

Neurodegeneration

May 18-20, 2009

Consiglio Nazionale delle Ricerche, Rome, Italy

Chairs:

Pierluigi NICOTERA
Gerry MELINO
Solomon H. SNYDER

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Richard A. Knight, Stuart A. Lipton

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Giacinto Bagetta, Giorgio Bernardi, Pietro Calissano,
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Speakers Include

Adriano Aguzzi
Nicolas G. Bazan
Pietro Calissano
Elena Cattaneo
John Collinge
Valina L. Dawson
J. Kevin Foskett
Bertil Fredholm
Michael Goedert
Christian Haas
H. Robert Horvitz
Nils Goran Larsson
Stuart A. Lipton
Lamberto Maffei
Craig Montell
Lennart Mucke
Pierluigi Nicotera
Martha Constantine-Paton
David C. Rubinsztein
Antony H. Schapira
Dennis J. Selkoe
Solomon H. Snyder
Stephen M. Strittmatter
Tom C. Sudhof
D. James Surmeier
Giuseppina Tesco

**Special Ceremony for the 100th Birthday of
Rita Levi-Montalcini
Nobel Prize Winner 1986 for the NGF Discovery**



a C.N.R. & CDDconference www.cddconferences.eu

Presented by



Cell Death &
Differentiation

Partners



“Neurodegeneration”

a C.N.R. & CDDconference

(*Consiglio Nazionale delle Ricerche, Cell Death & Differentiation*,
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Rome, May 18-20, 2009

Consiglio Nazionale delle Ricerche, C.N.R., piazzale Aldo Moro. Roma

Special tribute to **Rita Levi-Montalcini** for her 100th birthday

Presented by professor **Bertil Fredholm**, the Nobel Assembly, Stockholm

On. **Mariastella Gelmini** Minister for Education

Professor **Ferruccio Fazio** Minister for Health

Professor **Luciano Maiani** President of the C.N.R.

Professor **Luigi Rossi Bernardi** CNR Board Member & Research Delegate in Milan.

The increasing incidence of neurodegenerative disorders represents a relevant public health problem, disrupting the quality of life for millions of people as well as costing billions of Euros every year. The recent progress in understanding the basic molecular mechanisms of Alzheimer's, Parkinson's, Huntington's, multiple sclerosis, stroke and various other neurodegenerative diseases is providing new therapeutic approaches. Here, we bring together the most dynamic international scientists to discuss the advances in genetics, molecular mechanisms and signaling pathways contributing to neuronal dysfunction, neurotoxicity and pathology.

The Chair

Chair:

Solomon H. Snyder

Gerry Melino

Pierluigi Nicotera

Presented by:

C.N.R.

Cell Death & Differentiation

Scientific Advisory Board:

Nicolas G. Bazan, New Orleans

Antonio Giordano, Siena /Philadelphia

Sudhir Gupta, Irvine

Richard A Knight, Leicester

Stuart A. Lipton, San Diego

Partners:

German Center in Neurodegenerative Diseases (DZNE)

MRC Toxicology Unit

The Sbarro Health Research Organization

The Human Health Foundation Onlus

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The SASS Foundation

Local Scientific Board:

Giacinto Bagetta, Cosenza

Giorgio Bernardi, Rome

Pietro Calissano, Rome

Gianluigi Condorelli, Rome

Vincenzo De Laurenzi, Chieti

Lamberto Maffei, Pisa

Giuseppe Nistico', Rome

Tullio Pozzan, Padova

NEURODEGENERATION
18-20 MAY 2009, C.N.R., ROME, ITALY
final PROGRAM

Day 1: Monday 18th May 2009

08:15 - 18:00 *Registration*

09:20 - 09:30 Welcome address from the Chair
Welcome address from the President of the C.N.R.,
Professor **Luciano Maiani**

09:30 -10:30 **Opening Lecture:**
Chair: Gerry Melino
Genetic Control of Programmed Cell Death in *C. elegans*
H. Robert Horvitz, Cambridge MA

welcome cocktail

Session 1 **“Synaptic plasticity and neurodegeneration”**

Chair: Lamberto Maffei & David Rubinsztein

11:00 - 11:35 **Tom C. Sudhof**, Stanford CA
Neurotransmitter release and Neurodegeneration: The SNARE
connection

