FONDAZIONE MONDINO
Istituto Neurologico Nazionale a Carattere Scientifico | IRCCS

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UNIVERSITÀ DI PAVIA

*Scientific conference*

# *Alpha-synuclein: the beginning of a new era in the study of neurodegenerative diseases*

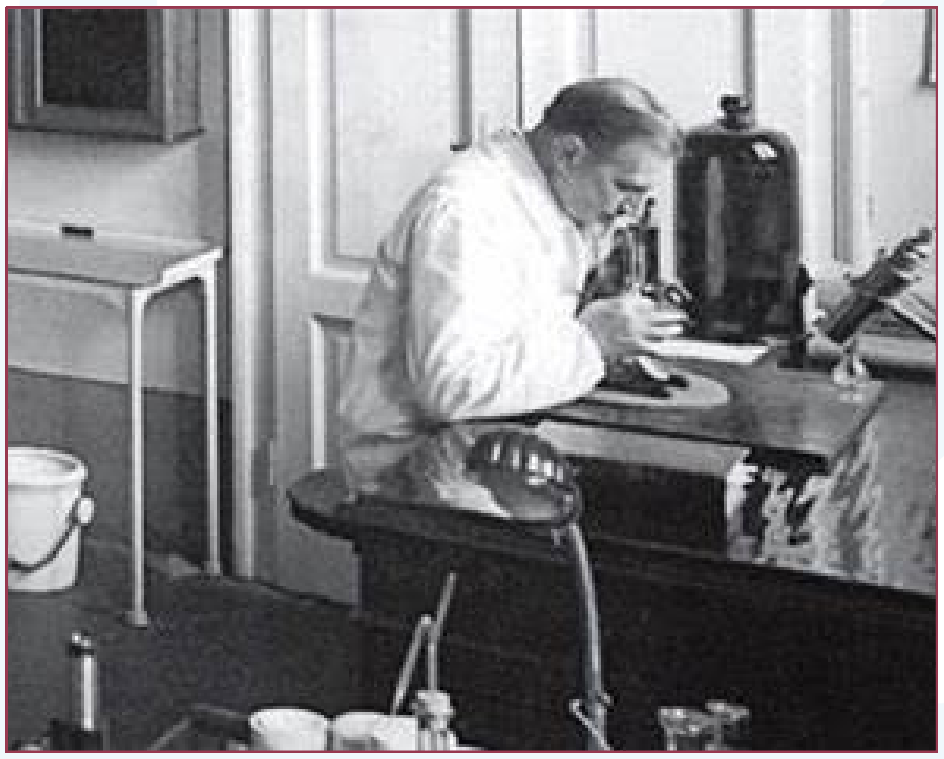
*XXXIV OTTORINO ROSSI AWARD*

**OCTOBER**
**9th 2024**

**IRCCS Mondino Foundation**
Pavia, via Mondino 2, Berlucchi Hall
**www.mondino.it**

# **Ottorino Rossi** / *Historical notes*

**Ottorino Rossi** was born on 17th January, 1877, in Solbiate Comasco, near Como, Italy. In 1895 he enrolled at the medical faculty of the University of Pavia as a student of the Ghislieri College and during his undergraduate years was an intern pupil of the Institute of General Pathology and Histology, headed by Camillo Golgi. In 1901 Rossi obtained his medical doctor degree with the highest grades and a distinction. In October 1902 he went on to the Clinica Neuropatologica (Hospital for Nervous and Mental Diseases) directed by Casimiro Mondino to continue his studies. At the same time, he continued to frequent the Golgi Institute which was the leading Italian centre for biological research. Having completed his clinical preparation in Florence under Eugenio Tanzi, and in Munich at the Institute directed by Emil Kraepelin, he taught at the Universities of Siena, Sassari and, from 1925, Pavia. In Pavia he was made Rector of the University (serving from 1925 to 1936), and during his tenure he was instrumental in getting the buildings of the new San Matteo General Hospital completed. Ottorino Rossi made many important scientific contributions to the fields of neurology, neurophysiopathology and neuroanatomy. These include: the identification of glucose as the reducing agent of cerebrospinal fluid, the demonstration that fibres from the spinal ganglia pass into the dorsal branch of the spinal roots, and the description of the cerebellar symptom which he termed “the primary asymmetries of positions. Moreover, he conducted important studies on the immunopathology of the nervous system, the serodiagnosis of neurosyphilis and the regeneration of the nervous system.He was the author of major scientific works including an extensive investigation of arteriosclerosis in the brain, L’Arteriosclerosi dei Centri Cerebrali e Spinali (1906), which dealt with the development of lesions of vascular origin.



