGGREGATION



STUDY: Rat mesencephalic neuron cultures treated with 4 μM MPP+ and increasing concentrations of either CDNF or xCDNF lead compound for 48 h, followed by immunostaining with tyrosine hydroxylase (TH) or alpha-synuclein antibodies and automated image analysis. n=5-6.

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Other Proteostasis Players: We Are in Good Company

Prothena / Roche

- Prasinezumab (PRX002/RG7935), an alpha-synuclein mAb, is currently in Phase 2 (the most advanced therapy with disease modifying potential in PD)
- **Partnership with Roche (a $600Mn deal)**
- **Market cap $500Mn**

Yumanity

- Originates from MIT research, early preclinical (PD drug in Phase 1)
- Lead molecule YTX-7739 is an inhibitor of stearoyl CoA desaturase and protects from alpha-synuclein toxicity
- **$500Mn deal with Merck announced 06/2020**

Calico Labs

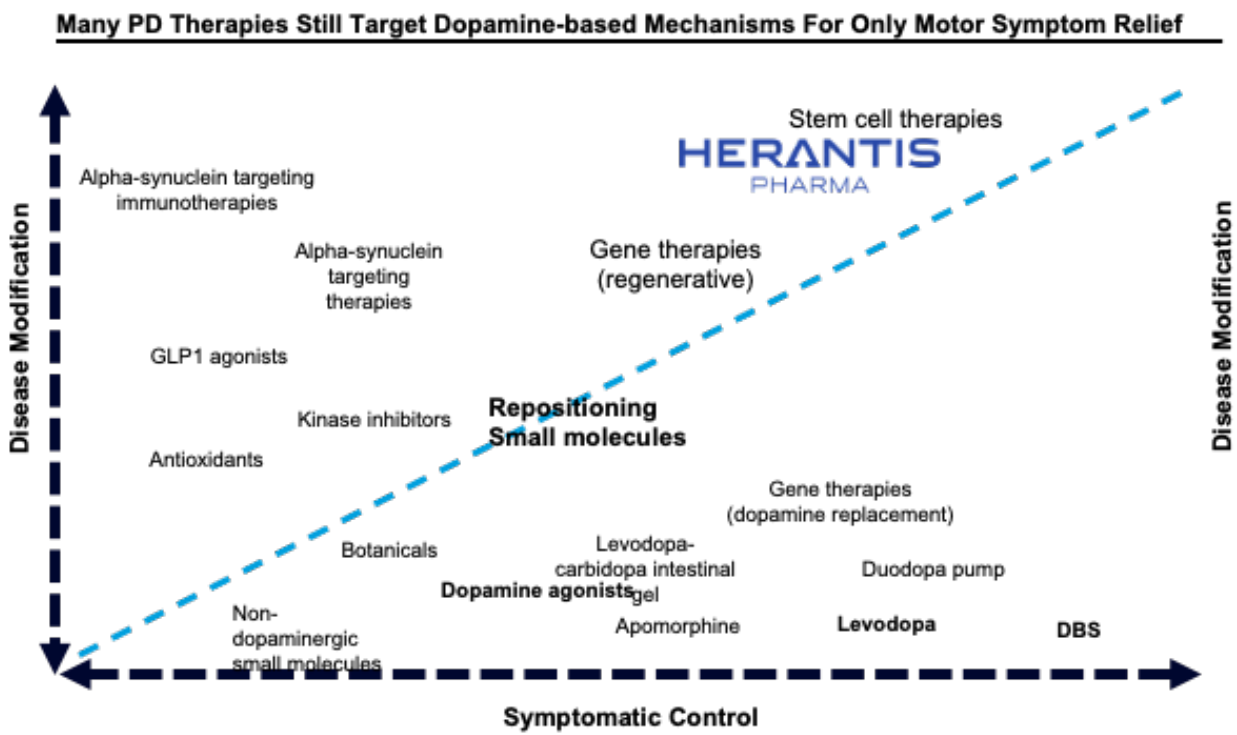
- Preclinical, Google-backed company focusing on aging-related diseases
- Network of partnerships including Abbvie, MIT, Harvard
- EIF2B activators for modulation of integrated stress response (overlap with ER stress signaling pathways
- **Injected $2.5Bn into research**