11:35 - 12:10 **Lennart Mucke**, San Francisco CA
Strategies to Prevent Neural Network Dysfunction
in Alzheimer's Disease

12:10 - 12:30 *Patrick Jean Rogue*, Strasbourg F
Potential role of noncoding RNAs in Alzheimer's disease

12:30 - 12:50 *Grace Stutzmann*, Chicago IL
Aberrant recruitment of ER calcium stores alters synaptic activity
in pre-symptomatic Alzheimer's disease mice

lunch & poster viewing

Session 2 **“Mechanisms of disease: plasticity and physiological response”**

Chair: Tullio Pozzan & Sudhir Gupta

14:00 - 14:35 **Martha Constantine-Paton**, Cambridge MA
Early Onset of Hyperactivity in Presymptomatic SOD1^{G95A}
Amyotrophic Lateral Sclerosis Mice

14:35 - 15:10 **Lamberto Maffei**, Pisa I
Visual cortical plasticity and recovery from amblyopia

15:10 - 15:45 **Nils Goran Larsson**, Stockholm S
Regulation of mtDNA expression in neurodegeneration and ageing

15:45 - 16:20 **Bertil Fredholm**, Stockholm S
Adenosine and Neurodegeneration – making it better or worse?

16:20 - 16:40 *Diego Centonze*, Rome I
Inflammation triggers synaptic alteration and degeneration in experimental
autoimmune encephalomyelitis

coffee break

17:10 - 18:10 Evening Lecture:

Chair: Pierluigi Nicotera

Novel signaling systems contribute to cell death

Solomon H. Snyder, Baltimore MD

Day 2: Tuesday 19th May 2009

Session 3 **“Protein Folding Diseases & Amyloid I”**

Chair: Elena Cattaneo & Giuseppe Novelli

09:00 - 09:35 **Pierluigi Nicotera**, Bonn D

Synaptic Dysfunction in Neurodegeneration

09:35 - 10:10 **Christian Haass**, Munich D

Mechanisms of Amyloid generation and tau dependent neuronal cell death

10:10 - 10:45 **Giuseppina Tesco**, Charleston MA

Regulation of BACE degradation by GGA3: implications for
Alzheimer's disease pathogenesis

10:45 - 11:20 **Adriano Aguzzi**, Zurich CH

Biology and Neuroimmunology of Prion Diseases

coffee break

Session 4 **“Protein Folding Diseases & Amyloid II”**

Chair: Adriano Aguzzi & Alessandro Finazzi-Agro

11:40 - 12:15 **Stephen Strittmatter**, Yale US

Role of prion protein in mediating amyloid- β oligomer action
in Alzheimer's Disease

12:15- 12:50 **David Rubinsztein**, Cambridge UK

Autophagic clearance of Aggregate-Prone Proteins: relevance for disease
pathogenesis and therapeutic strategies

12:50- 13:10 *Francesco Cecconi*, Rome I

Non-apoptotic caspase-3 activity triggers synaptic degeneration
at the onset of Alzheimer's Disease

lunch & poster viewing

Session 5

Round Table: *Research on Neuroscience in Europe.*

Chair: Gianluigi Condorelli & Pierluigi Nicotera

14:10 - 14:30 Discussants: P Calissano, G Condorelli, F Fazio, T Longhi, P Nicotera

14:30- 14:50 Special tribute to professor **Rita Levi-Montalcini** for her 100th birthday
Salute from **Bertil Fredholm**, the Nobel Assembly, Stockholm
Salute from the Minister for Education, On. **Mariastella Gelmini**
Salute from the Minister for Health, professor **Ferruccio Fazio**
Salute from the CNR Board Member & Research Delegate in Milan,
professor **Luigi Rossi Bernardi**

14:50- 15:30 **Concert** in honor of Professor Rita Levi-Montalcini
Introduced by Pierluigi Nicotera
Claudia-Sophie Melino, violin & **Christopher Taylor**, piano

coffee break

Session 6 **“Protein Folding Diseases & Amyloid III”**
Chair: Nicolas G. Bazan & Giuseppe Nistico’