He died in 1936 at the age of 59, having named the Ghislieri College as his heir. Ottorino Rossi was one of Camillo Golgi’s most illustrious pupils as well as one of the most eminent descendants of Pavia’s medico-biological tradition. Since 1990, thanks to an initiative of the then new Scientific Director (Prof. Giuseppe Nappi), the IRCCS Mondino Foundation has held an annual Ottorino Rossi Award Conference at which the award is presented to a scientist who has made an important contribution to research in the field of the neurosciences. In the course of its 30-year history, the Ottorino Rossi Award has, on two occasions, been theme based. In the period 2010-2012, it was was devoted to The Founders of Neurology, namely the three founders of the most important Italian Schools of Neurology of the twentieth century, while the awards assigned from 2017 to 2019 celebrated the Pavia Legacy. This latter series stemmed from the desire to recognise eminent researchers with strong scientific and cultural links with the city of Pavia. Unfortunately, due to the restrictions imposed by the Covid-19 pandemic, it was not possible to stage the Ottorino Rossi Award Conference in 2020, but the tradition was resumed the following year. This year, 2022, brings the 32nd edition of the Award.

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# Previous Winners / Ottorino Rossi Award

1990
**Vittorio Erspamer**
Rome (Italy)

1991
**Paolo Pinelli**
Milan (Italy)

1992
**Giovanni Di Chiro**
Bethesda (USA)

1993
**Clarence Joseph Gibbs**
Bethesda (USA)

1994
**David Zee**
Baltimore (USA)

1995
**Elio Lugaresi**
Bologna (Italia)

1996
**Michel Fardeau**
Paris (France)

1997
**Salvador Moncada**
London (UK)

1998
**Alain Berthoz**
Paris (France)

1999
**Ottar Sjaastad**
Trondheim (Norway)

2000
**John Timothy Greenamyre**
Atlanta (USA)

2001
**Salvatore Di Mauro**
New York (USA)

2002
**Elio Raviola**
Boston (USA)

2003
**Michael Welch**
Chicago (USA)

2004
**François Boller**
Paris (France)

2005
**Jes Olesen**
Copenhagen (Denmark)

2006
**Stanley Finger**
S. Louis (USA)

2007
**Michael A. Moskowitz**
Boston (USA)

2008
**Patricia Smit Churchland**
San Diego (USA)

2009
**Stephen P. Hunt**
London (UK)

2010
**Vincenzo Bonavita**
Naples (Italy)

2011
**Cesare Fieschi**
Rome (Italy)

2012
**Giorgio Bernardi**
Rome (Italy)

2013
**Henry Markram**
Lausanne (Switzerland)

2014
**Emmanuele A. Jannini**
L'Aquila (Italy)

2015
**Roberto Crea**
Hayward (USA)

2016
**Richard Stanislaus Joseph Frackowiak**
Lausanne (Switzerland)

2017
**Pierluigi Nicotera**
Bonn (Germany)

2018
**Gianvito Martino**
Milan (Italy)

2019
**Adriano Aguzzi**
Zurich (Switzerland)

2021
**Rigmor Højland Jensen**
Copenhagen (Denmark)

2022
**Francesco Muntoni**
London (UK)

2023
**Giacomo Rizzolatti**
Parma (Italy)

