



Clinical breakthroughs in regenerative medicine

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Herantis Pharma Plc

- Public drug development company developing novel pharmaceutical products based on globally leading science
- Focus in regenerative medicine, developing novel compounds with breakthrough potential in indications with significant unmet clinical needs
- Herantis' proprietary, patented clinical stage compounds are:
 - CDNF protein therapy for stopping progression of Parkinson's disease
 - Lymfactin® gene therapy for curing secondary lymphedema



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Herantis development pipeline

Drug candidate	Indication	Preclin	Phase 1	Phase 2	Phase 3
Lymfactin®	Secondary lymphedema	△	△	*	
CDNF neuroprotective factor	Parkinson's disease	△	△	**	
CDNF neuroprotective factor	Amyotrophic lateral sclerosis (ALS)	△	***		
CDNF neuroprotective factor	Other neurodegenerative diseases	***			

*Phase 2 study planned for launch H1/18

**Phase 1-2 clinical proof-of-concept study ongoing

***Promising unpublished preclinical data exist. Formal development program not started.

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Introduction to Herantis' clinical stage drug candidates: CDNf

CDNF aims at stopping the progression of Parkinson's disease



- CDNF is currently in randomized, placebo controlled Phase 1-2 study in Parkinson's disease (PD) at three leading European centers
- Study funded by a prestigious European Union grant; grant criteria: "Leading science, greatest potential to advance clinical practice"
- Based on broad preclinical data including both toxin and alpha-synuclein based models CDNF is expected to relieve both motor *and* non-motor symptoms *and* stop disease progression
 - Disease-stopping therapy would save the society over \$400,000 per patient*
- CDNF is not another GDNF – it is clearly distinct and superior!
 - And even suboptimal doses of GDNF have recently shown** unprecedented disease modification potential in placebo-controlled study
 - CDNF has no associated toxicities – CDNF clinical study uses optimal doses

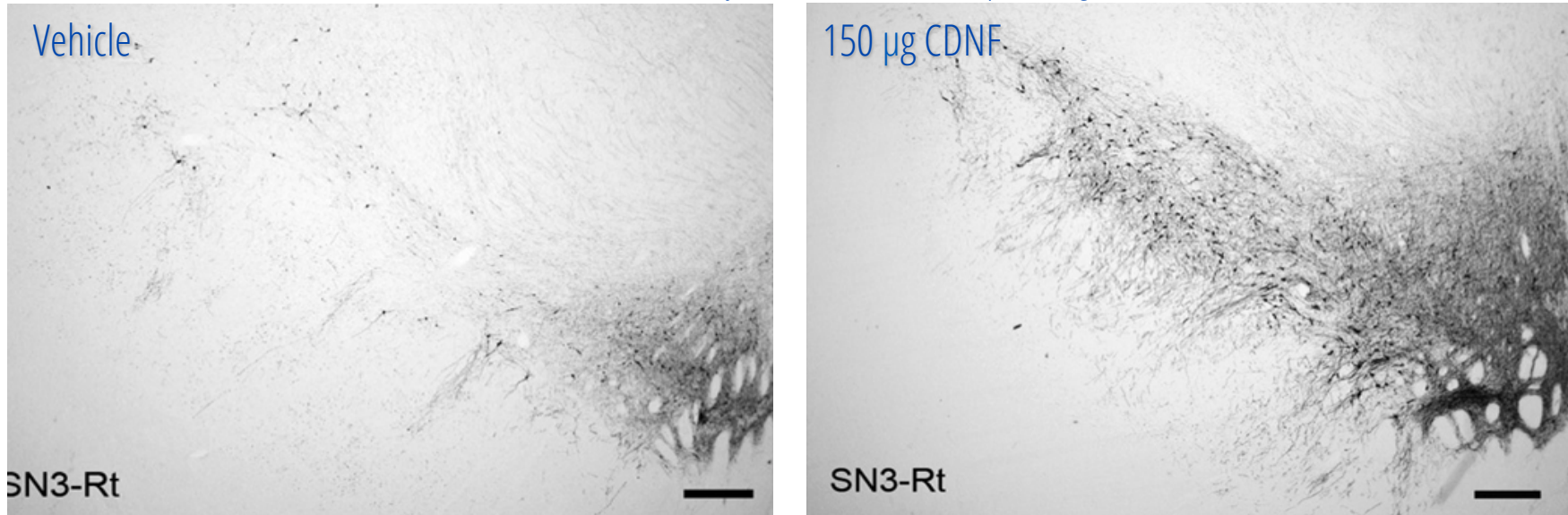
* University of Pennsylvania's National Parkinson Foundation (NPF)