16:00 - 16:35 **Tony Schapira**, London UK
Mitochondria in Parkinson’s disease

16:35 - 17:10 **Michael Goedert** Cambridge UK
Neurodegenerative Tauopathies

17:10 - 17:45 **Dennis Selkoe**, Boston MA
Regulated intramembrane proteolysis and the origin of Alzheimer’s Disease

17:45 - 18:20 **Pietro Calissano**, Rome I
The NGF-target neurons model to induce and analyze an *in vitro*,
Alzheimer-like, molecular syndrome

18:20 - 18:40 **Claudia Fila**, Penzberg, D
Determination of cellular events through real time analysis
by the xCELLigence system

18:40- 19:00 **Claudio Grassi**, Rome I
Herpes Simplex Virus type 1 induces intracellular Ca²⁺ signal dysregulation
triggering APP processing in rat neocortical neurons

19:00 - 19:20 **Ruth Itzhaki**, Manchester, UK
Herpes Simplex Virus type 1, apolipoprotein E, Alzheimer’s disease, & antiviral
treatment

19:40 **Bus departure to Trevi Fountain for the Social Dinner,**
“Il Chianti” Restaurant

Day 3: Wednesday 20th May 2009

Session 7 **“Mechanisms of Neurodegeneration I”**
Chair: D. James Surmeier & Gianluigi Condorelli

9:00 - 9:35 **Elena Cattaneo**, Milan I
BDNF and other pathogenic mechanisms in Huntington’s Disease

9:35 - 10:10 **Valina L. Dawson**, Baltimore MD
Clues about Parkinson’s disease from genetic mutations

10:10 - 10:30 **Antonio Pisani**, Rome I
Impaired Dopamine Release and Striatal Synaptic Plasticity in Parkin
and PINK1- Deficient Mice

10:30- 10:50 **Yin Liu**, Baltimore MD
Neurotrophin-TrkB signalins is required for maintenance of the mouse
neuromuscular junction in adulthood

10:50 - 11:10 **Geert van Loo**, Ghent, B
Study of the role of FADD-dependent apoptosis in EAE pathology
by conditional gene inactivation

coffee break

Session 8 “Mechanisms of Neurodegeneration II”

Chair: Richard A. Knight & Antonio Giordano

11:40 - 12:15 **Stuart A. Lipton**, La Jolla CA

S-Nitrosylation of Drp1 Mediates β -Amyloid-Induced Mitochondrial Fission and Neuronal Synaptic Damage

12:15- 12:35 *Paolo Salomoni*, Leicester UK

The tumour suppressor Pml regulates cell fate in the developing brain

12:35- 12:55 *Daniele Bano*, Leicester UK

Alteration of nucleocytoplasmic-transport occurring during calcium-mediated cell death

lunch & poster viewing

Session 9 “From Signaling to Therapy”

Chair: Stuart A. Lipton & Giorgio Bernardi

14:00 - 14:35 **Craig Montell**, Baltimore MD

A therapeutic concept for the childhood neurodegenerative disease MLIV arising from a *Drosophila* model

14:35 - 15:10 **J. Kevin Foskett**, Philadelphia PA

ER Calcium Signaling and Alzheimer's Disease

15:10 - 15:45 **D. James Surmeier**, Chicago IL

Calcium and selective vulnerability of monoaminergic neurons in Parkinson's disease

coffee break

16:15 - 16:50 **John Collinge**, London UK

Prion Strains and Neurotoxicity

16:50 - 17:10 *Giovanna Mallucci*, Leicester UK

Rescuing neurons in prion disease

17:10 - 17:30 *Regina Trollmann*, Erlangen, D

Modulation of neurotrophic factors in developing mouse brain by pharmacological stabilization of hypoxia-inducible transcription factors (HIFs)

17:30 - 18:30 **Closing Lecture:**

Chair: Pierluigi Nicotera

Neuroprotectin D1 (NPD1) as a sentinel for neurodegenerations

Nicolas G. Bazan, New Orleans LA

18:35 Closing address by the Chair

Rita Levi Montalcini

Prof. Rita Levi-Montalcini, completed her medical studies in 1936 and did her specialization in neurology and psychology. In 1986, she received the Nobel Prize in Physiology and Medicine. She was born in Turin on April 22nd, 1909 along with her twin sister, Paola. Her father, Admo Levi, was a talented mathematician and electrical engineer, and her mother, Adele Montalcini, was a gifted painter. Her brother, Gino, was a well-known architect and professor at the University of Turin.



