



Clinical breakthroughs in regenerative medicine

Company presentation at BioEquity, Ghent 15 May 2018

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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 fully funded through clinical PoC:
 - CDNF for stopping progression of Parkinson's disease
 - Lymfactin® for first disease modifying treatment of lymphedema



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Herantis development pipeline

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

*Phase 2 fully funded, planned for launch 1H/2018

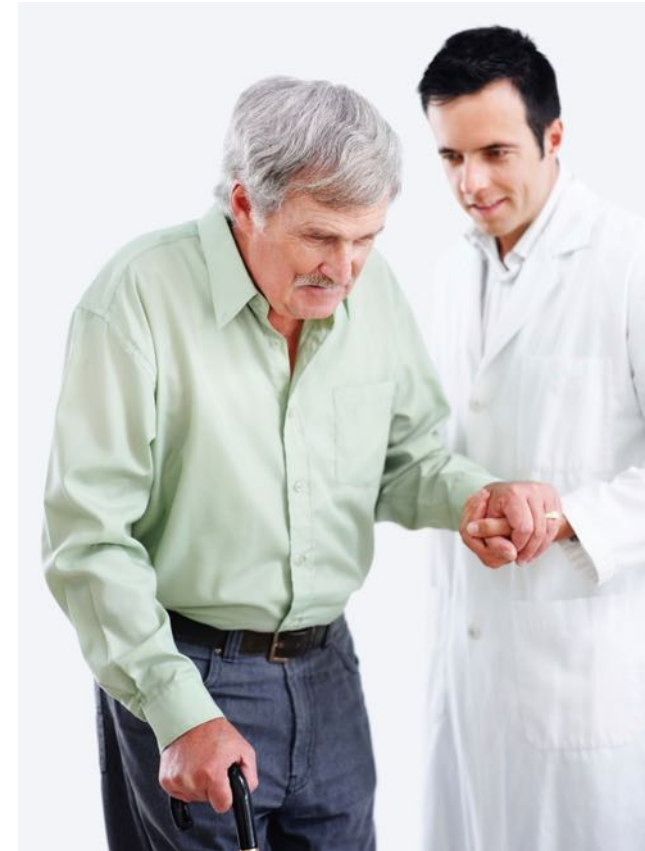
**Phase 1-2 (randomized, placebo-controlled) clinical study ongoing

***Promising unpublished preclinical data exist.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

Brief introduction to Herantis' clinical drug candidates: CDNF for Parkinson's disease

Parkinson's disease (PD)

- PD is the second most common neurodegenerative disease impacting estimated 7 million people; common first symptoms include tremors, slowed movement
- Available therapies only alleviate motor symptoms of PD; current PD drug market is approximately \$3 billion
- Estimated financial burden of PD in Europe: € 13.9 billion
- Disease-stopping therapy would save the society over \$400,000 per patient* in the USA