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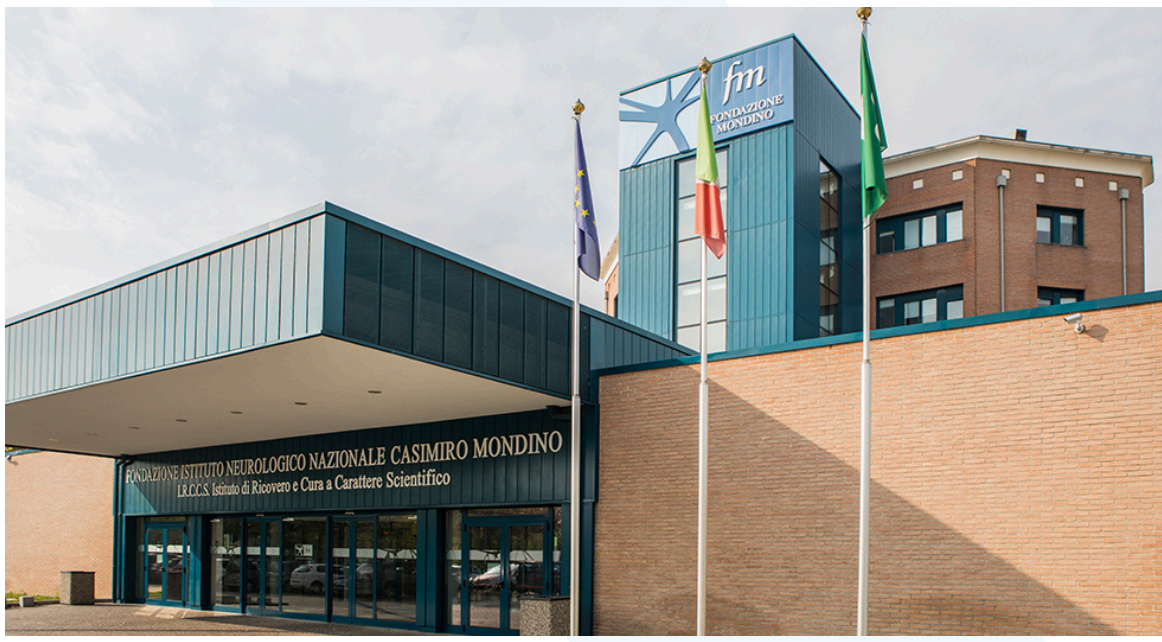
# *Background to the conference*

Over the past decade, significant progress has been made in our understanding of the pathophysiology of neurodegenerative disease, including Parkinson's disease (PD). Current diagnostic criteria are based on clinical features, such as motor and non-motor symptoms, but would require post-mortem confirmation for definitive diagnosis. Indeed, it is well-established that accumulation of abnormal proteins, which characterize the development and progression of the disease, is a key feature of PD. While clinical diagnostic criteria are being reworked to allow for more accurate clinical characterization, even before the onset of motor symptoms, biological diagnostic criteria (i.e. biomarkers) are still lacking. In recent years, the fundamental role of alpha-synuclein (a-syn) has emerged as a key element in the pathogenesis of the disease. Preclinical studies conducted on different species, including primates and rodents, have demonstrated how different alterations in the protein structure of a-syn can compromise neuronal survival and therefore consequently the circuitry of the basal ganglia. Furthermore, clinical studies demonstrate the validity of measuring a-syn in body fluids and peripheral tissues. Through innovative techniques, the degree of accuracy of these measurements is progressively improving. This progress has relevant implications not only for improving diagnostic accuracy, allowing a faster diagnostic process, but also has a therapeutic implication, as the identification of the different role of altered a-syn species can provide the rational basis for the development of innovative therapies that may halt the progression of the disease.

The **Ottorino Rossi Award, 34th edition**, will be awarded to **Maria Grazia Spillantini**, Professor of Molecular Neurology in the Clinical School of the University of Cambridge.
Prof. Spillantini is a figure of great international prestige, leader in the research on the molecular neuropathology of diseases characterised by tau and alpha-synuclein aggregates. She identified alpha-synuclein as the main component of the filaments that form the Lewy bodies in Parkinson's disease (PD) and dementia with Lewy bodies, and described one of the first mutations in the MAPT gene leading to frontotemporal dementia and Parkinsonism linked to chromosome 17.