Despite their father's opposition, the twins decided to have professional careers. Paola was one of the most well known painters in Italy while Rita received her father's permission to study. Within eight months, she closed the gaps in Latin, Greek and mathematics, completed high school and began studying medicine at the University of Turin until 1936. Prof. Levi-Montalcini went for a short time to Brussels, where she did research in neurology. On the verge of the German invasion of Belgium, in the Spring of 1940, she returned to Turin, where she set up a small research unit.

In 1941, she and her family were forced to leave Turin due to the war, moving to a country cottage, where she once again set up her lab and renewed her experiments. In the Fall of 1943, the Germans invaded Italy and the family was forced to flee to Florence, where she lived in an underground cellar until the end of the war. At the end of the war, Prof. Rita Levi-Montalcini worked in a large refugee camp set up near Florence, combating various epidemics.

In May 1945, the family returned to Turin. In 1947, Prof. Levi-Montalcini was invited by Prof. Viktor Hamburger to join his research team in his laboratory at Washington University in St. Louis. Since 1956, she has been working and doing research in Italy at the C.N.R. (Consiglio Nazionale delle Ricerche) until her retirement. She was appointed an Italian Senator for life in 2001 and heads the philanthropic Fund for the Education of Girls and Young Women in Africa. She fostered the creation of the now successful European Brain Research Institute in Rome.

We have the unique opportunity to have Rita Levi Montalcini, a C.N.R. scientist, who celebrates her 100th birthday on April 22nd 2009. We therefore aim to celebrate this unique event with the President of the Nobel Assembly, the Ministry of Education and the Under-Secretary of Health of the Italian Government at the headquarters of C.N.R.

Concert

in honour of Rita Levi-Montalcini

Claudia-Sophie Melino, *violin* & Christopher Taylor, *piano*

program

Vieux Temps - Concert n.5 in A minor, opus 37, for violin and piano

Paganini - Cantabile

Bazzini - La Ronde des Lutins

CLAUDIA-SOPHIE MELINO



Born in Paris on August 1st, 1992, Claudia-Sophie started to play the violin at the age of 6, becoming the best pupil of the Conservatoire Francois Poulenc. Having completed her Diploma at the age of 14 in the prestigious Royal College Of Music in London, she is now continuing her studies in the same institution under the guidance of Lutzia Ibragimova. As an undergraduate, she obtained several fellowships, whilst after her Diploma she won several competitions including the first prize at the Gordon Turner Memorial Competition and the Special Commendation of the Peter Morrison Concert Competition. Also a gifted pianist, she has attended several Master Classes for chamber music. Claudia-Sophie is first

violin in the Symphony Orchestra of the Royal College of Music, and Leader of the London Oratory Senior Orchestra. For this first recital in Italy, Claudia-Sophie has chosen a romantic repertoire with a high degree of technical difficulty which requires great virtuosity.

CHRISTOPHER TAYLOR



Chris Taylor trained at the Royal Academy of Music where he won an exhibition to study piano accompaniment. He is in regular demand for recitals throughout the UK and abroad and is as happy playing seventeenth century continuo as he is playing contemporary classical music and jazz. He was composer of *Voice Truth* and *Invention Suite*, works for large choir and orchestra premiered at the Royal Albert Hall in 2001 and 2003, and *Imagine a World*, a full length music-theatre piece performed at the Wimbledon theatre in July 2002. In 2004 he composed the opera *Uncle Remus*, premiered at the Hackney Empire, and a commission for the London Philharmonic Orchestra premiered at the Royal Festival Hall. In July of that year he co-wrote the music for the American Democratic Election Campaign's promotional video. He is currently busy with various new commissions and recitals and was recently one of five winners of Greenwich Theatre's 'Ten Minute Musical Challenge'.