



The EU Framework Programme for Research and Innovation

# HORIZON 2020

## **EU support to research on PD: overview and opportunities in Horizon 2020**



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**Neuroscience sector**  
**DG Research & Innovation**  
**European Commission**

# Brain disorders

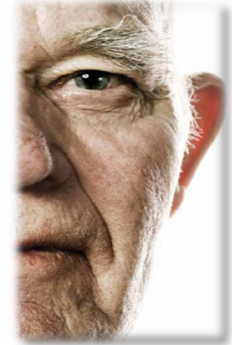


## A global challenge at all age groups

- 1. Parkinson's disease:** around 6.3 million people affected worldwide, 1.2 million Europeans; no disease-modifying therapy (Source: EBC, PD fact sheet)
- 2. Depression:** 350 million people, in all communities across the world (Source: WHO Fact sheet nr 369, 2012)
- 3. Dementia:** 47.5 million people worldwide, 2010 global costs of care \$ 604 billion
  - *By 2050 the estimate is 135.5 million people worldwide*
  - *58% of people living with dementia are in low- and middle-income countries*

(Source: WHO Fact sheet nr 362, 2015)

- 4. Traumatic brain injuries:** most important cause of disability under the age of 45 (source: InTBIR) and to become the third leading cause of global mortality and disability by 2020 (*The changing landscape of traumatic brain injury research*, Lancet Neurol., 2012)
- 5. One child in 160 with an autism spectrum disorder** and subsequent disability, associated costs \$2.3 million per person (Elsabbagh et al., Autism Res., 2012 )

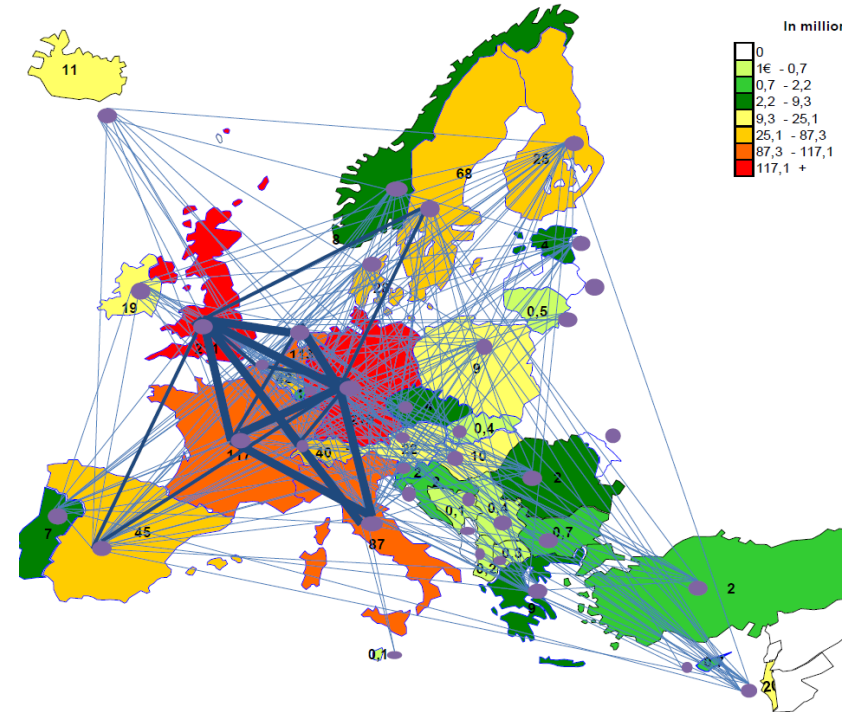
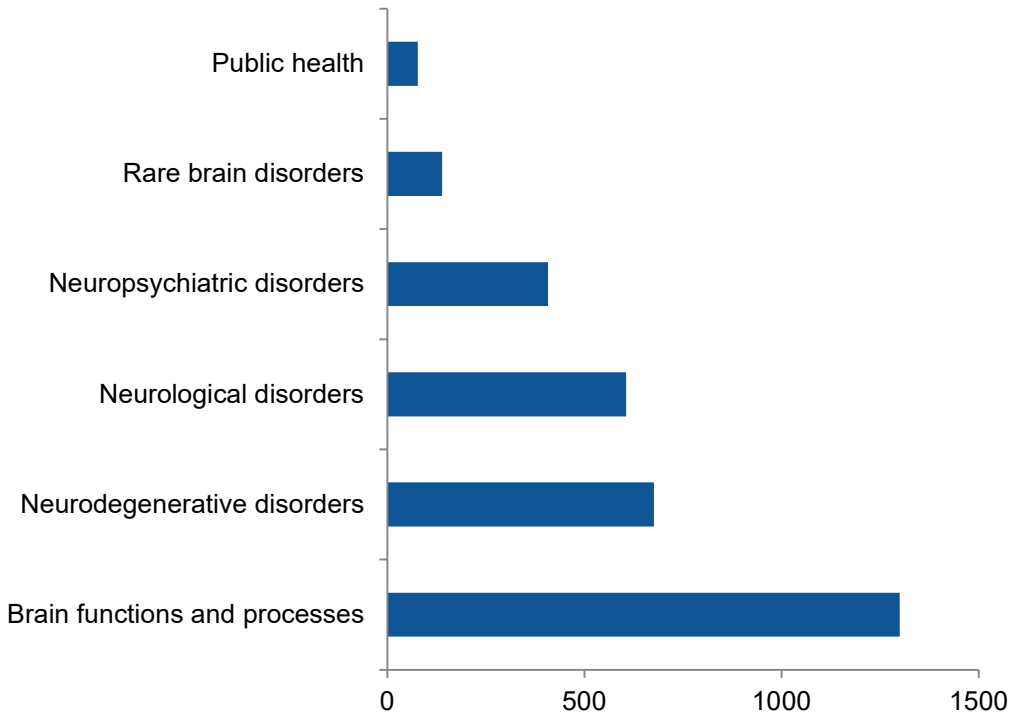




