

THE HUMAN BRAIN



INTERNATIONAL CONFERENCE ROME

The Human Brain - Modelling and Remodelling



IRCCS FONDAZIONE SANTA LUCIA
I-00179 ROME, VIA ARDEATINA 354

SPEAKERS

SPEAKERS

President:

Prof. Rita Levi-Montalcini, Rome, Italy

Bizzi, Emilio, Cambridge, USA and Rome, Italy
Blakemore, Colin, Oxford, UK
Blandini, Fabio, Pavia, Italy
Bolam, J. Paul, Oxford, UK
Brooks, David J., London, UK
Calabresi, Paolo, Rome, Italy
Cattaneo, Antonio, Rome, Italy
DiLuca, Monica, Milan, Italy
Eichele, Gregor, Hannover, Germany
Faissner, Andreas, Bochum, Germany
Frackowiak, Richard S.J., London, UK
Grove, Elizabeth A., Chicago, USA
Hensch, Takao K., Saitama, Japan
Hossmann, Konstantin-A., Cologne, Germany
Jones, Edward G., Davis, USA
Kosofsky, Barry Evan, Charlestown, USA
Lindsay, Susan, Newcastle upon Tyne, UK
Maffei Lamberto, Pisa, Italy
Mai, Juergen K., Duesseldorf, Germany
Mallard, Carina, Goteborg, Sweden
Mercuri, Nicola B., Rome, Italy
Molinari, Marco, Rome, Italy
Moratalla, Rosario, Madrid, Spain
Moroni, Flavio, Firenze, Italy
Nicoletti, Ferdinando, Rome, Italy
Nitsch, Roger M., Zurich, Switzerland
Obeso, Jose A., Pamplona, Spain
Pascual-Leone, Alvaro, Boston, USA
Raff, Martin C., London, UK
Rakic, Pasko, New Haven, USA
Rossini, Paolo M., Rome, Italy
Rotilio, Giuseppe, Rome, Italy
Rutishauser, Urs, New York, USA
Saper, Clifford B., Boston, USA
Schmahmann, Jeremy D., Boston, USA
Standaert, David G., Boston, USA
Strata, Piergiorgio, Turin, Italy
Swanson, Larry W., Los Angeles, USA
Teicher, Martin H., Belmont, USA
Thompson, Paul M., Los Angeles, USA
Walsh, Christopher A., Boston, USA.

Pre-Conference-Events

Welcome

E' con grande piacere ed onore che do il benvenuto a tutti i convenuti a questa importante conferenza internazionale nella quale sono riuniti in un virtuoso incontro rinomati rappresentanti del mondo neuroscientifico.

It is with great pleasure and honour that I welcome all the participants to this international conference in which some of the greatest representatives of the world of neuroscience come together.

Dott. Luigi Amadio
General Director
of the Santa Lucia
Foundation

Welcome Reception:

Accademia Nazionale dei Lincei
Palazzo Corsini
Via della Lungara 10
00165 Roma

16:00 Round Table:

What are the Exciting Research Questions in Neuroscience in the Next 10 Years?

Participants:

Amadio L., Direttore Generale della Fondazione Santa Lucia, Roma, Italy

Bizzi E., Director European Brain Research Institute, Cambridge, USA

Blakemore C., Director Medical Research Council, London, UK

Cupers P., Major Diseases Unit, Research DG, European Commission, Bruxelles, Belgium

Eichele G., MPI of Experimental Endocrinology, Hannover, Germany

Finazzi Agrò A., Rettore Università Tor Vergata, Roma, Italy

Frackowiak R.S., University College London, London, UK

Hensch T., RIKEN Brain Science Institute, Wako-shi, Saitama, Japan

Jones E.G., Past President Society for Neuroscience, Davis, USA

Levi-Montalcini R., Nobel laureate, Rome, Italy

Raff M., University College London, London, UK

Stachowiak, F.J., University of Giessen, Germany

17:30 Press Conference

18:00 Opening Lecture:

Brain plasticity: when, how, why?

Colin Blakemore
Medical Research Council, London, UK

19:00 Get Together Party

Singularity of the Human Brain?

The Building of the Human Brain

Chairman: Raff M., London, UK

- 09:00 **Opening of the Conference**
- 09:20 **Singularity of the human brain? - What we can learn from mice.**
Eichele G.
MPI of Experimental Endocrinology, Hannover, Germany
- 10:00 **From gene networks to brain networks.**
Swanson L.
University of Southern California, Los Angeles, USA
- 10:40 Coffee Break
- 11:00 **What is so special about the human brain?**
Rakic P.
Yale University School of Medicine, New Haven, USA
- 11:40 **Patterning the mammalian cerebral cortex.**
Grove E.
University of Chicago, Chicago, USA
- 12:20 **Genes that control the shape and size of the human cerebral cortex.**
Walsh C.
Harvard Med. School, Boston, USA
- 13:00 Press Conference