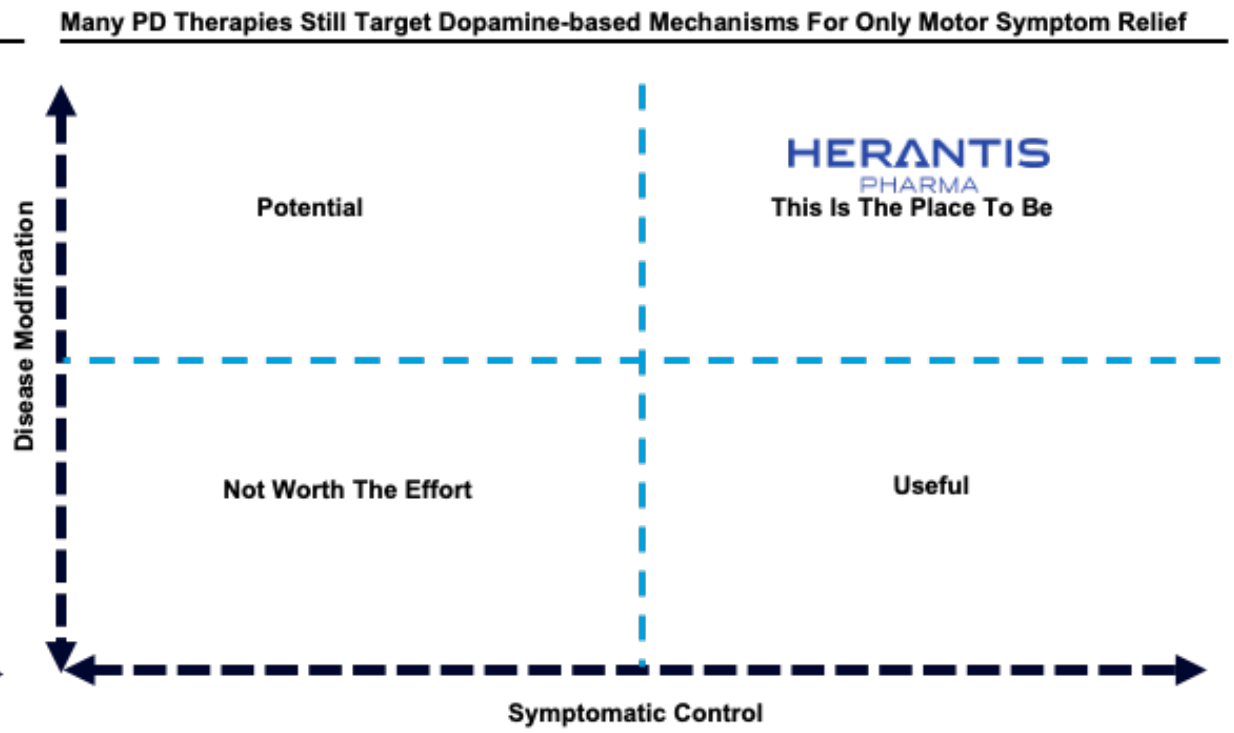
Denali

- Deep pipeline addressing neurodegenerative diseases
- DNL343 is an EIF2B activator currently in Phase 1 in ALS (FTD also?)
- **Market cap $5Bn**

Formidable Companies, Formidable Deals, Formidable Investments, Formidable Growth, and Formidable Return on Investment

Herantis Assets Target Positioning in the Market





Source: Management estimate; Company information.