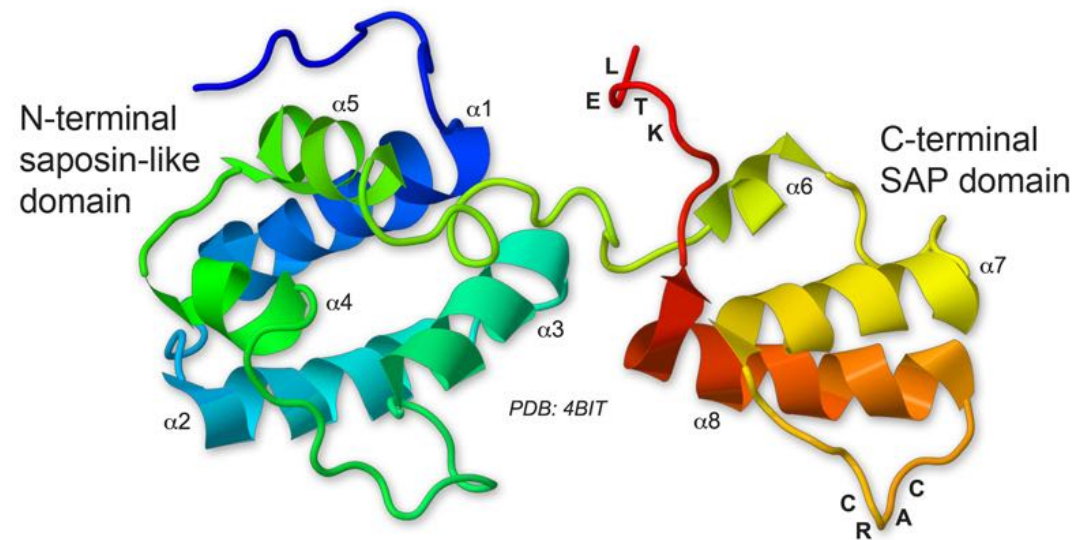


*University of Pennsylvania's
National Parkinson Foundation

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CDNF aims at stopping progression of Parkinson's disease

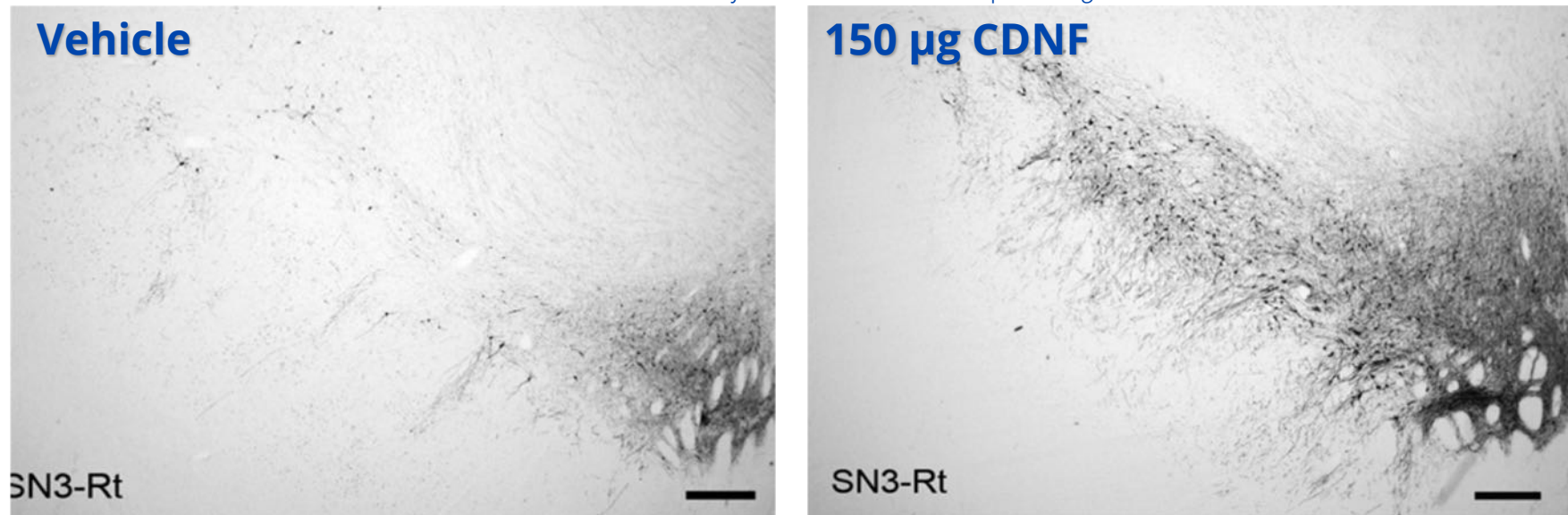
- CDFN is a novel, potent neuroprotective factor that promotes neuronal survival
- CDFN is very distinct from and superior to conventional neurotrophic factors
- Based on broad preclinical data including non-human primates CDFN relieves both motor *and* non-motor symptoms *and* stops disease progression



