

NETHERLANDS NEUROETHICS ACTIVITY REPORT 2008

In the past few years the topic of Neuroethics has gained a momentum in the Netherlands in various initiatives and organizations working in the field.

We still need to identify gaps/needs and formulate methods to address them.

The new initiatives are present in research and public engagements and there is an urgent need for researchers to be actively involved in international collaboration in Neuroethics.

We have been involved since 1993 in a European collaboration funded by the EU, in which the basic guidelines for ethical conduct have been developed .

We are currently involved in several initiatives:

1. Collaboration on invitro models for research on neurodegenerative diseases (**INVITROM; www.invitrom.org**)

2. Collaboration with the European Science Foundation (**ESF; www.esf.org**)

) on the Neuroethics of Biobanks .

3. International collaboration on Neuroethics of Biobanks and Brain Banks in the framework of **ISBER** (International Society for Biological and Environmental Repositories ;www.isber.org) and the **Marble Arch working group on Biobanks** (www.marblearchgroup.org)

Funding, training and education are still not present and not being adequately addressed.

Also, there is ample coordination between various groups involved in Neuroethics within the country; These 2 issues form the obstacle to the development of neuroethics in The Netherlands.

Clinical and basic research on brain diseases are very well developed in The Netherlands and several papers by Dutch researchers have been recently published , indicating the ideal golden standards for Brain Banking and the Neuroethics correlated with it.

We would like to be active in collaboration with the INN to promote an international harmonization of the neuroethical issues correlated with Brain Banking, brain research and the Biobanking needed for brain research and the search for Biomarkers in neurodegenerative diseases.

In the coming years I will concentrate on maintaining an information link to the Network via periodic updates sent to Ms. Lombera and will spend time on promoting domestic Neuroethics activity. I also plan to spread information on neuroethics activities to the national neuroscience society and inform them of the Network's activities. I have submitted 2 abstracts to the coming SFN meeting in Washington, one scientific and the other teaching or history of neuroscience; both were accepted for presentation. In addition, I published this year 2 papers related to Neuroethics.

I also set up a consultancy service for people/organizations who wish to set up a brain bank / Tissue bank or Biobank ; these organizations can get consultation on the proper neuroethics guidelines needed for this type of work (www.brainbankconsultants.com).

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Abstracts submitted and accepted for the SFN meeting:

1. Ethical and legal issues in European brain banking

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Brain Bank organizations are an essential repository for basic scientists ; the growing number of sophisticated neurobiological techniques which can be applied on post-mortem brain increases the pressure on brain banks to supply autopsy material to the scientific community.

European Brain Bank Network has the following objectives:

- a. Foster research in clinical and basic neuroscience and serve as a dynamic system with ongoing consultations on the many various daily issues of brain banking.
- b. Achieve standardization between banks of commonly accepted criteria for the neuro-pathological diagnosis and compatibility of protocols for tissue procurement, management and preparation.
- c. Facilitate multi-center concordance studies and studies of risk factors in diseases which have genetic end environmental components.
- d. Monitor safety measures and secure storage.

e. Abide by ethical and legal codes of conduct; the laws regulating autopsy procedures and the ethical guidelines are significantly different in the various brain banks of the member states of the European Union.

To create and develop the adequate infrastructure for these activities, one should have medico-legal and ethical support according to local legislation. Brain Banks apply the ethical aspects in their daily practice of tissue procurement, tissue management, tissue dissemination, confidentiality, "Financial gain" and genetic testing.

A well functioning international network of brain banks should be recognized as an entity that possesses the legal and ethical approach needed for the procurement and distribution of donated tissues for scientific research. Each Brain Bank should abide by the international discussions being considered with respect to ownership and use of post-mortem tissues for scientific research by end-users.

2. Cerebrospinal fluid biomarkers in dementias and neurological disorders

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The diagnosis of dementing disorders is severely hampered by the absence of reliable biomarkers that can be measured in body fluids such as blood, urine and cerebro-spinal fluid (CSF).

The search for biomarkers is based on specimens collected from living donors as well as autopsy material collected and stored by Biobanks and tissue banks. The validation of biomarkers has to cope with data fluctuation due to the huge variability in biomarkers between individuals and the rapid post-mortem changes. We are currently using amyloid and Tau as early diagnostic markers in the pathology of dementia and in differential involvement in Alzheimer's disease (AD), Lewy Body dementia (DLBD), Vascular dementia, fronto-temporal lobar degeneration (FTLD), CJD and non-neurological controls.

Biobanks collect, preserve and type RNA and DNA and proteins extracted from brain/tissue/body fluids specimens in order to update the pathological hallmarks of dementing disorders. These are subsequently incorporated into clinical drug trials and elucidate proposed mechanisms of disease and drug action.

Due to the overlap in pathophysiological hallmarks of the various syndromes, we are currently identifying common markers which are present in blood and CSF.

In our studies we determine CSF-total and phosphorylated tau and CSF- A β 42 in blood and CSF, both in living donors and in rapid autopsy material, in combination with imaging techniques to assist in differential diagnostic procedures.

Although it is presently clear that no single biomarker can absolutely discriminate between AD and other dementias, a judicious combination of several biological markers may substantially increase the sensitivity and specificity of the diagnosis. If the results from a panel of biomarkers are added to the findings derived from a classical work-up, diagnostic accuracy can be further increased.

Recent publications related to Neuroethics:

Ravid R – Standard operating procedures, ethical and legal regulations in BTB (brain/tissue/bio) banking: what is still missing? Cell Tissue Bank;9(2):121-37, 2008.

Ravid R and Grinberg LT. How to run a brain bank-revisited. Cell Tissue Bank. 9(3):149-50. 2008.

Ravid, R - BIOBANKS FOR BIOMARKERS IN NEUROLOGICAL DISORDERS-The DaVinci bridge for optimal clinico-pathological connection. Journal Neurological Sciences, in press, 2008.