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13TH CONGRESS OF THE

SOCIETY FOR THE STUDY OF NEUROPROTECTION AND NEUROPLASTICITY

5 - 8 OCTOBER, 2017

RODOS-PALACE | RHODES | GREECE

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SCIENTIFIC PROGRAM

13TH CONGRESS OF THE

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5 - 8 OCTOBER, 2017 | RODOS PALACE | RHODES | GREECE

FRIDAY, OCTOBER 6TH, 2017

08:45 – 09:00	***CONGRESS OPENING AND SPECIAL ADDRESS BY MR. PANAGIOTIS KOUROUMPLIS, MINISTER OF MARITIME AFFAIRS & INSULAR POLICY OF THE HELLENIC REPUBLIC***

SESSION 1
CHAIRPERSONS: Gregory del Zoppo (USA), Jaroslaw Aronowski (USA)

09:00 – 09:30	Volker Hömberg (Germany) A major challenge in neurorehabilitation: reducing impairment
09:30 – 10:00	Wolf Dieter Heiss (Germany) Clinical scores for early prediction of recovery and outcome after ischemic stroke
10:00 – 10:30	Iwonna Sarzynska Dlugosz (Poland) Upper limb movement rehabilitation strategies
10:30 – 10:40	Discussions
10:40 – 11:10	***COFFEE BREAK***

SESSION 2

CHAIRPERSONS: Volker Hömberg (Germany), Wolf Dieter Heiss (Germany)

11:10 – 11:40	Gregory del Zoppo (USA) Intracerebral hemorrhage in ischemic stroke: thromboembolic occlusion, microvessel structure/ permeability, and interventions
11:40 – 12:10	Jaroslaw Aronowski (USA) Training neutrophils to reduce damage caused by intracerebral hemorrhage
12:10 – 12:40	Hari Shanker Sharma (Sweden) Neuroprotective effects of Anti-Tau (Phospho S422) antibody in Alzheimer's Disease is potentiated by Tio2-nanowired delivery of neurotrophic factors
12:40 – 12:50	Discussions
12:50 – 14:00	***LUNCH***

PRESIDENTIAL SESSION

CHAIRPERSONS: Dafin F. Mureșanu (Romania), Natan Bornstein (Israel)

14:00 – 14:30	Dafin F. Mureșanu (Romania) Anticorrelated processes in neurobiology – possible consequences for neurorehabilitation strategies
14:30 – 15:00	Natan Bornstein (Israel) Retinal vasculature = 'Window' to cerebral microcirculation
15:00 – 15:30	Idan Segev (Israel) The Human Brain Project. The essential need for theory
15:30 – 15:40	Discussions

SESSION 3

CHAIRPERSONS: Ovidiu Băjenaru (Romania), Hari Shanker Sharma (Sweden)

15:40 – 16:10	Ovidiu Băjenaru (Romania) The role of normal sleep in the development of neurocognitive functions
16:10 – 16:40	Johannes Vester (Germany) Multidimensional strategies to improve tbi clinical research - towards a new gold standard
16:40 – 17:10	Mihaela Băciuț (Romania) The role of N-Pep peptide pharmacological support and peripheral magnetic stimulation in neurorehabilitation after surgery of developmental maxilofacial deformities
17:10 – 17:20	Discussions
17:20 – 17:50	***COFFEE BREAK***

SESSION 4

CHAIRPERSONS: Michael Brainin (Austria), Johannes Vester (Germany)

17:50 – 18:20	Natalia Gulyaeva (Russia) Aging and neurotrophin-related neuroplasticity: is neuropeptide treatment supportive?
18:20 – 18:50	Kristina Müller (Germany) Lessons from pediatric stroke: is the Kennard principle still valid?
18:50 – 19:20	Michael Brainin (Austria) Cognitive deterioration following stroke: perspectives for therapy and management
19:20 – 19:30	***CLOSING REMARKS***