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

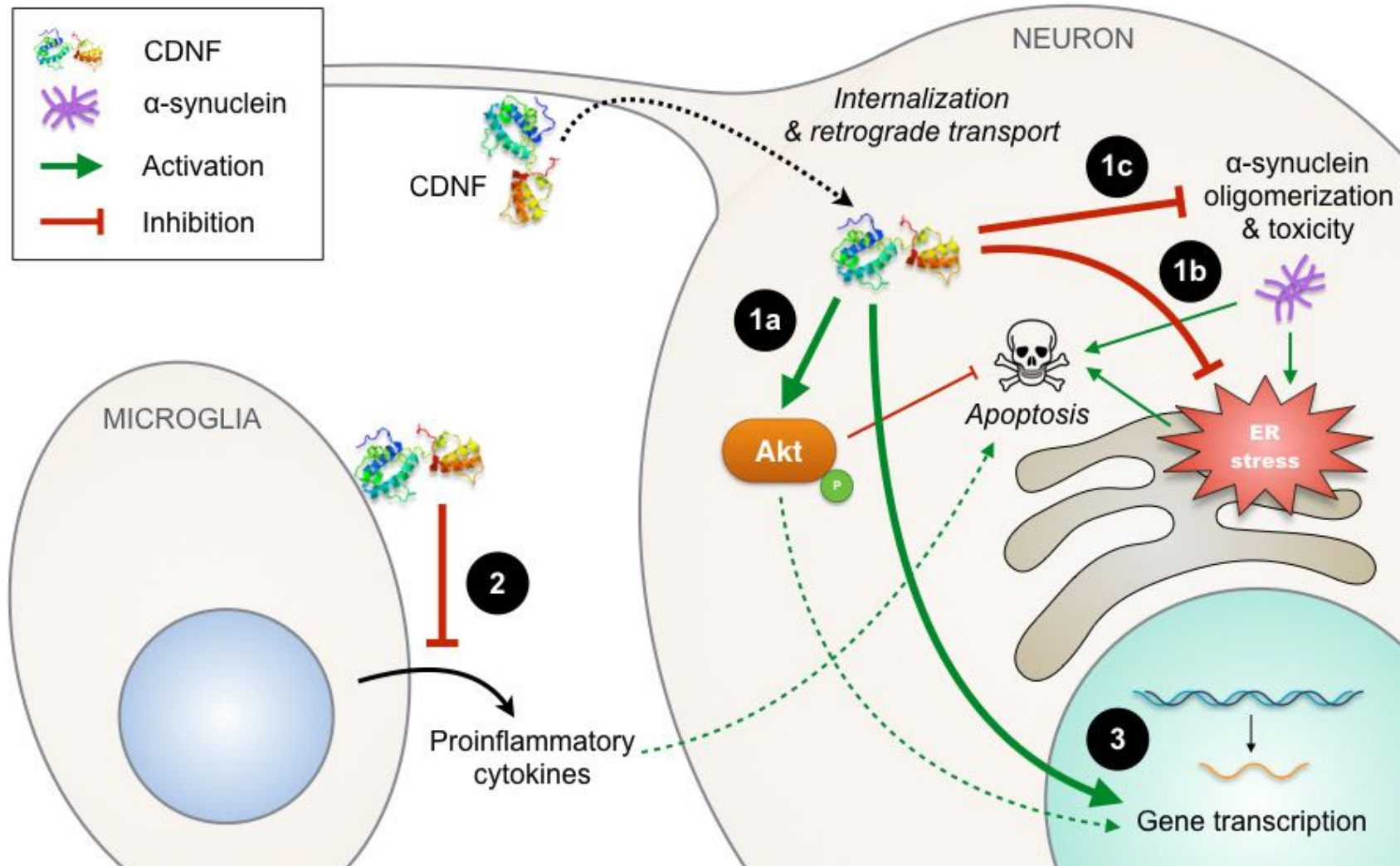
Tyrosine hydroxylase-staining of lesion-side substantia nigra sections from vehicle and CDF-treated monkeys. Dark color reveals dopaminergic neurons.