** Phase 2 GDNF study by MedGenesis

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CDNF protects and recovers dopaminergic neurons in the nigrostriatal pathway in non-human primate model of PD

Tyrosine hydroxylase-staining of lesion-side substantia nigra sections from vehicle and CDF-treated monkeys. Dark color reveals dopaminergic neurons.



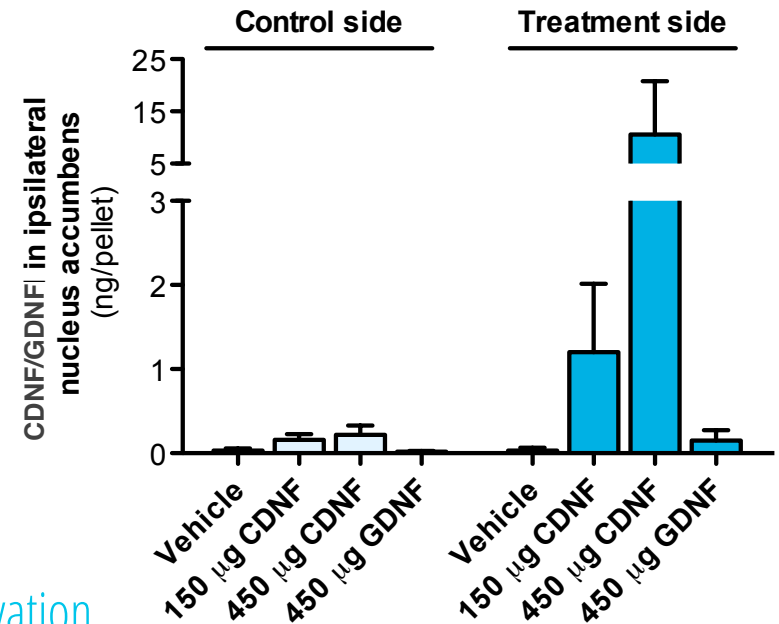
- In this study, the unilateral MPTP lesion resulted in 80% loss of DAergic neurons in the substantia nigra of the affected side
- CDF doubled the number of DAergic neurons in the substantia nigra (neurorestoration)
- Increased number of TH+ dopaminergic neurons correlated with an improvement in both gross (MPDRS) and fine motor function (mMAP)