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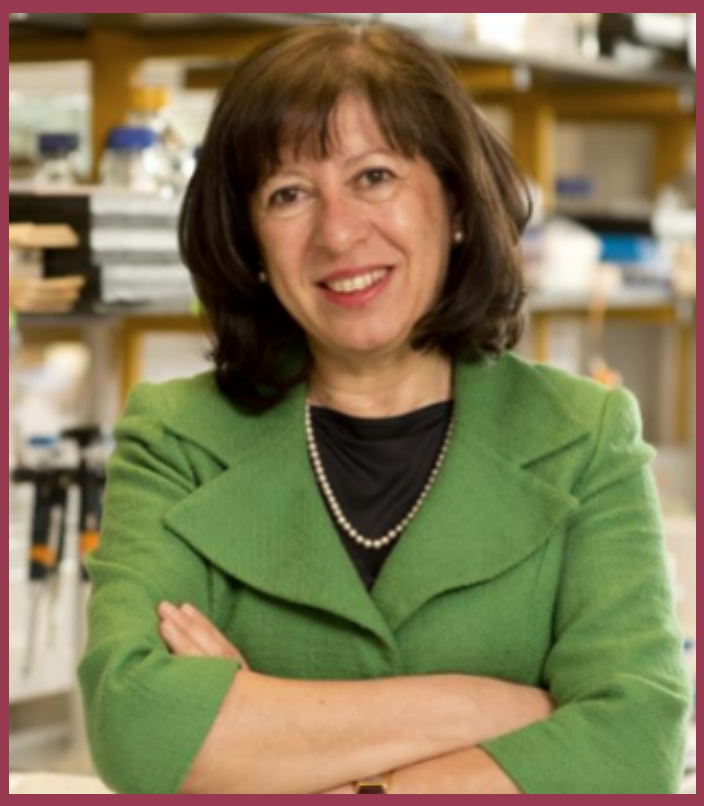
# *Maria Grazia Spillantini / Ottorino Rossi Award 2024*



**Maria Grazia Spillantini** is Professor of Molecular Neurology in the Clinical School of the University of Cambridge. She was born in Arezzo, Italy, and grow up in Caprese Michelangelo. After receiving a Laurea in Biological Sciences, Summa Cum Laude, from the University of Florence, she pursued research at the Department of Clinical Pharmacology of the University of Florence, at the Instituto Superiore di Sanita' in Rome, at the Unité de Neurobiologie of the INSERM in Paris and at the Molecular Neurobiology Unit of the Medical Research Council in Cambridge.

In 1987 she moved to the Medical Research Council Laboratory of Molecular Biology, where first, working with Dr Michel Goedert and Prof Sir Aaron Klug, she obtained a PhD in Molecular Biology from Cambridge University and later worked as a postdoctoral fellow with Prof. Sir Aaron Klug. Following a short period at the Institute of Cell Biology of the CNR in Rome, where she obtained a group leader position, in 1996 she moved to the Cambridge Centre for Brain Repair where she was first Lecturer, then Reader and then Professor. In 2014 she moved to the Clifford Allbutt Building, also part of the Department of Clinical Neurosciences of the University of Cambridge. Her group works on the molecular neuropathology of diseases characterised by tau and alpha-synuclein aggregates. With her collaborators, she identified alpha-synuclein as the main component of the filaments that form the Lewy bodies in Parkinson's disease and dementia with Lewy bodies, and described one of the first mutations in the MAPT gene leading to frontotemporal dementia and Parkinsonism linked to chromosome 17. A selection from the outstanding list of honors Prof. Spillantini has received during her carreer. She received several international Prizes including the Potamkin Prize of the American Academy of Neurology, the Cotzias Prize of the Spanish Neurological Society, the Van Andel Prize for outstanding achievements in Parkinson's disease research and the 2017 Camillo Golgi Medal from the Camillo Golgi Foundation.