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

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CDNF functions uniquely via several mechanisms relevant to PD



CDNF is in clinical PoC study at three leading sites

- CDNF in randomized, placebo-controlled Phase 1-2 in PD at leading centers in EU
 - 18 patients randomized to 6 on placebo, 12 on the active
 - Topline data expected by end of 2019
- The study is funded by a prestigious EU grant
 - Grant criteria: “Leading science, greatest potential to advance clinical practice”
- CDNF is administered once monthly using a DBS-like intracranial delivery system
 - CDNF is a protein that does not permeate the blood brain barrier (BBB); therefore a clinically tested delivery system is used for dosing
 - Herantis and its partners are studying and patenting approaches for systemic delivery CDNF

Brief introduction to Herantis'
clinical drug candidates:
Lymfactin® gene therapy for
secondary lymphedema

Would this impact
your quality of life?



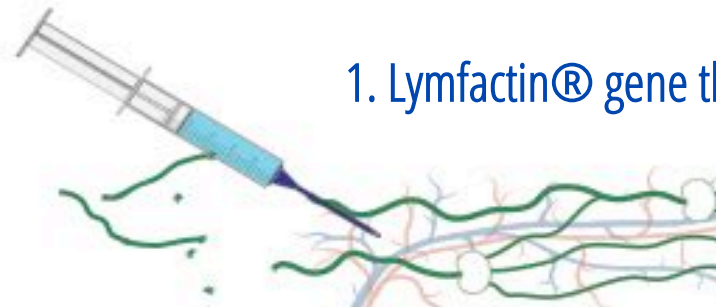
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Secondary lymphedema explained



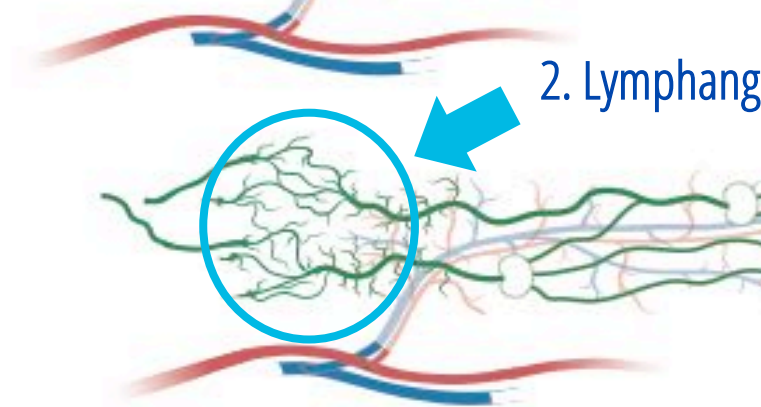
- Lymphedema (LE) means a chronic, progressive swelling of affected tissues due to dysfunction of the lymphatic vasculature
- Disabling and disfiguring disease, which severely affects quality of life
- Estimated 140 million people worldwide have LE; there is no cure
- Secondary lymphedema means LE caused by e.g. disease, trauma, or surgery

Lymfactin® - textbook example of regenerative medicine



1. Lymfactin® gene therapy injected

1. Gene therapy injected in damaged area



2. Lymphangiogenesis

2. Expression of human VEGF-C results in lymphangiogenesis



3. Functional lymphatic network

3. Functional lymphatic network matures to repair the damages

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Growing market: LE awareness is rapidly increasing

Hollywood superstar,
lymphedema victim

Kathy Bates

is a strong and visible
LE spokesperson:

[https://medlineplus.gov/
magazine/issues/fall16/a
rticles/fall16pg4-6.html](https://medlineplus.gov/magazine/issues/fall16/articles/fall16pg4-6.html)