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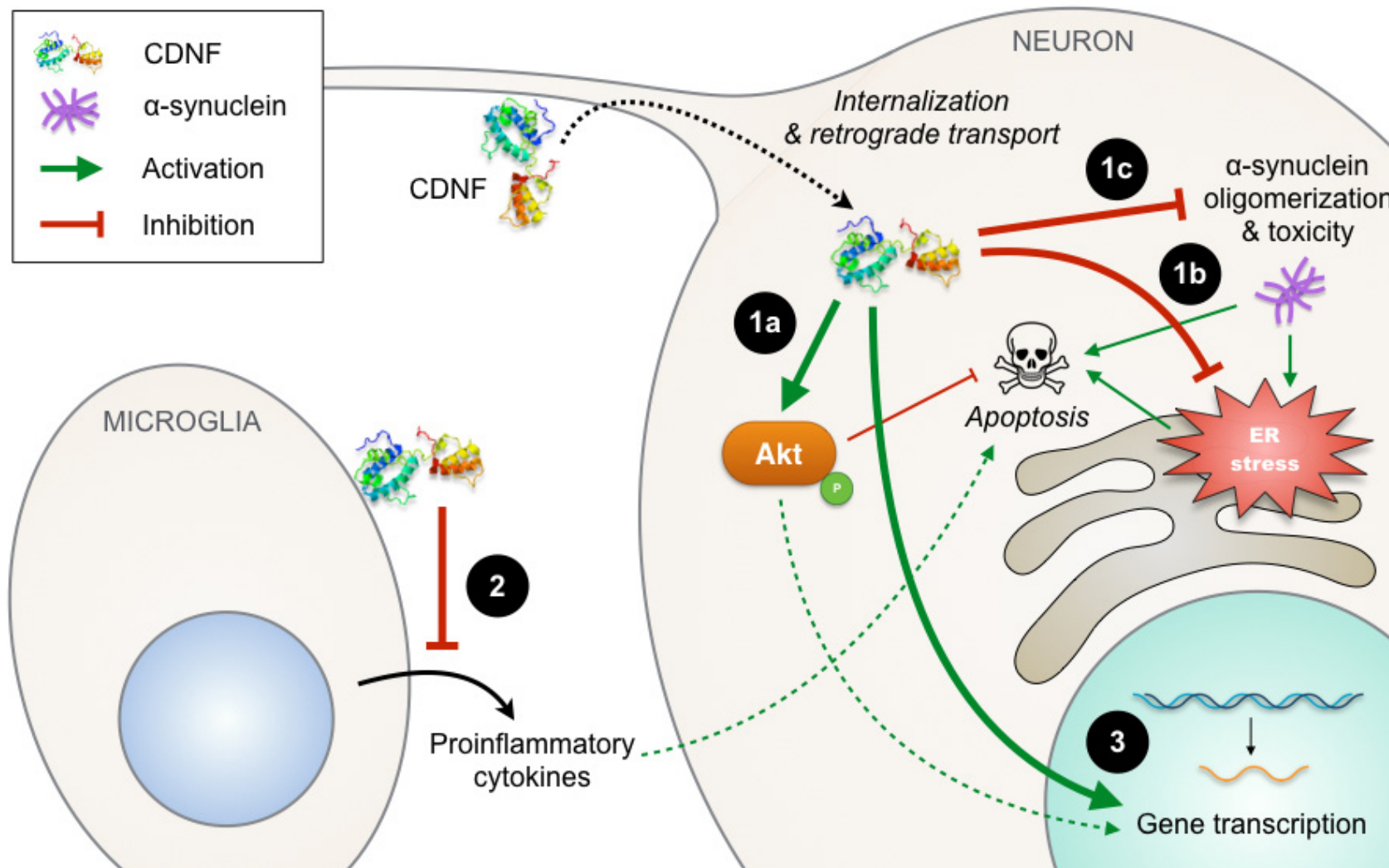
CDNF improves non-motor symptoms in MPTP/NHP model of PD*

- CDNF-treated monkeys showed significantly reduced depressive behavior (Human Intruder Test)
 - ✓ No other treatment has shown a reduction in depressive behavior in this unilateral model of Parkinson's disease
- Improved motivation (Wisconsin General Apparatus)
 - ✓ Reduced motivation post-MPTP lesion associated with motor dysfunction
 - ✓ GDNF group showed no improvement
 - ✓ CDNF-treated groups showed significant improvement in motivation
 - ✓ Elevated levels of CDNF were found in ipsilateral nucleus accumbens, a primary cognitive processing site for aversion, motivation and reward, which is also involved in development of anhedonia and depression