In 2019 she received the honour of Officer of the Order of the Star of Italy (Ufficiale OSI). From the President of the Italian Republic. Maria Grazia Spillantini was elected Fellow of the Academy of Medical Sciences, London in 2010 Fellow of the Royal Society, London in 2013, the Academia Europaea in 2023. She is Professorial Fellow at Clare Hall and a life member of Peterhouse College, Cambridge. Prof. Spillantini was the first to identify the specific protein deposit found in Parkinson's disease and some forms of dementia. She also uncovered gene mutations that cause an inherited form of dementia called frontotemporal dementia. She showed that Lewy bodies — found inside nerve cells of the brains of people affected by Parkinson's disease — were mainly formed of insoluble clumps of a common brain protein that with her collaborators she had named alpha-synuclein. Such accumulations are the defining feature of several neurodegenerative diseases and forms of dementia, including Alzheimer's, and cause the nerve cells to die. Following her work, these conditions are now known as synucleinopathies. She also researched the microtubule protein, tau, and found that its accumulation can also contribute to degenerative and dementia-like diseases. Her current aim is to find treatments that take into account the mechanisms underlying Parkinson's and similar diseases.

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# Programme

**8.45** Registration and welcome coffee

**9.30** Greetings from the Authorities

## XXXIV OTTORINO ROSSI AWARD CEREMONY

**9.40** **Presentation of the winner**
**Antonio Pisani** (Pavia)

**10.00** **Lecture by the Winner**

*Alpha-synuclein: the beginning of a new era in the study of neurodegenerative diseases*
**Maria Grazia Spillantini** (Cambridge)

**11.00** **Delivery of the Prize**
**Francesco Svelto** (Pavia)
**Roberto Bergamaschi** (Pavia)

## *CONFERENCE*

Chairperson:
**Cristina Tassorelli** (Pavia)

**11.20** *Synucleinopathies associated with GBA gene mutations*
**Enza Maria Valente** (Pavia)

**12.00** *Alpha-synuclein: therapeutic target and key biomarker for Parkinson's disease?*
**Arianna Bellucci** (Brescia)

**12.40** **Discussion**

**13.00** **Light Lunch**

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# *Speakers and Chairpersons*

Arianna **Bellucci**
Department of Molecular and Translational Medicine, University of Brescia

Roberto **Bergamaschi**
Scientific Director IRCCS Mondino Foundation (Pavia)

Antonio **Pisani**
Research Centre of Movement Disorders, IRCCS Mondino Foundation (Pavia) and University of Pavia

Maria Grazia **Spillantini**
Department of Clinical Neurosciences, University of Cambridge

Francesco **Svelto**
President IRCCS Mondino Foundation and Rector of the University of Pavia (Pavia)

Cristina **Tassorelli**
Department of Brain & Behavioral Sciences, Headache Science and Neurorehabilitation Unit, University of Pavia, and IRCCS Mondino Foundation (Pavia)

Enza Maria **Valente**
Neurogenetic Research Centre, IRCCS Mondino Foundation (Pavia) and University of Pavia

## Scientific Committee

Roberto **Bergamaschi,** Antonio **Pisani,** Enza Maria **Valente**

## Scientific Supervisor

Roberto **Bergamaschi**
Scientific Director IRCCS Mondino Foundation (Pavia)

# *General information*

## Accreditamento ECM-CPD

Provider IRCCS Fondazione Mondino n. 5467.

Obiettivi formativi tecnico-professionali n. 18: Contenuti tecnico-professionali (conoscenze e competenze) specifici di ciascuna professione, di ciascuna specializzazione e di ciascuna attività ultraspecialistica ivi incluse le malattie rare e la medicina di genere.

Sono stati preassegnati n. 3 crediti ECM-CPD per le seguenti figure professionali:
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(Biochimica clinica, Epidemiologia, Farmacologia e tossicologia clinica, Genetica medica, Laboratorio di genetica medica, Igiene, epidemiologia e sanità pubblica, Medicina generale-medici di famiglia, Medicina interna, Neurofisiopatologia, Neurologia, Neuropsichiatria infantile, Neuroradiologia, Patologia clinica-laboratorio di analisi chimico-cliniche e microbiologia)
- Assistente Sanitario
- Biologo
- Chimico
- Farmacista (farmacia ospedaliera)
- Infermiere
- Infermiere pediatrico
- Psicologo (Psicologia, Psicoterapia)
- Tecnico Sanitario di Laboratorio Biomedico

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