1931 projects

**EUR 3 billion**

**Collaborative research / Frontier research / Training and mobility**



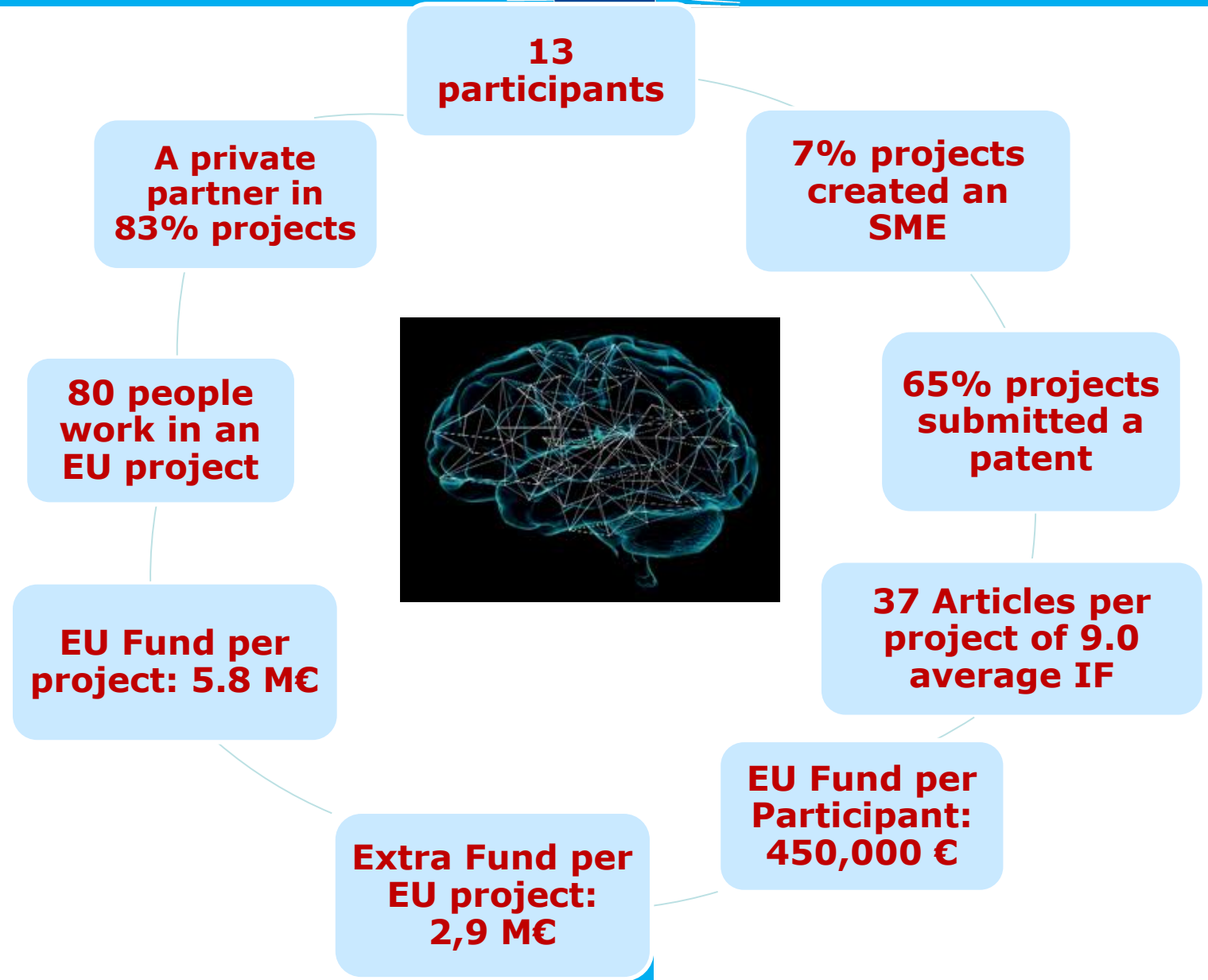
*Funding by type of research*

*Over 19,000 Connections*

**Horizon 2020 so far 3,04 billion in 1921 projects (2 years left)**

# Brain research

# A typical EU Brain collaborative project

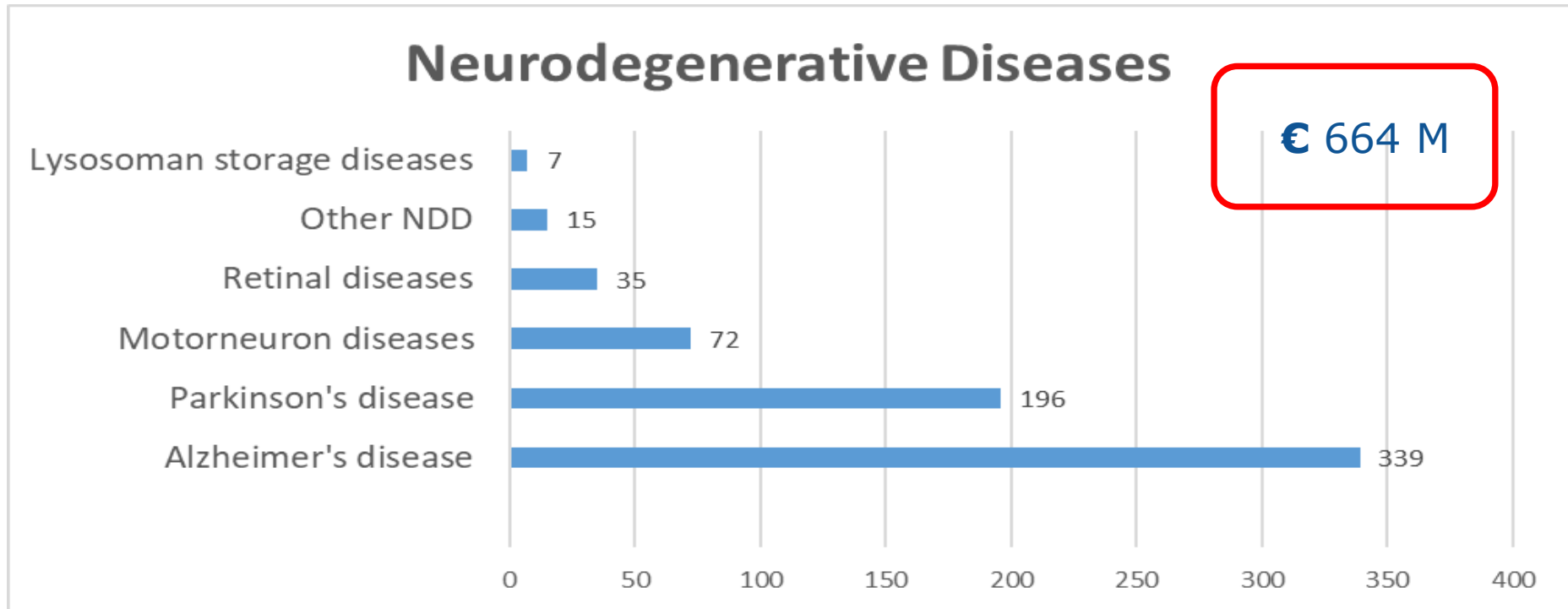


# Horizon 2020 brain research



## Neurodegenerative diseases \*

*Collaborative research / Frontier research / Training and mobility*



\*Projects addressing more than one area are counted in each of those areas

**FP7 677 million in NDD /**

Research and  
Innovation

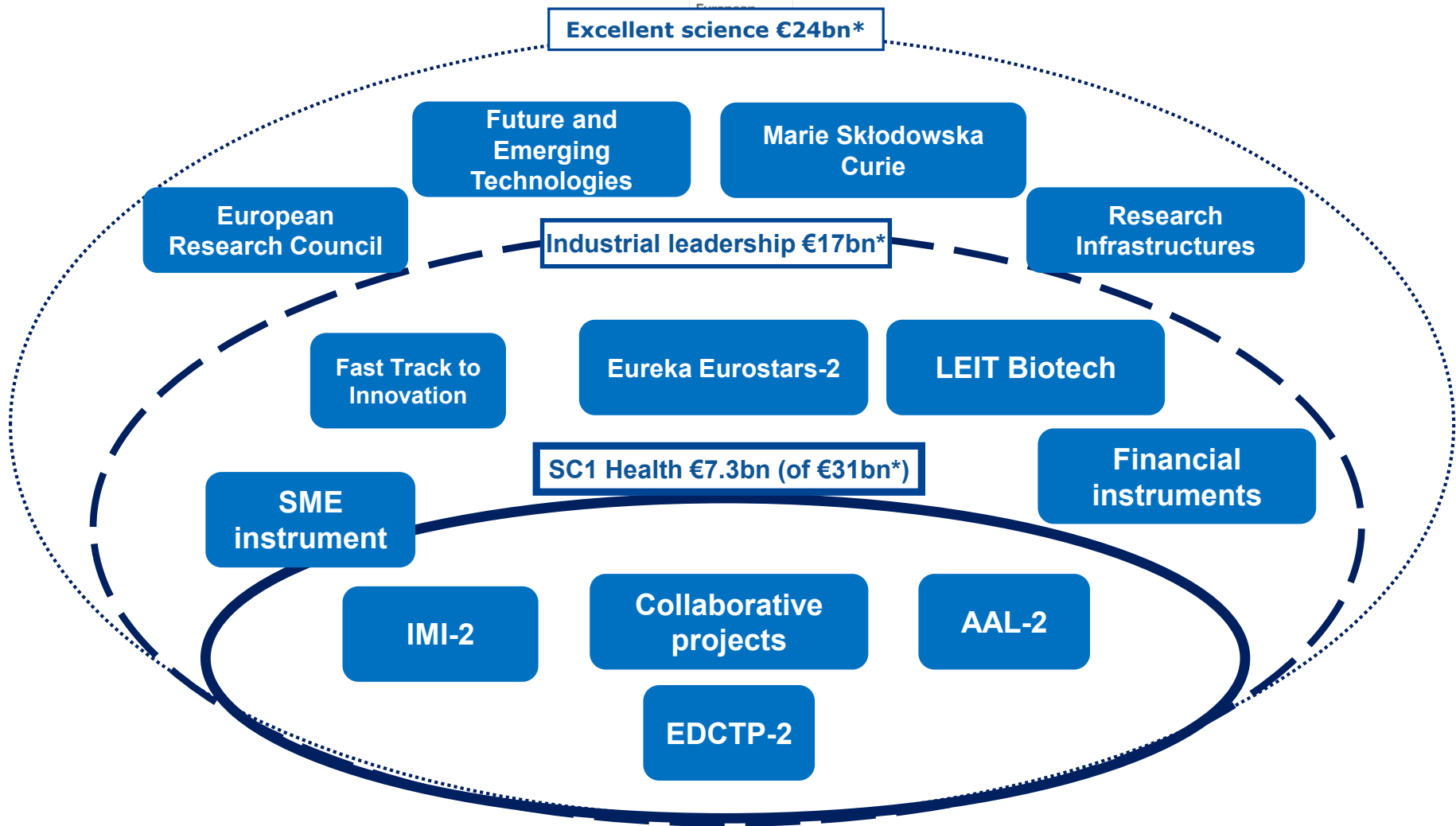
**225 million in PD**



## Research on Parkinson's disease

- **Basic research:** e.g. understanding mechanisms of neurodegeneration and neuroregeneration, pathophysiology, new models
- **Translational and clinical research:** search for biomarkers, develop new diagnostic tools, develop and test new treatment options (incl. medicinal products, cell and gene therapies, regenerative therapies, neurorehabilitation via miniaturised devices)