Diffusion from infusion site to nucleus accumbens



CDNF functions via several mechanisms relevant to PD



Introduction to Herantis' clinical stage drug candidates: Lymfactin®

Secondary lymphedema explained



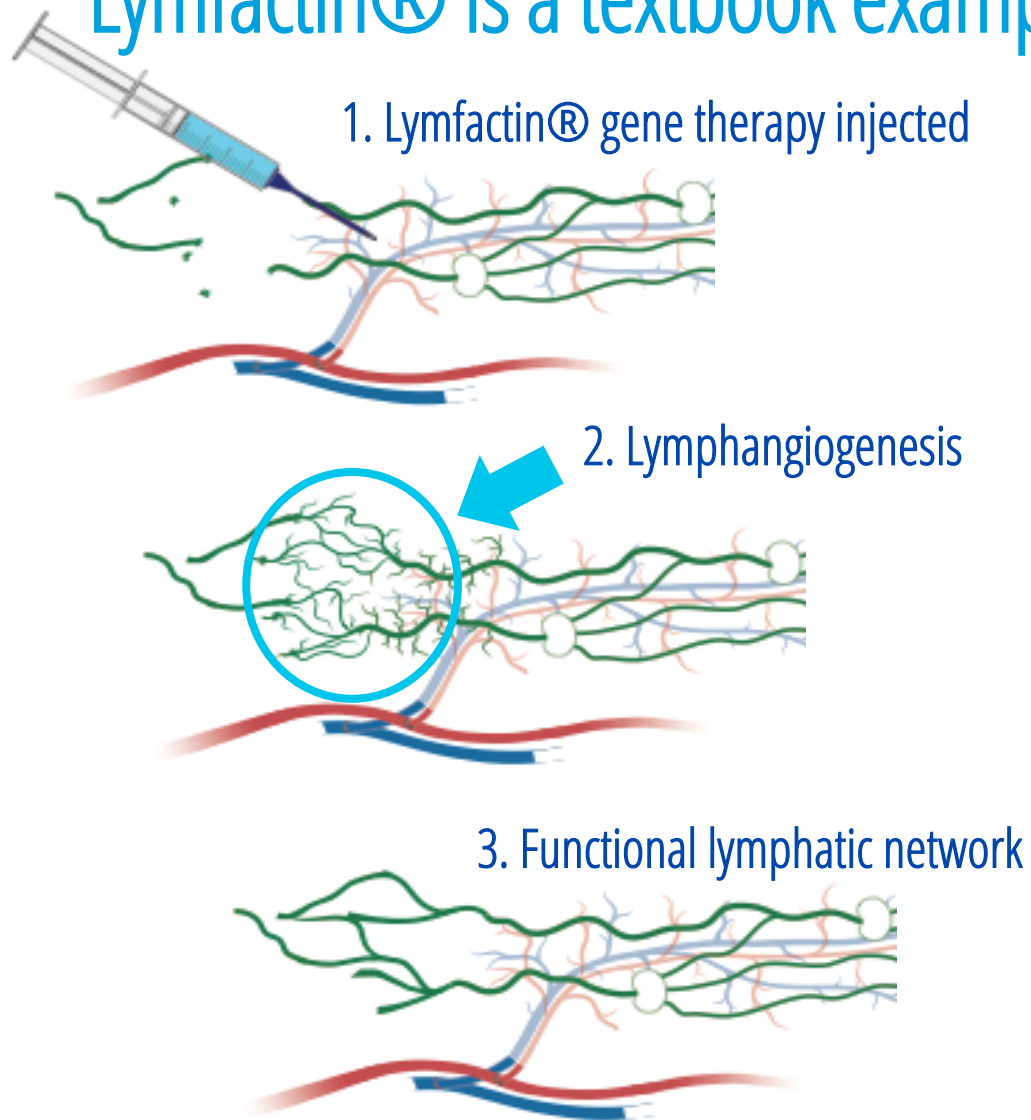
- Lymphedema (LE) is a chronic, progressive swelling of the affected tissues caused by dysfunction of the lymphatic vasculature
 - Estimated 140 million people worldwide have LE
- Secondary lymphedema is a consequence of e.g. disease, trauma, or surgery
- There is no cure or satisfactory treatment for LE

➤ Lymphedema is a disabling, disfiguring and debilitating condition severely affecting quality of life