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Secondary Lymphedema and Other Lymphatic Disease

VEGF-C Lymfactin®

Our Novel Gene Therapy Targets Breast Cancer Related Lymphedema (BCRL)

Up to 200 Million Patients Suffer From Lymphedema Worldwide, Either due to Infection (50%) or Cancer Related (50%) [1]

Currently Efficacious Therapies, No Cure or Disease-Modifying Treatments on the Market. Decompressive Care Still Mainstay of Therapy in All Stages of Disease Severity

Breast Cancer Commonest Cause of Cancer Related Lymphedema, Affecting More Than ~500K Patients in the US and EU Alone[2].

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Herantis' Novel Gene Therapy Drug Lymfactin® Has Disease Modifying Potential for Reconstituting a Functional Lymphatic System

30% Of Breast Cancer Patients Undergo Mastectomy, of Which Up To 30% Will Develop BCRL

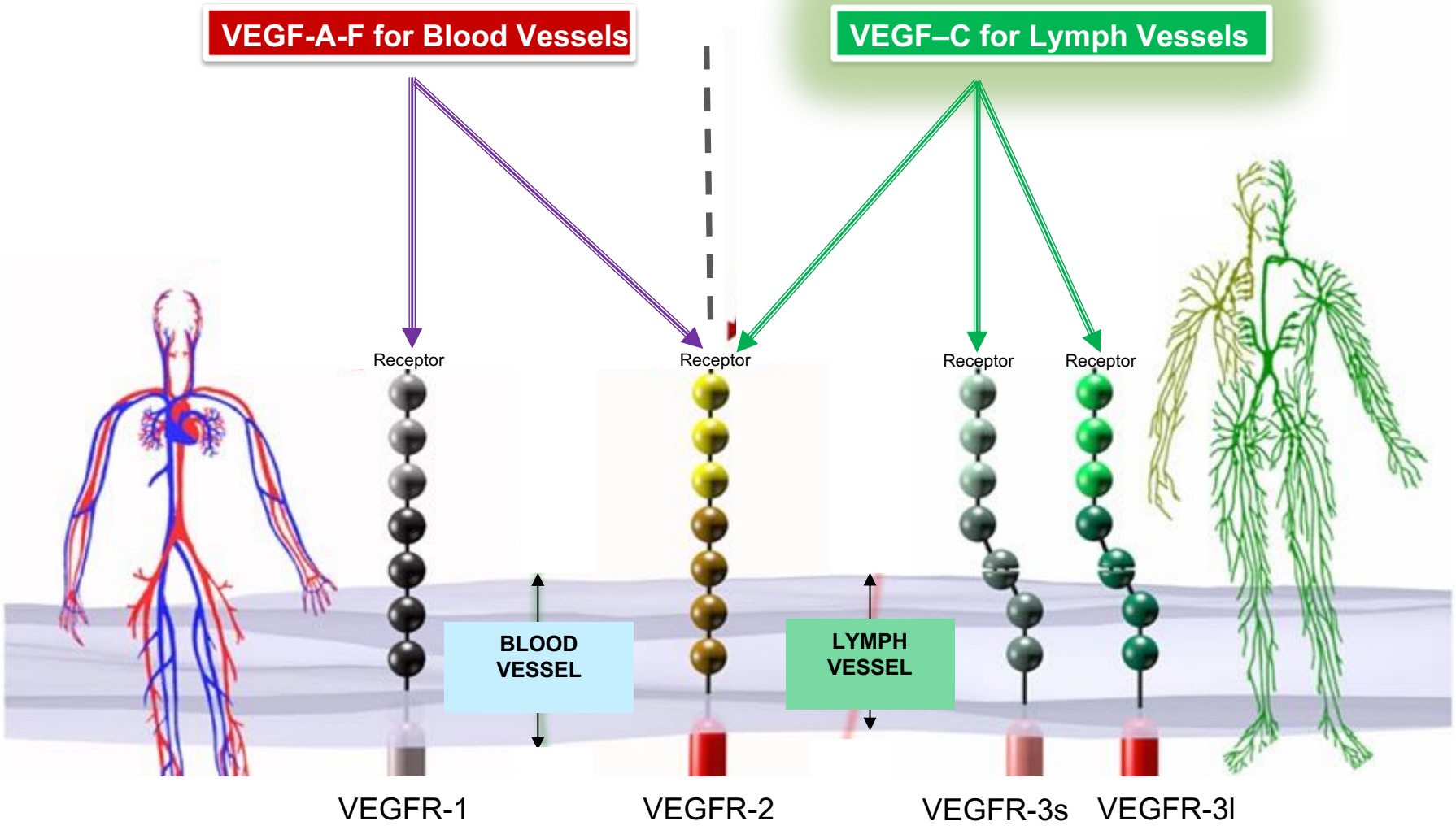
Potential For Use in a Broader Secondary Lymphedema Setting, as Well as in Other Lymphatic Based Diseases