Brain Structure Changes During Development

Chairman: Rakic P., New Haven, USA

- 14:30 **Modelling of early human brain development.**
Lindsay S.
University of Newcastle upon Tyne, Newcastle upon Tyne, UK
- 15:10 **The conversion of oligodendrocyte precursor cells to neural stem cells: nuclear mechanisms and therapeutic prospects.**
Raff M.
University College London, London, UK
- 15:50 Coffee Break
- 16:10 **Polysialic acid and plasticity of the nervous system.**
Rutishauser U.
Memorial Sloan-Kettering Sloan Cancer Center, New York, USA
- 16:50 **Mapping human brain development: Longitudinal neuroimaging and genetic studies.**
Thompson P.
UCLA School of Medicine, Los Angeles, USA
- 17:30 Break
- 17:45 **Free Oral Communications / Poster Discussion**
- 19:00 **Workshops A-D (until 20:30)**

For details about Free Oral Communications and Workshops see *special section*.

The Vulnerable Human Brain

The Dependency of Human Brain Development, Differentiation and Maturation Chairman: Maffei L., Pisa, Italy

- 09:00 **Exposure to sensory stimulation and critical period mechanisms.**
Hensch T.
RIKEN Brain Science Institute, Wako-shi, Saitama, Japan
- 09:40 **Periods of selective vulnerability in the immature brain.**
Mallard C.
Göteborg University, Göteborg, Sweden
- 10:20 **The regulation of brain development by neuron-glia interaction.**
Faissner A.
Ruhr-University, Bochum, Germany
- 11:00 Coffee Break
- 11:20 **Roles for neurotransmitters in drug-induced alterations of brain development.**
Kosofsky B.
Massachusetts General Hospital, Charlestown, USA
- 12:00 **Nutritional constraints on brain evolution and development.**
Rotilio G.
Università degli Studi di Roma "Tor Vergata", Rome, Italy

Brain Alterations Across the Life Cycle

Chairman: Saper C., Boston, USA

- 14:00 **Structural manifestations of maladaptations.**
Jones E.G.
University of California, Davis, USA
- 14:40 **Effects of early childhood stress on human brain development.**
Teicher M.H.
Harvard Medical School, Belmont, USA
- 15:20 **Transient glycosylation patterns from ontogeny to senescence.**
Mai J.K.
H. Heine University of Duesseldorf, Germany
- 15:50 Coffee Break
- 16:20 **Sleep disturbances in degenerative disorders of the human brain.**
Saper C.
Beth Israel Deaconess Med. Ctr., Boston, USA
- 17:00 **Neuronal correlates of motor learning and compensation after stroke.**
Bizzi E.
McGovern Institute for Brain Research, Cambridge, USA, and European Brain Research Institute, Rome, Italy
- 17:40 Break
- 18:00 **Symposium: Cerebellum - Cognition and Emotion**
- 21:00 Conference Dinner

Symposium: Cerebellum - Cognition and Emotion

- 18:00 **Longterm synaptic changes induced in the cerebellar cortex by fear conditioning.**
Strata P., University of Turin and Santa Lucia Foundation, Rome, Italy
- 18:30 **Cerebellum, sensory processing and emotions.**
Molinari M., Santa Lucia Foundation and Catholic University, Rome, Italy
- 19:00 **Cerebellar cognitive affective syndrome - new insights from animal models and clinical studies.**
Schmahmann J. D.,
Harvard Medical School, Boston, USA

Disease and Synaptic Transmission

Parkinson's Disease (PD)
and Synaptic Transmission
Chairman: Bernardi G.,
Rome, Italy

- 09:00 **Synaptic Organisation of the basal ganglia: Synaptic microcircuits underlying PD.**
Bolam P.
University of Oxford, Oxford, UK
- 09:30 **Complementary roles of D1 and D2 dopamine receptor subtypes in levodopa-induced dyskinesias in a mouse model of PD.**
Moratalla R.
Instituto Cajal de Neurobiología,
Madrid, Spain
- 10:00 **Physiology and pharmacology of dopaminergic neurons.**
Mercuri N.B.
Università degli Studi di Roma "Tor Vergata" and Fondazione Santa Lucia,
Rome, Italy
- 10:30 **Cell death in PD.**
Blandini F.
IRCCS Neurological Institute
"C. Mondino", Pavia, Italy
- 11:00 Coffee Break
- 11:30 **Glutamate transmission in PD.**
Standaert D.G.
Massachusetts General Hospital,
Boston, USA
- 12:00 **Brain imaging in PD.**
Brooks D.J.
Imperial College, Hammersmith
Hospital, London, UK
- 12:30 **Neuroprotection in PD.**
Obeso J.A.
University of Navarra, Pamplona, Spain

Alzheimer's Disease:
Pathophysiology and
Possible Treatment
Chairman: Caltagirone C.,
Rome, Italy

- 14:30 **Developmental pathways and neurodegeneration associated with Alzheimer's disease.**
Nicoletti F.
University of Rome La Sapienza,
Rome, Italy
- 15:10 **Vaccination against B-Amyloid in Alzheimer's disease.**
Nitsch R.
University of Zurich, Zurich, Switzerland
- 15:50 Coffee Break
- 16:10 **Alzheimer-like neurodegeneration in anti NGF transgenic mice.**
Cattaneo A.
International School for Advanced
Studies, Trieste and European Brain
Research Institute, Rome, Italy
- 16:50 **Molecular interactions influencing APP metabolism.**
DiLuca M.
University of Milan, Milan, Italy
- 17:30 Break
- 17:50 **Free Oral Communications / Poster discussions**

For details about
the Free Oral Communications
see *special section*.

