



Industrial Partners ... and many others

# Achievements and Expectations

## Consensus Statement on European Brain Research

### The need to expand Brain Research in Europe

*Morris et al. - European J Neuroscience 2016*

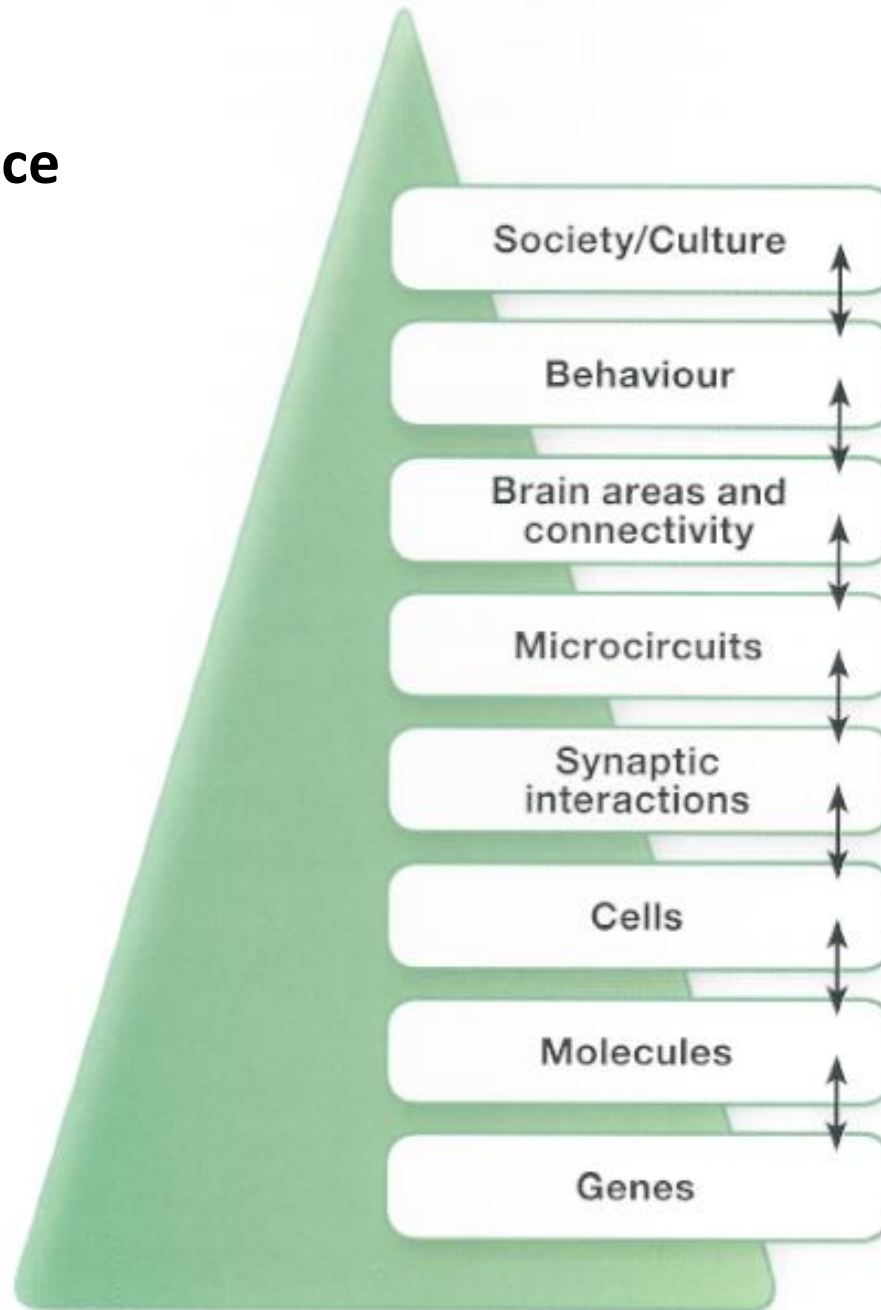
Prof. Dr. Gustave Moonen, EAN  
Prof. Dr. Wolfgang Oertel, EAN & Treasurer to EBC  
Brussels 18 – 03- 2016

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# BRAIN SCIENCE

# Mapping the Landscape of Brain and Neuroscience Research

# From neuroscience to neurology and psychiatry



# The brain is the most complex organ of human being

## Common brain disorders are

### Depression

- Dementia including Alzheimer's disease
- Schizophrenia
- Stroke
- Migraine
- Sleep disorders
- Parkinson disease
- Pain syndromes in particular back pain,
- Anxiety
- Addiction to alcohol and other substances.
- But also:
  - Most genetic diseases are neurological disorders
  - Most rare diseases are neurological disorders
  - The largest nervous system is in the gut connected to a powerful immune system and this area – the brain gut axis - has just started to be explored – we are at the beginning of another neuroscientific revolution

These brain disorders give rise to a far higher proportion of disability, including admissions to hospitals and nursing homes, thus to costs, than is usually recognized.

