



FOUNDATION OF THE  
SOCIETY FOR THE STUDY OF  
NEUROPROTECTION AND  
NEUROPLASTICITY



International  
School of Neurology



UMF  
IULIU HATIEGANU  
UNIVERSITY OF  
MEDICINE AND PHARMACY  
CLUJ-NAPOCA



Institute for  
Neurological Research  
and Diagnostic



FUNDATIA JURNALULUI  
Journal of Medicine  
and Life



# Seminars

Department of Neurosciences  
University of Medicine and  
Pharmacy "Iuliu Hatieganu"  
Cluj-Napoca | Romania

19 MAY, 2021  
VIRTUAL MEETING



# Welcome Address

It is a pleasure to welcome you to the 70<sup>th</sup> edition Seminars - 19 May, 2021. The seminar is hosted by the Department of Neurosciences, Faculty of Medicine, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca. This seminar aims to establish itself as a highly useful framework that will enable local specialists to benefit from the expertise of our invited speakers who are part of associated international faculty of our Department of Neurosciences Cluj-Napoca, Romania and RoNeuro Science network. Our scope is to flourish over years and set up an educational vector aiming to meet our junior and senior specialists' needs.

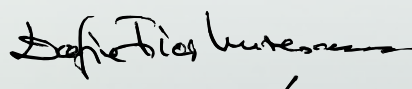
In contrast to large international conferences, the intention behind these seminars is to create an informal and intimate setting, which hopefully will stimulate open discussions.

Due to the uncertainties about the continuing impact of the COVID-19 pandemic, our events will be held in the virtual space, for the time being. As organizers, we would therefore be deeply grateful if you participate and share your time with us.

We are looking forward to your active participation in this educational event!

With consideration,

Prof. Dr. Dafin F. Muresanu,  
Chairman Department of Neurosciences, Faculty of Medicine,  
"Iuliu Hatieganu" University of Medicine and Pharmacy,  
Cluj-Napoca, Romania



# Program Coordinator



## Dafin F. Mureșanu

President of the European Federation of  
NeuroRehabilitation Societies (EFNR)

Chairman of EAN Communication and Liaison  
Committee

Co-Chair EAN Scientific Panel Neurotraumatology

Past President of the Romanian Society of Neurology

Professor of Neurology, Chairman Department of  
Neurosciences "Iuliu Hatieganu" University of Medicine  
and Pharmacy, Cluj-Napoca, Romania



# Organizers



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**Academia de  
Științe Medicale  
din România**



# **SPEAKERS**





# SPEAKERS

Professor of Neurology, Senior Neurologist, Chairman of the Neurosciences Department, Faculty of Medicine, "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, President of the European Federation of Neurorehabilitation Societies (EFNR), Chairman Communication Committee of the European Academy of Neurology (EAN), Past President of the Romanian Society of Neurology, President of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN), Chairman "RoNeuro" Institute for Neurological Research and Diagnostic, Corresponding Member of the Romanian Academy, Member of the Academy of Medical Sciences, Romania and secretary of its Cluj Branch. He is member of 17 scientific international societies (being Member of the American Neurological Association (ANA) - Fellow of ANA (FANA) since 2012) and 10 national ones, being part of the executive board of most of these societies. Professor Dafin F. Muresanu is also a specialist in Leadership and Management of Research and Health Care Systems (specialization in "Management and Leadership, Arthur Anderson Institute, Illinois, USA, 1998"; "MBA – Master of Business Administration - Health Care Systems Management, The Danube University - Krems, Austria, 2003"). He has performed valuable scientific research in high interest fields such as: neurobiology of central nervous system (CNS) lesion mechanisms; neurobiology of neuroprotection and neuroregeneration of CNS; the role of the Blood-brain barrier (BBB) in CNS diseases; developing comorbidities in animal models to be used in testing therapeutic paradigms; nanoparticles neurotoxicity upon CNS; the role of nanoparticles in enhancing the transportation of pharmacological therapeutic agents through the BBB; cerebral vascular diseases; neurodegenerative pathology; traumatic brain injury; neurorehabilitation of the central and peripheral nervous system; clarifying and thoroughgoing study on the classic concepts of Neurotrophicity, Neuroprotection, Neuroplasticity and Neurogenesis by bringing up the Endogenous Defense Activity (EDA) concept, as a continuous nonlinear process, that integrates the four aforementioned concepts, in a biological inseparable manner.