Brain Ischemia

Mechanisms of Ischemic
Neuronal Death and Plasticity
Chairman: Annunziato L., Naples, Italy

- 09:00 **Remodelling of collateral arteries for the prevention of impeding ischemic brain injury.**
Hossmann K.-A.
MPI for Neurological Research,
Cologne, Germany
- 09:40 **Protection from ischemia or excitotoxicity-induced neuronal damage: role of poly (ADP-ribose) polymerase-1 inhibitors.**
Moroni F.
Università di Firenze, Florence, Italy
- 10:20 **Cell type specific post-ischemic synaptic plasticity.**
Calabresi P.
Università degli Studi di Roma
"Tor Vergata" and Fondazione
Santa Lucia, Rome, Italy
- 11:00 Coffee Break
- 11:20 **Post-ischemic brain plasticity in humans.**
Rossini P.M.
AFaR-Ospedale San Giovanni Calibita
Fatebenefratelli, Rome, Italy
- 12:00 **Recovery of function after stroke.**
Frackowiak R.S.
University College London, London, UK
- 12:40 **Guiding brain plasticity to enhance recovery from stroke.**
Pascual-Leone A.
Harvard Medical School, Boston, USA
- 13:30 Farewell

Organization

President:

Prof. Rita Levi-Montalcini, Rome, Italy

Scientific Committee:

Amari Shun-ichi, Wako City, Japan
Bernardi Giorgio, Rome, Italy
Bizzi Emilio, Cambridge, USA
Calabresi Paolo, Rome, Italy
Caltagirone Carlo, Rome, Italy
Mai, Jürgen K., Düsseldorf, Germany
Steinbusch Harry, Maastricht, NL

Local Organizers:

Berretta Nicola, Rome, Italy
Centonze Diego, Rome, Italy
Mallebrein, Benigna, Rome, Italy
Pisani Antonio, Rome, Italy

Co-ordinator:

Mai Jürgen K., Duesseldorf, Germany

Useful Addresses:

Conference Venue:

IRCCS Fondazione Santa Lucia,
via Ardeatina 354,
00179 Rome
tel.: +39-06-5032073

Conference Secretariat:

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Scientific Secretariat:

scient@thehumanbrain.org

Press Secretariat:

press@thehumanbrain.org
tel./fax: +39-06-5015636

Free Oral Communications

Wednesday Oct. 6

- 17:45 **High resolution histological brain atlases and associated databases.**
Jones E.G.
Center for Neuroscience, University of California, Davis, USA
- 18:05 **Spatial information management resources for human brain.**
Bowden D.M.
Regional Primate Research Center, University of Washington, Seattle, USA
- 18:25 **Neuroimaging at 3T and beyond.**
Panagiotelis I.
Siemens AG Medical Solutions, Magnetic Resonance, Erlangen, Germany
- 18:45 **The e-Tools platform.**
Cortés U.
LSI-UPC Llenguatges i Sistemes Informàtics-Universitat Politècnica de Catalunya, Spain

Friday Oct. 8

- 17:50 **Interindividual variability of human basal forebrain structures in MRI-based 3D space. Possible clinical relevance.**
Zaborzky L.
Rutgers University, Newark, NJ, USA
- 18:05 **Reduced neuropil in the prefrontal cortex and amygdala in schizophrenia.**
Schmitz C.
University of Maastricht, NL and EURON, Maastricht, NL
- 18:20 **N1 is involved in auditory distraction, MMN is not.**
Campbell T.
University of Helsinki, Finland
- 18:40 **Medical prescription in a clinical history project.**
Corominas J.
IRCCS Fondazione Santa Lucia, Rome, Italy

Workshops

Wednesday Oct. 6, 19:00 - 20:30

- WS-A **Electrophysiology and imaging techniques in brain slice preparations.**
Berretta N., Bonsi P., Giustizieri M., Pisani A.
IRCCS Fondazione Santa Lucia, Rome, Italy;
Department of Neuroscience, University of Roma Tor Vergata, Rome, Italy
- WS-B **Sexual dimorphism in the human brain: How it develops.**
Koutcherov Y.
Prince of Wales Medical Research Institute
Randwick, Australia
- WS-C **The Neuroimaging Laboratory at the Fondazione Santa Lucia: a platform for human brain research in Rome.**
Macaluso E. and Frackowiak R.S.
Neuroimaging Laboratory at the Fondazione Santa Lucia, Rome, and Institute of Neurology, UCL, London, UK
- WS-D **Structural interpretation of the human brain.**
Mai J.K. and Voß T.
Dept of Anatomy 1, Heinrich-Heine-University, Duesseldorf, Germany

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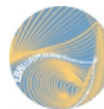
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