# Achievements

Is European brain research competitive?

## BRAIN SCIENCE

Mapping the Landscape of Brain  
and Neuroscience Research

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A REPORT PREPARED BY ELSEVIER RESEARCH  
INTELLIGENCE ANALYTICAL SERVICES

#### PUBLICATIONS, 2009-2013

# 1.79M

1.79 million articles published in 2009-2013 were considered to fall within the area of brain and neuroscience research, representing approximately 16% the world's output in this period.

#### PUBLICATION GROWTH, 2009-2013

# 3.9%

Publications in the area of brain and neuroscience research grew at an average rate of 3.9% annually, as compared to the average growth rate of 4.2% for publications across all subjects.

#### TOP CONTRIBUTORS

# >70%

Researchers from the European countries and the US together published more than 70% of the world's brain and neuroscience research in 2013, with the top five contributors in terms of publication volume being the US, UK, China, Germany, and Japan.

#### PUBLICATION OUTPUT GROWTH AND ARTICLE SHARE

# China

From 2009 to 2013, China showed both the largest growth in research output and world article share in brain and neuroscience research, at 11.6% and 7.5%, respectively.

#### FIELD-WEIGHTED CITATION IMPACT (FWCI)

# 1.14

Overall, in 2013, the FWCI of articles in brain and neuroscience research in the world was 1.14, meaning they were cited 14% more than the world average, across all subject areas. In contrast, EU41's output in 2013 achieved an FWCI of 1.32.

# BRAIN SCIENCE

## Mapping the Landscape of Brain and Neuroscience Research

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# Achievements in pediatric and adult neurology

- Neuropediatrics: Screening for rare brain disorders after birth
- Muscle disorders: therapy under development
- Cerebrovascular disorders:
  - Stroke Unit
  - Oral antithrombotic agents
- Dementia: some symptomatic therapy
- Epilepsy: Surgery for drug resistant seizures
- Interventional neuroradiology: thrombectomy in stroke
- Movement Disorders: deep brain stimulation for Parkinson's disease, essential tremor and dystonia
- Neuroimmunology: disease modifying therapy for multiple sclerosis
- Pain: effective symptomatic therapy for migraine
- Sleep: symptomatic therapy for restless legs syndrome

# Achievements in psychiatry

- Acceptance that psychiatric disorders are in part disorders of the brain and not just stigmatizing labels
- Understanding of the recurrent nature of these disorders leading to emphasis on prevention of relapse
- Safer medicines for depression and anxiety
- Improved medications for schizophrenia with less adverse effects
- Innovations in psychological treatments for anxiety and depressive disorders
- New treatments for insomnia
- Symptomatic treatments for behavioural problems in dementias

## Funding in the EU



|                       | <b>FP5 (pre EBC)</b> | <b>Total in FP6</b> | <b>FP7 2007 - 2013</b> |
|-----------------------|----------------------|---------------------|------------------------|
| <b>Brain</b>          | 115m                 | 431m                | 3.1b                   |
| <b>Cancer</b>         | 235m                 | 914m                | 2.2b                   |
| <b>Cardiovascular</b> | 54m                  | 232m                | 737m                   |

# Infrastructure

In some European countries:

- Emergency Neurology – one of the three major fields in the emergency room
- Early rehabilitation after stroke and trauma
- Epilepsy units
- Movement disorder units
- Neuroimmunological day care centers
- Neurointensive care units
- Stroke units