ABSTRACTS

TRAINING NEUTROPHILS TO REDUCE DAMAGE CAUSED BY INTRACEREBRAL HEMORRHAGE

JAROSLAW ARONOWSKI
Roy M. and Phyllis Gough Huffington Chair in Neurology, Chair in Neurology Department of Neurology, University of Texas Health Science Center, Houston, Texas, USA

Shortly after the onset of intracerebral hemorrhage (ICH), masses of polymorphonuclear neutrophils (PMNs) infiltrate the ICH-affected brain parenchyma, a process that can often last for days or weeks. Once inside the injured brain, PMNs degranulate and release various destructive molecules that may contribute to further brain tissue damage. However, studies to block the entry of PMNs into the CNS have failed to improve outcomes in clinical trials of ischemic stroke. Interestingly, PMNs are also known to release potentially beneficial iron-scavenging molecules, including haptoglobin and lactoferrin, suggesting that PMNs might also contribute to brain repair after ICH. In this presentation, we will evaluate a novel, therapeutically viable concepts that takes advantage of modifying PMNs toward a "beneficial" phenotype early after ICH onset. Specifically, we will demonstrate that the immunoregulatory cytokine IL-27 is upregulated both centrally and peripherally after ICH. We will demonstrate that exogenously administered IL-27, to simulate response to ICH, acts on developing PMNs in the bone marrow, suppressing their production of pro-inflammatory and cytotoxic products and increasing their production of potentially beneficial iron-scavenging molecules, including lactoferrin (LTF) and haptoglobin that could neutralize hematoma toxicity. Furthermore, we will demonstrate that pharmacological approaches adopted from this pathway (IL-27 administration or direct LTF supplementation) result in reduced edema, enhanced hematoma clearance and improved functional outcomes in an animal model of ICH.

These results suggest that modulation of neutrophil phenotype may represent a novel approach for the treatment of ICH.

THE ROLE OF N-PEP PEPTIDE PHARMACOLOGICAL SUPPORT AND PERIPHERAL MAGNETIC STIMUALTION IN NEUROREHABILITATION AFTER SURGERY OF DEVELOPMENTAL MAXILOFACIAL DEFORMITIES

MIHAELA BĂCIUŢ[1]

DAFIN F. MUREȘANU[2], GRIGORE BĂCIUŢ[1], DANA SLĂVOACĂ[2], ANDREEA MAGDAȘ[1], SIMION BRAN[1]

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2. Department of Neurosciences "Iuliu Haţieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

Awareness of disharmonic facial features is presently high in the population. The request for esthetic and functional correction is consecutively raised. Thus, orthognathic procedures restoring facial balance are performed routinely in specialized maxillofacial surgery centers. Management of maxillofacial deformities is multidisciplinary, comprising surgery, orthodontic therapy and, increasingly, therapies addressing neurologic and neuromotor rehabilitation.

Repositioniong of maxillary bones implies osteotomies of both jaws (bimaxillary surgery). For the mandible (bilateral mandibular sagittal split osteotomies - BSSO), the lines split the bone through the mandibular canal, containing the inferior alveolar nerve, artery and vein. For the maxilla, the splits are located in the vicinity of the infraorbitary nerve.

As a consequence, postoperative diminishing of the nerve function can be noticed frequently and is produced by multiple mechanisms in maxillofacial surgery procedures. Direct intraoperative trauma of various degrees, ranging from blunt contusion to laceration, compression by postoperative edema, seroma, hematoma or bone fragments are the most frequently incriminated causes of nervous dysfunction.

The inferior alveolar nerve, branch of the mandibular nerve (third branch of the trigeminal nerve) is responsible of the sensitive innervation of the lower lip, chin of the respective side and teeth and parts of the gingiva of the respective hemimandible. The infraorbitary nerve ensures sensitive innervation of the infraorbitary region of the cheeks.

In the postoperative period, anesthesia of various degrees of the lower hemilip and –chin and the cheeks respectively - can be noticed and evaluated.

Case series with neurorehabilitation procedures, combining peripheral magnetic stimulation (rPMS) and pharmacological support with N-PEP peptide in our center will be presented. Six patients were assessed before and after 10 days of rPMS + N-PEP administration by IAN conduction study and clinical evaluation of sensibility by monofilament test.

