ELTEM-NEUREX NEWSLETTERS 4_2004

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Program in Neuroscience

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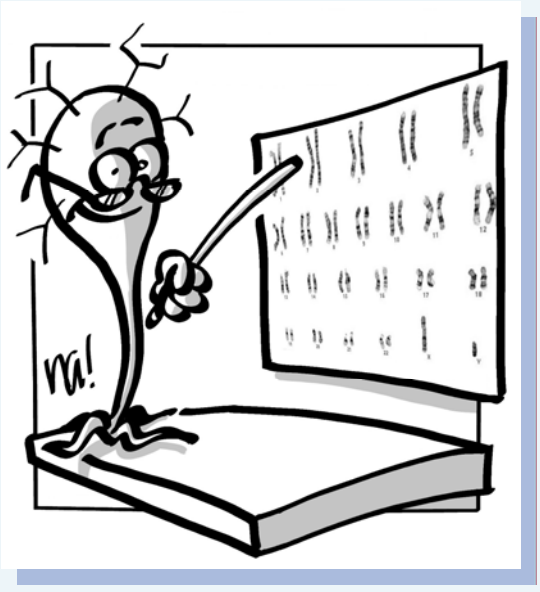
Cognition & Behaviour - Computational Neuroscience Center in Freiburg - Neurosteroïds - The placebo effect - FaustPharma : focus on neurodegeneration Website - Brain misperceptions - Winter School of Neurogenomics - Job offers



Winter School of Neurogenomics

Opening of a Bernstein Center for Computational neuroscience in Freiburg

The german Federal Ministry of Education and Science BMBF (*Bundesministerium für Bildung und Forschung)* recently provided support for a National Network for Computational Neuroscience through the founding of four "Bernstein Centres for Computational Neuroscience". For the period 2005 to 2009 the BMBF intends to make available approximately 34 million Euros towards establishing these centres. The network includes four centers in Berlin, Freiburg, Göttingen and Munich. Universities, non-university research establishments, hospitals and firms will participate. The Bernstein Centers will exchange data, analytical methods, computer models and theoretical approaches. Furthermore, training is to be provided for junior researchers and the discipline of Computational Neuroscience is to be integrated into academic teaching.

Officially presented at an international conference held in Berlin from 14 to 16 October 2004, these "Bernstein Centers for Computational Neuroscience" have been named after the German physiologist Julius Bernstein (1839-1917). With his membrane theory, the German physiologist Julius Bernstein (1839-1917) presented the first biophysical explanation of bioelectrical processes, including the nature of neuronal membrane potential and excitation propagation. Half a century later, these studies would lead to the ionic theory of neuronal excitation and culminate in the identification of ion channels in cell membranes.

Higher brain functions such as cognition, learning, memory are a complex result of biological evolution. The human brain consists of billions of neurons connected in very complex networks within which communication recruits complex dynamic processes. A real progress in understanding the complexity of brain functioning is expected from the highly dynamic research line of "Computational Neuroscience". This field of research combines experiments with data analysis and computer simulation on the basis of well-defined theoretical concepts. The central aim of Computational

Neuroscience is to identify the neuronal basis of brain performance, from the processing of complex sensory stimuli to learning processes and calling up stored information, as well as the planning and precise coordination of behaviour-relevant movement patterns. This interdisciplinary approach to research requires targeted interdisciplinary cooperation between the neurosciences, biology, medicine, physics, mathematics and computer science.

Prof. Ad Aertsen (Freiburg)
Coordinator of the Freiburg Bernstein Center for Computational Neuroscience

The coordinator of the Bernstein Center for Computational Neuroscience is Prof. Ad Aertsen, Director of the laboratory of Neurobiology and Biophysics. The research of Prof. Aertsen's group is centered around neuronal dynamics underlying higher brain functions and studied using complementary approaches of physiology and computational neuroscience. One specific axis or research in Prof. Aertsen's group is the study of a new approach for developing neuronal motor prostheses (see article in our newsletter n° 4). Further information on :

http://www.cndf.de/

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