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Brain Research at Aarhus Pet Centre

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Focus on Pet Research Activities in Denmark

The Positron Emission Tomography (PET) Centre of the Aarhus University Hospital was established on October 20th, 1993, as a joint activity supported by the County of Aarhus, the Medical School of Aarhus University, and the Medical Research Council of Denmark. The centre is a department of the Aarhus General Hospital and a laboratory of the institute of Experimental Clinical Research of Aarhus University. The centre was also the seat of an MRC (Denmark) Chair of brainresearch until the end of 1999. The centre occupies the bottomfloor of the neurology house of Aarhus General Hospital, and uses cutting edge imaging equipment awarded by the Karen Elise Jensen Foundation.

Our Research Activities

The theme of brain research at the PET Centre is the neuroplasticity of predictive coding in the brain. By predictive coding we mean the ability of the brain to predict the meaning of present events and the coming of future events and to restructure itself on the basis of the success of these predictions. The research is carried out at the PET Centre's facilities at the Aarhus University Hospital under the dual auspices of the Aarhus University Centre of Functionally Integrative Neuroscience (CFIN), established by a centre of excellence grant from Denmark's National Research Foundation, and the GSK-Aarhus Institute of Molecular Imaging (GAIMI). The research includes both human and animal studies designed to reveal the interactions among neurotransmission, energy metabolism and cognition in the mammalian brain.

The PET Centre conducts investigations of the relation between energy metabolism and consciousness in the mammalian brain by recording the changes of energy metabolism and consciousness under pharmacological and other manipulations. In the last year, the PET Centre conducted a number of PET studies focused on the questions raised above.

Financing Issues: Diversi fying our Resources

The centre's mission is to explore the pathophysiology of disease mechanisms by means of experimental tomography in vivo at the highest scientific and clinical level. Our aim remains to conduct physiological and pathophysiological research in animals and human volunteers, and to undertake diagnostic tests whenever PET is likely to give a useful answer. The research component accounts for 80% of the resources of the centre, while the diagnostic procedures are supported by the remaining 20%. Although the centre has five main areas of research: cardiology, neurology, psychiatry, hepatology and oncology, this article aims to present the activities of the centre in relation of neurological research.

We at the Aarhus PET Center are supported by authorities, funding agencies, and colleagues from around the world. Diversifying our sources of support has enabled the centre to expand despite budgetary cuts experienced by other sectors of the Danish healthcare system. More than half of the support arises from the Research Initiative of Aarhus University Hospitals. The rest is collected from numerous sources, including the Medical Research Council of Denmark, the European Union Biomedical Research Program, the Danish Heart Association, the Novo-Nordisk Foundation, the Parkinson society, the Danish Medical Association, and several private funds. This enables us to continue to maintain our cutting- edge research and to ensure that we stay on the forefront of technology.

Collaborative efforts in which our centre plays a valuable role include the Neuronal Xeno- Transplantation (NeXT), Micro- DAB (microvascular dementia), and COST Action B3 projects of the European Union, and the Center of Drug Design and Transport (CD2T) and FREJA projects of the Danish Medical Research Council. Through this we are active on a European level and can work with other leading experts with an active interest in the field.

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