Obtainable Market for Herantis Products For BCRL Alone Estimated Could be in Excess of USD 600 Million [4]

Global 2° Lymphedema Treatment Market Projected to Grow Parallel to the Increasing Prevalence of Cancer

[1] WHO https://www.who.int/neglected_diseases/integrated_media_lf/en/ [2]. Company Information; [2]Lymphedema Treatment Market Research, Size, Share, Trends, Global Analysis, 2025: MRFR. (n.d.). Retrieved from https://www.marketresearchfuture.com/reports/lymphedema-treatment-market-8440 ; [4]. 3The Company's management estimates based on proprietary market research that the annual peak sales for Lymfactin® may reach EUR 600 million in the USA and Europe.

Vascular Endothelial Growth Factor (VEGF) a Potent Ubiquitous Growth Promoter



LYMFACTIN

Source: Rauniyar K, Biology of Vascular Endothelial Growth Factor C in the Morphogenesis of Lymphatic Vessels, Frontiers in Bioengineering and Biotechnology Vol 6, 2018

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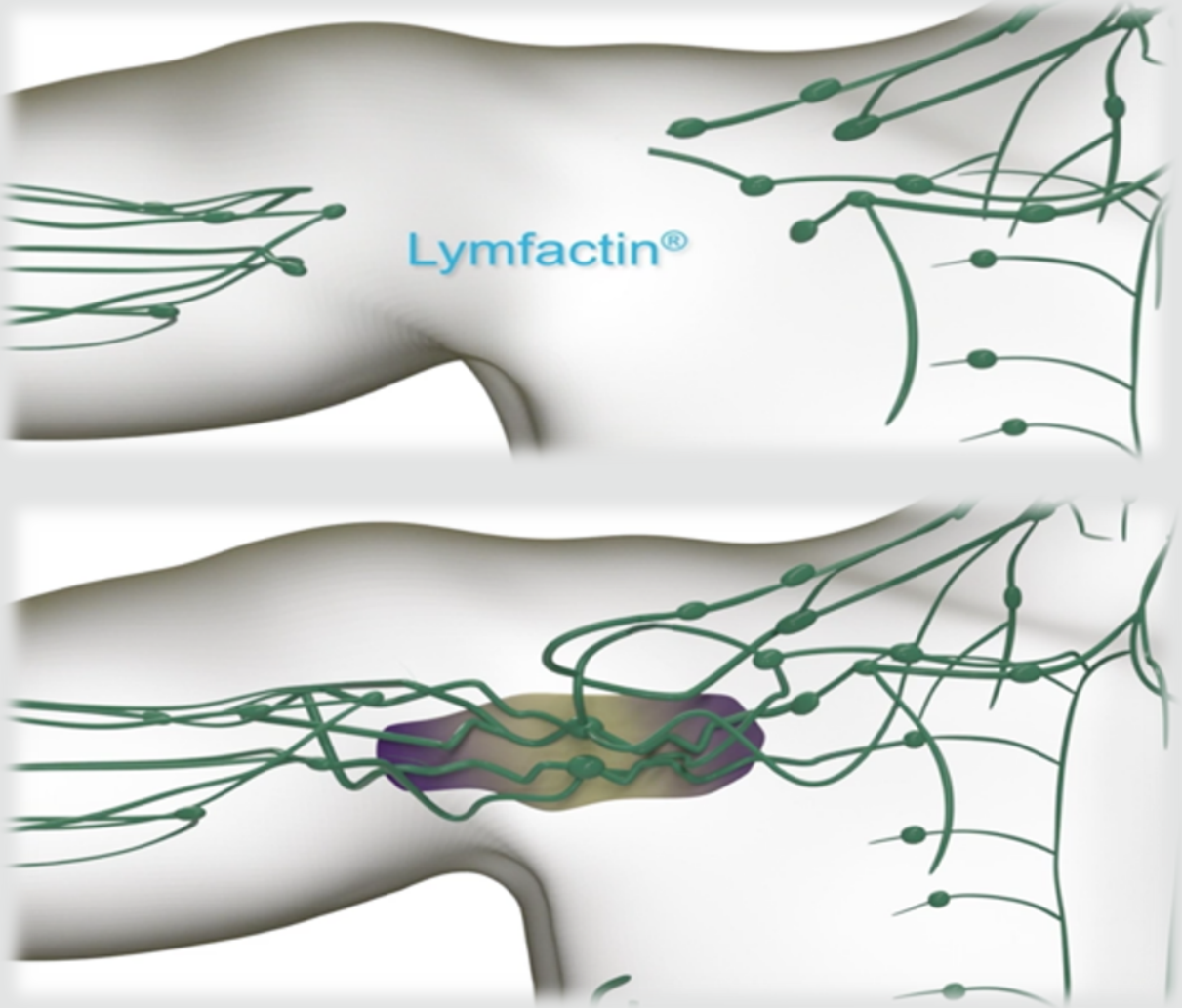
Lymfactin® has Potential to be First Medical Therapy for Lymphedema