Professor Dafin F. Muresanu is coordinator in international educational programs of European Master (i.e. European Master in Stroke Medicine, University of Krems), organizer and co-organizer of many educational projects: European and international schools and courses (International School of Neurology, European Stroke Organisation Summer School, Danubian Neurological Society Teaching Courses, Seminars - Department of Neurosciences, European Teaching Courses on Neurorehabilitation) and scientific events: congresses, conferences, symposia (International Congresses of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN), International Association of Neurorestoratology (IANR) & Global College for Neuroprotection and Neuroregeneration (GCNN) Conferences, Vascular Dementia Congresses (VaD), World Congresses on Controversies in Neurology (CONy), Danube Society Neurology Congresses, World Academy for Multidisciplinary Neurotraumatology (AMN) Congresses, Congresses of European Society for Clinical Neuropharmacology, European Congresses of Neurorehabilitation). His activity includes involvement in many national and international clinical studies and research projects, over 500 scientific participations as "invited speaker" in national and international scientific events, a significant portfolio of scientific articles (231 papers indexed on Web of Science-ISI, H-index: 23) as well as contributions in monographs and books published by prestigious international publishing houses.



**Dafin F.  
Muresanu**  
/Romania

# SPEAKERS

Prof. Dr. DaŃin F. Muresanu has been honoured with: „Dimitrie Cantemir” Medal of the Academy of The Republic of Moldova in 2018, Ana Aslan Award 2018 - “Performance in the study of active aging and neuroscience”, for the contribution to the development of Romanian medicine, National Order “Faithful Service” awarded by the President of Romania in 2017; “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca, Faculty of Medicine, the “Iuliu Hatieganu Great Award 2016” for the best educational project in the last five years; the Academy of Romanian Scientists, “Carol Davila Award for Medical Sciences / 2011”, for the contribution to the Neurosurgery book “Tratat de Neurochirurgie” (vol.2), Editura Medicala, Bucuresti, 2011; the Faculty of Medicine, “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca “Octavian Fodor Award” for the best scientific activity of the year 2010 and the 2009 Romanian Academy “Gheorghe Marinescu Award” for advanced contributions in Neuroprotection and Neuroplasticity.





# SPEAKERS

Michael Chopp, PhD, is Distinguished Professor of Physics at Oakland University. He has a joint appointment with Henry Ford Hospital where he is Vice Chairman for Research of the Department of Neurology, Scientific Director of the Henry Ford Neuroscience Institute, and is the Zoltan J. Kovacs Chair in Neuroscience Research.

He received his MS and doctorate degrees in Mathematical and Solid State Physics from New York University. After nearly 10 years of working as a Physicist and as a Professor of Physics, Dr. Chopp made a career change and turned his interest to translational research in neuroscience. Dr. Chopp's research has primarily focused on: 1) cellular and molecular biology of ischemic cell injury, 2) the pathophysiology of stroke, traumatic brain injury, peripheral neuropathy, multiple sclerosis, and glioma, 3) combination thrombolytic and neuro and vascular protective therapies for stroke, 4) mechanisms of neuroprotection, 5) cell-based and pharmacological neurorestorative therapies for stroke, traumatic brain injury and neurodegenerative disease, 6) molecular and cellular mechanisms underlying neurogenesis and angiogenesis and the induction of brain plasticity leading to functional and behavioral recovery after neural injury, 7) treatment of glioma and breast cancer, 8) exosomes/microRNA for treatment of neurological injury and disease, and 9) magnetic resonance imaging. Dr. Chopp has 687 peer reviewed publications (h-index 111), ~ 50 book chapters and has given 459 plenary lectures and invited presentations. He has chaired National Institutes of Health (NIH) study sections and has often served as a consultant to government agencies, the U.S. National Institutes of Health, and the pharmaceutical industry.