THE ROLE OF NORMAL SLEEP IN THE DEVELOPMENT OF NEUROCOGNITIVE FUNCTIONS

OVIDIU BĂJENARU
University of Medicine and Pharmacy "Carol Davila" Bucharest, Romania

Sleep is not only a physiological stage in our circadian activity, necessary for physical rest and somatic development, but a major role of sleep is its key-impact on the organization of the normal neurocognitive functions. Many experimental neurophysiological and neuropsychological studies have been dedicated to this domain, and the data accumulated from all these studies – some of them contradictory, allow us nowadays to begin to understand at least in part the cascades of electrophysiological and specific metabolical events specific for each stage of both NREM and REM steep, related to the organisation of the neurocognitive functions – in particular for memory and executive functions. The author will present a personal synthesis of these data.

RETINAL VASCULATURE = 'WINDOW' TO CEREBRAL MICROCIRCULATION

NATAN BORNSTEIN
Director of the Brain Division, Shaare-Zedek Medical Center, Jerusalem, Israel

The heterogeneity of the pathology of stroke has been a major difficulty in assessing new treatments for acute stroke, and contributes to the complexity of stroke medicine. Some underlying mechanisms are poorly understood, such as small vessel (lacunar) disease. New technology such as advanced brain imaging has transformed our knowledge of large vessel disease.

Accumulating data demonstrate that retinal microvascular signs have prognostic significance in a variety of vascular conditions.

The retina share similar embryology, anatomy, physiology, barrier function, autoregulation, high OE system and pathology with cerebral SVD that composite marker of both recognised and unrecognized risk factors on the cerebral microvasculature

In the last two decades, study of the retina has been revolutionised by advances in imaging and computer techniques enabling high-quality digital photographs of the retina without routine dilatation of the pupils using a nonmydriatic retinal camera, that permit retinal microvascular signs to be noninvasively studied in great detail and computerised image processing techniques to be applied. In recent years, reliable assessment methods have been achieved including qualitative and quantitative methods for evaluating various retinal signs. Data from a number of large population-based cohorts have provided new insights into the prognostic value of retinal microvascular signs.

These studies have demonstrated that retinal microvascular signs are associated not only with potent stroke risk factors (e.g. hypertension), history of vascular disease, but were also independently related to a variety of other vascular risk factors 3) and important outcomes such as incident stroke, subclinical cerebral infarct white matter abnormalities on magnetic resonance imaging (MRI) and cognitive impairment.

The lecture will elaborate on the above mentioned issues.

COGNITIVE DETERIORATION FOLLOWING STROKE : PERSPECTIVES FOR THERAPY AND MANAGMENT

MICHAEL BRAININ
Professor in Clinical Neurology, Danube University Krems, Austria
President Elect, World Stroke Organisation

There is a close relationship between stroke and dementia and prevalence data show that one patient in 10 already has dementia when stroke occurs, one in 10 will develop dementia after a first-ever stroke and one in three will develop dementia following a stroke recurrence. After stroke, the progression rate from mild cognitive impairment to dementia increases. Depending on the criteria used, 17 - 76% of stroke patients have mild cognitive impairment at 3 months post-stroke. Even in patients younger than 65 years who had suffered a mild stroke (National Institutes of Health Stroke Scale (NIHSS) = 0) cognitive deficits were detected in 32% at 6 months after first-ever stroke.

No drug treatment to date, however, has shown convincing clinical evidence of restoring cognitive function or preventing further decline after stroke. The growing health, social and economic burden underlines the need to develop and test treatments for post-stroke cognitive impairment.

