

# ERA-Net NEURON

A Coordination Action (CA) supported by the European Commission aimed at strengthening and supporting the European Research Area (ERA)

## The ERA-Net Scheme

The ERA-Net Scheme is supported by the European Commission and it aims to contribute to a reality of a European Research Area (ERA) by improving the coherence and coordination across Europe of national research programs. In the framework of the ERA-NET Scheme national systems are collectively able to take on tasks that they would not have been able to tackle independently. Nowadays around 80 different ERA-Nets are operating with a wide range of topics included in their frameworks.

### ERA-Net NEURON

ERA-Net NEURON was launched in January 2007 and is funded under the ERA-Net Scheme in FP6 by the European Commission.

The aim of NEURON is to promote the development of a European strategy for research in the area of disease-related neurosciences.

Among the many diseases affecting human health, disorders of the brain are major causes of morbidity, mortality and impaired quality of life. According to estimates by the World Health Organization (World Health Report 2001), more than one billion people suffer from disorders of the central nervous system. In Europe, disorders of the brain account for approximately one-third of the total burden of all diseases.

The project envisages creating a group of relevant research funding organizations in Europe and, thereby, gaining maximum added value from investment in this field. Fifteen European national research funding programs and funding activities from Austria, Finland, France, Germany, Italy, Israel, Luxemburg, Poland, Romania, Spain, Sweden and UK are cooperating under this single umbrella.

More information can be found in our web page

<http://www.neuron-eranet.eu/index.php>



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# About brain diseases

Brain diseases affect millions upon millions of people in the world and they affect not only those with illnesses but also their families, friends, and colleagues. Some brain disorders, like stroke or head injury, are most commonly the result of damage to brain tissues. Other brain-related disorders are caused by progressive failure and death of nerve cells — this is known as "neurodegeneration", and occurs for example in Alzheimer's and Parkinson's diseases. Another group of brain disorders are the psychiatric diseases.

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## Neurodegenerative diseases

A major part of the neurodegenerative diseases results from the **genetic background** of the patient, however also **environmental factors** like air pollution, variety of **chemicals** and different **viruses** may contribute to the development of these diseases.

Several neurodegenerative diseases are transferred by specific proteins, called **prions**. These are relatively rare diseases; however in the middle of the 90's the Mad Cow Disease (Bovine spongiform encephalopathy) made the headlines.

Neurodegenerative disease is a condition in which cells of the brain and spinal cord are lost.

The brain and spinal cord are composed of neurons that do different functions such as controlling movements, processing sensory information, and making decisions. Cells of the brain and spinal cord are not readily regenerated en masse, so excessive damage can be devastating.

Neurodegenerative diseases are crudely divided into two groups according to phenotypic effects, although these are not mutually exclusive:

1. Conditions causing problems with movements, such as ataxia.
2. Conditions affecting memory and related to dementia.

Normally, neurodegeneration begins long before the patient experiences any symptoms. It can be months or years before any effect is felt. Symptoms are noticed when many cells die or cease to function and a part of the brain begins to fail.



# Psychiatric diseases

Another group of brain disorders are the psychiatric diseases. The incidence of psychiatric diseases in the population is very high. About 20% of hospitalizations are due to mental diseases and 6-10% of the world's western population suffers at least once in their life a prolonged depression seizure. There is no doubt that psychiatric diseases are being a heavy economic and social burden on society. The underlying biology of psychiatric diseases remains largely a mystery. Many research projects aim to unravel the molecular basis of psychiatric diseases, with the ultimate aim of improving diagnosis, treatment and, if possible, prevention. The primary emphasis is on bipolar disease, schizophrenia, and major depression, illnesses that together affect more than three percent of the human population.



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# Main activities of the ERA-Net NEURON

## Multinational calls for research applications

In 2008, the NEURON Consortium launched its first joint call for transnational research projects on neurodegenerative diseases, to which 59 applications were received. Funding of the selected projects is planned for the beginning of 2009. A second joint transnational call will be open for new applications in 2009.

## Public awareness to brain-related diseases and to the importance of research in this field

In order to raise public awareness to neuroscience issues, NEURON produced video clips on DBS treatment for Parkinson's disease and on Natural Cannabinoides. These and other clips to be produced will be available for viewing on the NEURON website. Leaflets and newsletters on activities and achievements of NEURON will be published periodically.

## Career opportunities to young investigators

Career development stipends are planned for young neuroscientists. An internet-based billboard for career opportunities will be structured and installed on the NEURON website.

## Scientific workshops

A workshop on "Neurodegeneration", with contributions of renowned experts in the field, was organized by NEURON in Paris (Oct. 2007).

A workshop on "Future perspectives, benefits, bottlenecks and costs of Neurobiobanks" was organized by NEURON in Vienna (April 2008).

## Foresight activities

To foresee future orientations and needs of Neurosciences, ERA-NEURON plans to organize structured workshops, led by professionals in foresight activities. In these workshops, recommendations on possible topics for future calls for applications will be formulated.



Austrian Science Fund (FWF), Austria



Academy of Finland (AKA), Finland



National Research Agency (ANR), France



National Center for Scientific Research (CNRS), France



National Institute for Medical Research (INSERM), France



German Aerospace Centre, Project Management Agency



Federal Ministry of Education & Research (BMBF), Germany



Ministry of Health (MOH), Italy



Chief Scientist Office, Ministry of Health (CSO-MOH), Israel



National Research Fund (FNR), Luxembourg



The National Centre for Research and Development (NCBR), Poland



National Authority for Scientific - Ministry of Education, Research and Youth (ANCS - MECT), Romania



Ministry of Education and Science (MEC), Spain



Institute of Health Carlos III (ISCIII), Spain



Swedish Research Council (SRC), Sweden



Medical Research Council (MRC), UK