**Michael  
Chopp**  
/USA

Awards include:

- 2001 Top Ten Research Advances of 2001, "Treatment of Stroke with Bone Marrow Stromal Cells", American Heart Association
- 2005 Distinguished Scientist Award, Henry Ford Medical Group, Board of Governors
- 2012 Lecture of Excellence and World Stroke Organization (WSO) Award, Remodeling and rewiring the intact CNS as a treatment for Stroke, 8th World Stroke Congress, Brasilia, Brazil, October
- 2014 Abraham White Distinguished Science Award. "For discovery of the role of thymosin beta 4 in the treatment of brain injuries and neurodegenerative diseases; 4th International Symposium on Thymosins in Health and Disease, Washington, DC, October
- 2015 Thomas Willis Lecture Award, International Stroke Conference, Nashville, TN, February
- 2015 Doctor Honoris Cause, Universitas Medicinae Et Pharmaceuticae Artium Napocensis "Iuliu Haieganu", 5th European Teaching Course of NeuroRehabilitation, Cluj-Napoca, Romania
- 2016 Lecture of Excellence and Barbro B. Johansson Award, 10th World Stroke Conference, Hyderabad, India, October

# **SCIENTIFIC PROGRAM**



# Scientific program

**5 MAY, 2021**

**VIRTUAL MEETING**

12:00 – 12:30

Exosomes-biological nanoparticle therapy for stroke and neural injury  
Michael Chopp /USA

12:30 – 13:00

Neurotrophic factors effective restorative and neurovascular protective therapy for stroke and traumatic brain injury  
Michael Chopp /USA



# ABSTRACTS



# Abstracts

## EXOSOMES-BIOLOGICAL NANOPARTICLE THERAPY FOR STROKE AND NEURAL INJURY

MICHAEL CHOPP  
/USA

The following will be discussed: 1) Intrinsic restorative mechanisms activated after stroke, including stimulation and coupling of neurogenesis, angiogenesis, and axonal dendritic rewiring throughout the central nervous system; 2) the role of activated astrocytes in mediating restorative events; 3) molecular and microRNA pathways that contribute to remodeling of the CNS post stroke, with an emphasis on rtPA as a potential means to stimulate neurological recovery.

## NEUROTROPHIC FACTORS EFFECTIVE RESTORATIVE AND NEUROVASCULAR PROTECTIVE THERAPY FOR STROKE AND TRAUMATIC BRAIN INJURY

MICHAEL CHOPP  
/USA

Here, I will summarize our data on prospective, double blinded, placebo controlled preclinical studies, performed under rigorous clinical trial conditions for the treatment of stroke and TBI. In addition, I will review and provide new insight into the multiple mechanisms of action of neurotrophic factors. Data will be shown that neurotrophic factors evokes expression of Angiopoietin 1 (Ang1), which promotes blood brain barrier integrity, is anti-inflammatory and mediates axonal outgrowth. neurotrophic factors also up regulates the expression of the developmental morphogen Sonic Hedgehog (Shh). Shh stimulates cellular expression of tissue plasminogen activator (tPA), which acts as both an endogenous thrombolytic agent and plays a pivotal role in promoting neurite outgrowth and neurological recovery. In addition, I provide novel insight into how neurotrophic factors stimulates specific sets of microRNAs (miRs). miRs are small non-coding RNAs which can simultaneously post-transcriptionally regulate the translation of many genes. Shh acts to up regulate cellular expression of the miR-17-92 cluster. This cluster of miRs, has potent anti-inflammatory effects as well as promotes axonal outgrowth. Thus, we demonstrate that neurotrophic factors has multifactorial neurovascular remodeling effects on tissue which drives neurological recovery.







## **“RoNeuro”**

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