Herantis collaborates
with international LE
advocacy

LE&RN

(Lymphatic Education
& Research Network)

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Lymfactin® aims at curing secondary LE

- Lymfactin® is the world's first and only clinical stage gene therapy that repairs the lymphatic system
 - Lymfactin® 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
- Phase 1 completed in 18 patients with BCAL: Lymfactin® is safe and well tolerated
 - Promising quality-of-life changes already observed; however those are uncontrolled data
- Randomized, placebo-controlled Phase 2 study prepared for launch in 1H/18
 - Lymfactin® as adjunct to lymph node transplantation surgery
 - Topline data expected by end of 2020

Herantis' uniqueness

Herantis' assets are based on globally leading science

CDNF

CDNF is based on prof. Mart Saarma's long-term research

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



Lymfactivin

Lymfactivin is based on prof. Kari Alitalo's long-term research

- Director of the Translational Cancer Biology research program, nominated several times a national centre of excellence
- Over 500 scientific publications
- Numerous international science prizes including InBev-Baillet Latour International Health Prize, Louis Jeantet Prize for Medicine, Anders Jahre Prize, Dr. A.H.Heineken Prize
- Globally leading scientist in Vascular Endothelial Growth Factors (VEGFs)



Herantis' assets are based on leading scientific research in their fields published in highest-impact scientific journals*

*CDNF was published in Nature. Mechanisms of VEGF-C have been published in Nature and Science.

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Experienced Board, Advisory board, and management



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Pharmaceutical and Genentech



Herantis lead assets summarized

	CDNF	Lymfactin®
Based on globally leading science	Professor Saarma, leading scientist in neuroprotective factors and NTFs	Professor Alitalo, leading scientist in VEGFs
Targeting unmet clinical needs	Stop progression of Parkinson's: First disease-modifying therapy	Cure Secondary Lymphedema (LE): First disease-modifying therapy
In fully funded clinical PoC studies	Randomized, placebo-controlled Phase 1-2 study ongoing	Randomized, placebo-controlled Phase 2 study being launched
Disease-modifying potential validated	NHP data: Neuroprotection, neurorestoration, alleviation of both motor and non-motor symptoms	Lymphangiogenesis results in new functional lymphatic vessels in target area in large animal model
Science and development plan independently validated	European Commission: "Leading science, greatest potential to advance clinical practice"	Investment by Broadview Ventures, a VC fund based in the USA specialized in cardiovascular diseases
Significant socio-economic need	Treatment to stop PD progression saves the society €400k per patient*	Breast cancer associated LE costs the society ~€10k per year per patient**

*University of Pennsylvania's
National Parkinson Foundation

**Shih et al, J Clin Oncol 2009

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Investment opportunity

Investment opportunity

- Herantis' ongoing clinical studies are fully funded
- We will next consider funding for Phase 3 / Phase 2-3, as well as expanding in further indications thanks to good safety data
 - Opportunity to join during PoC studies of disruptive regenerative medicine based on leading science
- Herantis is publicly listed in Nasdaq First North Helsinki Finland where drug development companies are valued modestly compared to peers
 - Next funding round could be followed by an IPO/dual listing in a more appropriate stock exchange

Tentative funding plan for 2020 - 2021

Lymfactin®	€ million
Commercial manufacturing	5
Phase 2 study in non-BCAL LE	*
Phase 3 study in BCAL	**
Total	5

CDNF	€ million
Phase 2-3 study in PD	20
Phase 2 study in other indication	*
Early development of non-invasive CDFN	5
Total	25

- Total funding need for 2020 – 2021 is approximately €30 million
- Possible plan for fund raising:
 1. €10M directed issue in late 2018/early 2019 (before PoC studies read-out)
 2. €20-50M in IPO/dual listing in a relevant stock exchange, or partnering agreements

*To be funded with grants or other non-dilutive funding

**To be funded in consecutive funding round



Thank you

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