Herantis' Lymfactivin® aims at curing secondary LE

- Lymfactivin® is the world's first and only clinical stage gene therapy that repairs the lymphatic system
 - Lymfactivin® expresses human VEGF-C to promote lymphangiogenesis
 - Targeted as the first disease modifying therapy of breast cancer associated LE (BCAL)
 - Significant potential in other forms of LE
- Lymfactivin® is based on the internationally leading scientific research by professor Kari Alitalo, foreign member of the US National Academy of Sciences
 - Professor Alitalo's group discovered VEGF-C, a growth factor highly specific to lymphangiogenesis
- Lymfactivin® phase 1 study in secondary LE expected to complete recruitment Q1/18
 - Excellent safety and tolerability reported up to the highest planned dose
- Randomized, placebo-controlled Phase 2 study being prepared for launch in 1H/2018
 - Funding secured for N=40 (20+20) clinical study

Lymfactin® is a textbook example of regenerative medicine



1. Gene therapy injected in damaged area
2. Expression of human VEGF-C results in lymphangiogenesis
3. Functional lymphatic network matures to repair the damages

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Growing market: LE awareness is rapidly increasing

- True LE incidence is estimated significantly greater than published data; under-diagnosis is due to lack of awareness and therapies
- LE awareness has dramatically improved thanks to patient advocacy LE&RN, Hollywood superstar Kathy Bates, and other brave patients
 - Dame Judy Dench appointed in LE&RN Honorary Board
 - US senate declared March 6th as Lymphedema Day
 - Growing demand for therapies that work!
- Estimated \$600M market in breast cancer associated LE for Lymfactin® (USA + EU5)
 - Significant potential in other forms of LE



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Herantis Pharma as an investment opportunity

Breakthrough potential based on globally leading science

- Significant market potential in unmet clinical needs with first-in-class assets, fully funded through clinical proof-of-concept
 - CDNF for stopping the progression of Parkinson's disease – multi-billion € opportunity; scientific excellence and breakthrough potential validated by EU's grant award process suggesting "Leading science, highest potential to advance clinical practice"
 - Lymfactin® to cure secondary lymphedema – estimated \$600M market in breast cancer associated lymphedema alone
- Additional opportunities supported by existing preclinical data
 - CDNF for treatment of ALS: Orphan designation granted by both FDA and EMA; huge unmet need
 - CDNF for treatment of further neurodegenerative diseases based on initial scientific data
 - Lymfactin® for treatment of other secondary lymphedemas

Herantis' strategy is partnering at the right time

- Herantis aims at optimizing shareholder value by partnering at the right time
- Reaching clinical proof-of-concept by leveraging non-dilutive funding
 - E.g. Parkinson's Phase 1-2 study funded by European Union; while project consortium includes two pharmaceutical companies with strong PD expertise* Herantis retains all commercial rights
- Finding strong pharmaceutical partners to invest in late stage development and market roll-out
 - Clinical proof-of-concept is the sweet spot for large pharmaceutical companies
 - Assets with clinical breakthrough potential, supported by leading science
- Aim at retaining selected regional rights for further growth

Herantis continues close collaboration with its scientific fathers

CDNF is based on long term research by professor Mart Saarma

- Vice President of European Research Council (ERC) in 2015-2017
- Globally leading scientist in neurotrophic and neuroprotective factors
- Numerous international science prizes including Karl Schlossmann Science Prize, Runeberg Medical Science Prize, Finnish Innovation Prize, Estonian State Prize for Science and Technology



Lymfactin is based on long term research by professor Kari Alitalo

- Director of the Translational Cancer Biology research program, nominated several times a national centre of excellence; over 500 scientific publications
- Globally leading scientist in vascular endothelial growth factors (VEGF)
- Numerous international science prizes including InBev-Baillet Latour International Health Prize, Louis Jeantet Prize for Medicine, Anders Jahre Prize, Dr. A.H.Heineken Prize



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Future investment opportunities

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- Thanks to non-dilutive funding the company is funded through completion of two proof-of-concept clinical studies
 - CDNF in Parkinson's disease
 - Lymfactin® in breast cancer associated lymphedema
- The company may consider raising additional financing in addition to non-dilutive funding to accelerate its growth
 - Preparations for Phase 3 development
 - Expanding in additional indications based on strong preclinical data, established clinical safety
- Herantis' shares are listed in Nasdaq Helsinki First North
- Current market cap approximately €30 million (Feb 2018)

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Thank you