As a part of breast cancer treatments, axillary (armpit) lymph nodes are often removed. This results in compromised lymph flow. Radiation therapy may also harm the lymphatics.

Lymfactin® VEGF-C gene therapy is administered locally into the armpit together with lymph node transfer surgery as a single-dose treatment where it promotes **reconstitution of a functional lymphatic system** and thus may potentially cure the lymphedema



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Lymfactin® Development on Track

Phase I Study *Safety Established and Maintained*

- Data confirms safety and tolerability maintained through 24 months
- Was not an efficacy study (no control group), nevertheless encouraging improvements observed in signs & symptoms of LE at 12- and 24- month follow-up

  -Volume reduction in approx. 50% patients, improved lymphatic flow in some patients, and improved quality of life in most patients

Phase II 'Adele' Efficacy Study *All Treatments Concluded*

- Adjunct to lymph node transplantation surgery
- 39 patients randomized in Lymfactin® vs. placebo
- Topline results expected **Q1/2021** (after 12-month blinded follow-up)
- Primary endpoints: Efficacy in signs and symptoms of BCRL

"Breast cancer related lymphedema is a chronic disease that severely compromises quality of life of patients. Lymfactin® gene therapy is a highly promising investigational product that has the potential to transform the treatment of this debilitating disease"

- Associate Professor Anne Saarikko of Hospital of Helsinki (Study Principal Investigator)