All these structures were introduced over the last 25 years

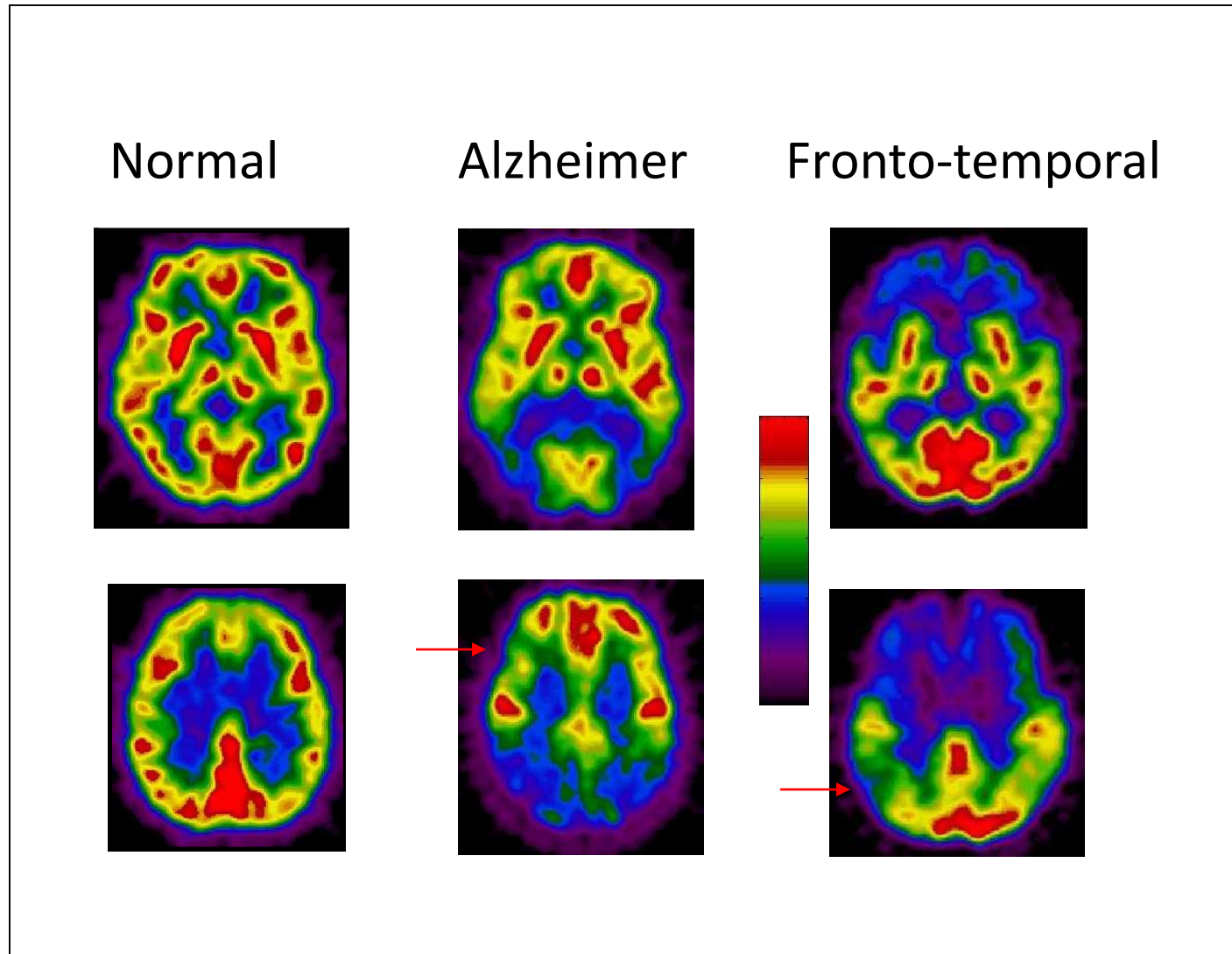
**Neurology is the fastest growing field in medicine**

