

PRESS RELEASE -- FOR IMMEDIATE RELEASE

THE HUMAN BRAIN
International Conference on the Structural Basis for Understanding Human Brain
Function and Dysfunction

— Rome, October 5th – 10th 2002 —

Date: 5th October until 10th October 2002

President: Prof. Rita Levi-Montalcini, Rome

Scientific Committee: Prof. Carlo Caltagirone, Rome; Prof. Jürgen K. Mai, Düsseldorf; Prof. Georg Paxinos, Sydney; Prof. Clifford B. Saper, Boston

Speakers: 54 scientists of very high standing from Australia, Argentina, Canada, the USA, Cuba and many European countries

Promoted by: IRCCS Fondazione Saint Lucia; General Director: Dott. Luigi Amadio; Scientific Manager: Prof. Carlo Caltagirone

Location: IRCCS Santa Lucia Conference Center, Via Ardeatina, 342, 00179 Roma

Preface

The brain is a fascinating organ weighing approximately one and a half kilos and containing over 100 billion nerve cells (called neurons) whose activity is responsible for our feelings and thoughts. There are more neurons in a human brain than are stars in the milky way and each one of these neurons has approximately 10,000 connections with other neurons. If we could put all of the neurons in line, it would stretch from earth to moon. About 95% of this "Wunderkammer" (chamber of miracles) is still to be discovered and this endeavor constitutes an enormous challenge for the world's leading scientists. Before we can tackle this 95% of the unknown, however it is necessary to order that 5% of knowledge already available, most of which is at present fragmented and hard to gain access to.

Objective

Differing schools of thought and different methodologies have produced conflicting views of how the brain structure underpins brain function and dysfunction. Our aim is to reconcile the different views so that functional workers will have a stable structural framework within which to consider their observations.

Point of departure

Today the techniques of "non-invasive" imaging allow us to examine the living human brain in all its activities. The term "non-invasive" essentially stresses the revolutionary development that researchers can study the human brain not only after autopsy but in its living state. Imaging techniques commonly used are functional magnetic resonance (fMRI), positron emission tomography (PET), and magnetencephalography (MEG). These techniques have opened up new perspectives and are of fundamental importance not only for the understanding of the functions of the normal human brain, but also for gathering information and recognizing the functional characteristics of the diseased brain. Today, we already treat and care for many neurological and psychiatric illnesses based on results acquired using

these techniques. Scientists construct models of human brain function and dysfunction in experimental animals. The cerebral activities of humans and the structures on which these activities rely can be correlated with experimental models based on the brains of various species of other animals. An aim of this conference is to derive a consensus on the structural correspondence between the brains of humans and experimental animals.

Multidisciplinary and innovative aspects of the conference

This is the first major effort to bring together outstanding researchers of the structural and clinical/functional fields. They will cooperate in defining the structural bases of this complex organ and will unite their knowledge in a multidisciplinary way, so that the synergy of the various skills strengthens what we know. With the lengthening of the human life span and the concomitant increase in neurodegenerative diseases, knowledge of structure-function relationships is fundamental for understanding disease processes and thus for providing strategies to fight these challenges. No similar effort was previously undertaken that covered the complete spectrum of brain structures. The present comprehensive task transcends parochial reviews of regions of the brain or conferences dedicated only to specific regions of the nervous system.

Scholarships

The European Union is funding 38 young scientists from the EU and associated countries to attend this conference. This will assist young postdoctoral fellows to become more conversant with features of brain structure essential for understanding the workings of the brain. The Conference has reserved a daily time slot for scientific contributions by these young scientists.

Conference Location

The Santa Lucia Conference Center is adjacent to the prestigious Santa Lucia Foundation. The Foundation's many scientific co-operations (for example the Neurolab Space shuttle mission and Expo 2000) testify to its international importance and the excellence of its facilities. The "IRCCS Fondazione Santa Lucia" is particularly noted for its specialized infrastructures for neuro-motor rehabilitation. In recognition of the quality of the scientific activities, the Santa Lucia Foundation was selected in May 2002 to be the European center dedicated to the study of the human brain (**European Brain Research Institute, EBRI**). The selection of this meeting place emphasizes the central idea of the conference: a good knowledge of brain structure greatly increases the diagnostic possibilities and thus the treatment of brain damage, including neuro-motor and cognitive rehabilitation. We are confident that, through the lectures and the workshops of the conference, new insights will be obtained in clinical treatments of brain damage.

Publications

Based on the scientific papers read, it is planned to establish a database dedicated to human brain structures and to make this information available on the Web. The majority of scientists who are to participate in the conference have already sent in their contributions to a volume on the human brain, *The Human Nervous System*, which will be published by Academic Press, San Diego, in 2003; with two of the organizers of the Conference as editors (Prof. Dr. George Paxinos and Prof. Dr. J. K.Mai).

For information and conference registration: www.thehumanbrain.org

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