- **Management & care:** rehabilitation (incl. at home), monitoring, psychosocial factors, palliative care

# Horizon 2020 and health research



\* Figure to be updated following EFSI investments in 2015

# Where is brain research in Horizon 2020?

***EVERYWHERE!***



European  
Research  
Council







# Horizon 2020

## "Health, Demographic change and Well-being" Societal Challenge

- *Translates science to **benefit citizens***
- *Departs from a disease-oriented approach to better depict **biological variations***
- *Provides more opportunity for **brain research***
- *Parkinson's disease in Horizon 2020:*

**117 projects /€ 196 million**



### PROPAG-AGEING: The continuum between healthy ageing and idiopathic Parkinson Disease within a propagation perspective of inflammation and damage

- **Goal: to identify specific cellular and molecular perturbations deviating from healthy ageing trajectories towards PD**

#### **Cohorts:**

- De novo PD patients
- Centenarians and their offspring
- Swedish Twin Registry

#### **Data:**

- Genetics
- Epigenetics
- Lipidomic
- Glycomic
- miRNA profiles

**Data harmonization**  
**Discovery molecular signatures**  
**Data integration**  
**Validation**

- ✓ **Fundamental knowledge**
- ✓ **Early pre-clinical signatures**
- ✓ **New therapeutic targets**
- ✓ **Protective factors**
- ✓ **Better management of PD patients**

- **Coordinator: Prof. Claudio Franceschi, Azienda unita' sanitaria locale di Bologna**
- **Consortium: 8 top-quality European partners**
- **<https://www.propag-ageing.eu/>**



### FAIR-PARK-II : Conservative iron chelation as a disease-modifying strategy in Parkinson's disease (PD): a multicentric, parallel-group, placebo-controlled, randomized clinical trial of deferiprone (DFP)

- **Excess iron** is primarily detected in the substantia nigra pars compacta, where dopaminergic neurons are exposed to high levels of oxidative stress.
- Pilot studies demonstrated **neuroprotective properties of chelation therapy** with the prototypic drug deferiprone (DFP).
- Goal: **Proof-of-concept in humans (POC)**

#### Pre-clinical & clinical studies demonstrated:

- 1) Neuroprotection
- 2) Reduction regional siderosis
- 3) Reduction motor handicap
- 4) Slowing progression of motor handicap

Proof-of-concept  
**Benefit for PD patients**  
Translation / validation

- ✓ **POC for disease-modifying therapeutic concept**
- ✓ **Target validation**
- ✓ **Improvements, understanding pathophysiology**

➤ **Coordinator: Prof. David Devos**, Centre Hospitalier Regional et Universitaire de Lille

➤ **Consortium: 15 top-quality European / international partners**

➤ **Web: <http://fairpark2.eu>**

# TREATER Parkinson's Disease



Horizon 2020: "New therapies for chronic non-communicable diseases"

**TREATER: Clinical study in Parkinson's disease with two unique goals: 1) Proof-of-concept of CDNF protein for disease modification; 2) Validation of clinically tested device for intracerebral drug delivery**

- The **main focus:**

*Conduct a first-in-human clinical study with intracerebrally administered CDNF protein in people with Parkinson's disease using a neurosurgically implanted Drug Delivery System.*