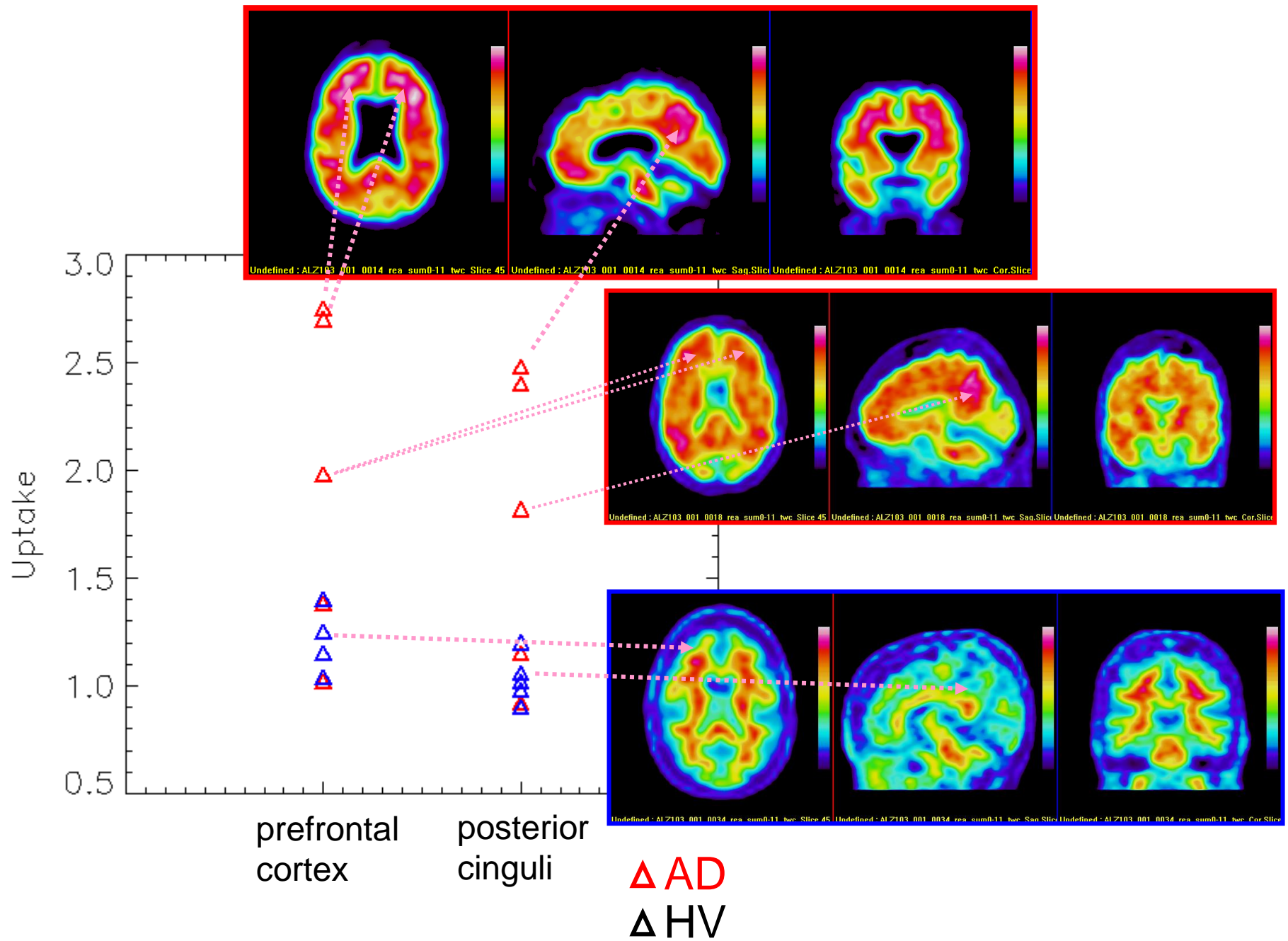
# Imaging

- PET – tracer to come for early diagnosis of Alzheimer dementia
- Monitoring the efficacy of disease modifying treatments in Alzheimer's dementia
- MRI - view brain function in living man

An exploding field with continuously increasing levels of resolution

# $^{18}\text{F}$ FDG PET





Amyloid imaging. Cerebellum used as reference region

# Expectations

- Research in etiology and pathophysiology of brain diseases is of major importance
- Research on prevention is even more important
- One breakthrough leading to prevention, disease modification or cure saves billions of Euros in diagnosis, therapy and care
- Europe wide prevention programme for depression
- European standards for the early diagnosis and treatment of schizophrenia



## **Expectations for the next 10-15 years are multiple including for instance:**

- Reduce overweight (adipositas is a CNS disease)
- Identify effective preventive therapy for migraine
- Identify Alzheimer dementia (AD) 20 years before clinical manifestation
- Identify Parkinson's disease (PD) 20 years before clinical manifestation
- Slow down the progression of AD and PD
- Reduce alcohol and nicotine abuse further
- Introduce stroke Units in all EU member states

***„If we can fly to the moon,  
then we can cure brain disorders ...“***

.

It is just a bit more complicated

## **European Brain Health Plan**

The EU must take on the responsibility to create an infrastructure which will last and will provide the basis for long term brain research. It must not depend on political swings and opinions of the members of the commission.

We must create something similar to

*European Organisation for Research  
and Treatment of Cancer (EORTC)*

Such as an European Brain Organisation for  
Research and Treatment (**EBORT**)

Underfunding consortia for brain disorders which will not survive after the funding period = a waste of money.

Either we take brain science serious or we leave it.

The brain is too precious for playing political games and fighting for national interests with funding structures.

# What has to be done !

- Protected funding for Brain Science – not to compete with other areas, as these have established themselves for many years;
- Centers of excellence in clinical neurology and psychiatry;
- Network of centers of excellence for translational neuroscience;
- Large scale clinical trials for brain disorders;
- Program for physician/scientists who understand both basic and clinical science: **we need translators**
- EU-Funding for high risk projects;
- Mobilize private foundations and insurance companies towards the funding brain sciences.

# Overcome barriers of communication

**Not G7**

**but**



**Brain7**

**=**

**B7**

*In 2020 the currency of the  
European Union should be the*  
***NEURO***





**European brains are the gold of Europe.**  
**Save them :** we need research positions  
**Feed them:** we need funding  
**Keep them:** we need long term policies