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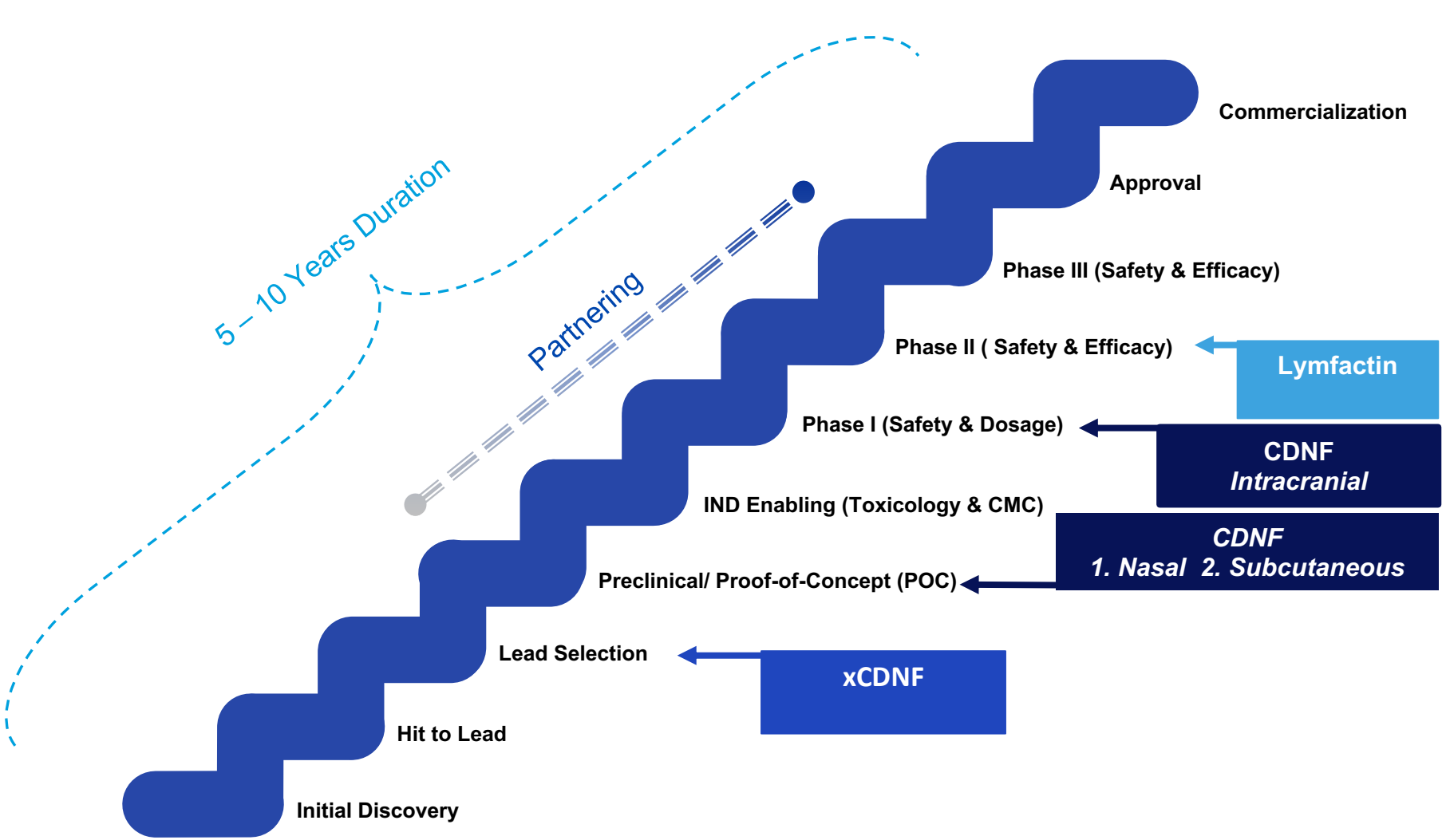
Summary

Herantis Development Milestones & Newsflow



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H2 2021: Further details and next steps for Lymfactin®
H1 2021: Data readout Phase II Lymfactin®

H2 2021: Complete formulation and pre-clinical new adm. routes for CDNF

H2 2021: Commencement of xCDNF pre-clinical
H1 2021: Selection of lead candidate for xCDNF

Program Development Milestones — **Newsflow 2021**

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Key Investment Highlights

1. *Clinical Stage Biotech Company with Multiple Projects*
2. *Cutting Edge Science in Biological and Gene Therapy that we Have Successfully Moved from Science Into Humans*
3. *Potential Significant Impact on Diseases that Have Shown Limited Progress in Decades*
4. *Highly Skilled Team Who Know What is Needed, and How To Do It, With a Track Record Of Delivery*
5. *Robust Newsflow Expected for CDNF, xCDNF and Lymfactin® Over Next 12 – 18 Months*
6. *Clear Path to Potential Partnerability and Commercialization*

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Thank You!