- The project **started in January 2017** and completion will be by the end of 2019
- **11 partners** / coordinated by **Finland**
- **36 months duration**



### *PD-PAL Palliative care in Parkinson's disease*

- ***PD-PAL*** will validate a new model of palliative care for patients with Parkinson's disease which would be easily integrated with traditional management when disability limits mobility and independence
- ***Starting date: 1<sup>st</sup> January 2019***
- ***10 partners / Coordinated by Italy***
- ***42 months duration***

## Joint Programming initiative on Neurodegenerative Diseases (JPND)

- **Joint Calls /Alignment of national research efforts on NDD**
- **30 countries, Member-States led initiative (FR coordinates)**
- **Strategic research agenda** adopted in 2011
- **€150 million invested in 7 calls :**
  - *2015: risk and protective factors, longitudinal **cohort** approaches, advanced experimental models*
  - *2016: working groups on "Harmonisation and Alignment in **Brain Imaging** Methods for Neurodegeneration"*
  - *2017: **Cross-disease pathways***



## Opportunities for brain research



### ***CALL: BETTER HEALTH AND CARE, ECONOMIC GROWTH AND SUSTAINABLE HEALTH SYSTEMS***

- SC1-BHC-28-2019: The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health
- SC1-BHC-07-2019: Regenerative medicine: from new insights to new applications





## 5 instruments



### SME instrument



Phase 1

Concept &  
Feasibility  
Assessment

Phase 2

Innovation /  
R&D activities

Phase 3

Commercialisation

Market



## 1. SME Instrument

EIC-SMEInst-2018-2020 (phase 1 and phase 2)

## 2. FTI

EIC-FTI-2018-2020: Fast Track to Innovation (FTI)

## 3. FET OPEN

FETOPEN-03-2018-2019-2020

## 4. Horizon 2020 prizes

## 5. Support and exploratory actions





innovative  
medicines  
initiative



### THE INNOVATIVE MEDICINES INITIATIVE

The Innovative Medicines Initiative (IMI) is Europe's largest public-private initiative aiming to speed up the development of better and safer medicines for patients.

IMI supports collaborative research projects and builds networks of industrial and academic experts in order to boost pharmaceutical innovation in Europe.

IMI is a joint undertaking between the European Union and the pharmaceutical industry association EFPIA.



**IMI 2: ~€3.2 b**  
**EC: €1.6b+ EFPIA €1.4b +**  
**other (€0.2b)**

### IMI2:

- Covers the entire medical research and innovation value chain
- **Strategic Research Agenda** is based on the **WHO** Priority Medicine Report renewed in July 2013
- Involves **pharmaceutical industries** as well as **others** (diagnostics, imaging, animal health, ICT etc.)
- Supports world class research and innovation leading to breakthrough vaccines, medicines and treatments



➤ **€ 146.7 million (EC contribution) to brain research via IMI: Alzheimer, Parkinson, Autism, Depression, Schizophrenia**

➤ **AETIO NIO M/Y** **Organising mechanistic knowledge about neurodegenerative diseases for the improvement of drug development and therapy:** a new approach to the classification of neurodegenerative diseases, particularly Alzheimer's and **Parkinson's diseases**, thereby improving drug development and increasing patients' chances of receiving a treatment that works for them.

➤ **Neurodegenerative & psychiatric diseases in IMI2's Strategic Research Agenda (2014-2020)**

➤ **IMI2 topics** on brain research, including Parkinson's disease,

➤ e.g. in Call 15:**Topic 6: Digital endpoints in neurodegenerative and immune-mediated diseases**

# Patients at the heart of R&I



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Source: Fotolia

## In projects

- Partners
- Through ethics board, safety monitoring board, and patient input platform
- Offer patients' perspective on recruitment, study design, project communication
- Translate results in lay language, modify guidelines to better fit patients' needs, contribute to dissemination activities...

## In policy design

- Work programmes based on wide consultations:
  - Advisory group: representative of European Patient Associations
  - Workshops: participation patients
- Horizon 2020 topics are patient-centred
- Many events are triggered by patient organisations



**Horizon 2020: taking part is the  
best way to ensure *your*  
priorities are met!**

**Thank you!**