Previous randomized trials aiming at promoting recovery after stroke such as with levodopa, some extracts and natural biologicals or SSRI's have been successful in showing improvement of motor recovery. But currently no established treatment exists for the preservation or restoration of cognitive status following stroke. Given the high frequency of delayed onset of cognitive deterioration following stroke it is surprising that large studies have yet to be performed. Single or combined drug interventions tested up to now were based on secondary outcome analyses and included antihypertensive drugs which showed only a modest effect on cognition in general and no consistent effect was shown for lipid lowering drugs. Combination of antiplatelet drugs have been tested in the SPS3 trial but showed no effect on cognitive outcomes.

Extracts, biologicals and antibody-related agents include natural and synthetic biologicals (e.g. HGF), extracts from porcine brain or calf blood, anti-infl ammatory cytocines (TNF alpha, IL10), or reduction of toll-like receptor signalling (DAMPs). While these substances have been largely tested as neuoprotectants, their potential as drugs for neurorepair has not yet been fully investigated. The concept of neurorepair (Neuhaus et al. Brain 2017) includes use of cellular and pharmacological processes used in animal models to stimulate neurogenesis, or regrowth and repair. The outcome should assess the improved functional recovery and decreased infarct volume when administered < 24 h or later following experimental stroke. Within a repair concept, the setting of these tests include a considerable extension of time window of current available therapies Life-style interventions include studies of a Mediterranean diet with extra virgin olive oil and nuts but while stroke occurrence can be reduced, no data on post-stroke cognition exist. The same applies for physical exercise programs which show good effects on physical fitness.

Ongoing registered stroke testing either drug and/or lifestyle interventions all are planned either for small sample sizes and /or a complex endpoint or combination of endpoints that are not likely to produce practice-changing results.

Multi-domain intervention studies are much more likely to be effective on cognition because they perform multiple risk factor management with lifestyle adaptation including diet changes with increase of drug compliance and adherence. Intensifying these interventions and to monitor them is crucial. The first comprehensive multi-domain intervention trial (ASPIS) has recently been terminated. The primary

endpoint was a significant change of the z-score of 5 neuropsychologically assessed cognitive domains. While the overall result was neutral, a signal for change of dysexecutive function was seen and follow-up studies might have to consider this finding.

In the future, there is a need for including cognitive outcome measurements in all trials targeting the brain, to consider larger sample sizes, to harmonize assessment strategies, to focus on a high risk population, and to include biomarkers and imaging data for confirmatory analyses.

AGING AND NEUROTROPHIN-RELATED NEUROPLASTICITY: IS NEUROPEPTIDE TREATMENT SUPPORTIVE?

NATALIA GULYAEVA
Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences, and Moscow Research and Clinical Center for Neuropsychiatry, Moscow, Russia

Among the age-induced changes under lying deterioration of neuronal communication and synaptic plasticity, neurotrophin (NT) systems and downstream signaling pathways are of great importance. NTs are at present recognized as mediators of activity-dependent neuroplasticity. Aging is associated with cognitive decline and enhanced risk of neurodegenerative diseases. It is assumed that altered functions of neurotrophin (NT) systems may underlie these age-related modifi cations.

The physiology and control of NTs is extremely complex and not fully understood yet. The pleiotropic effects of NTs depend on their synthesis, post-translational modifi cations in and out of neuronal and glial cells, secretion by the cells in different brain structures, various types of receptors on the neighboring and secreting cell, phosphorylation of the receptors and their interaction resulting in activation of different downstream signaling pathways.

Strategies aimed at raising NTs (NGF, BDNF) levels in brain regions are actively discussed for alleviating age-dependent changes in NT systems, though so far without evident success.

An alternative approach may be use of cerebral peptides with neurotrophic effects.

A favorable benefi t-risk ratio in patients with dementia is likely attributable to support of cerebral NT systems by neurotrophic factors. We have examined age-related modifi cations of endogenous NT systems in the brain regions of aged rats and the effects of neurotrophic factors course.

Aging induced a decrease in NT receptors TrkA, TrkB, and p75NTR primarily in the neocortex. The neurotrophic factors counteracted effects of aging on neocortical TrkA and p75NTR receptors and decreased expression of proNGF.

NGF system disturbances play multiple roles in aging and progression of age-related diseases. NGF is essential for the maintenance and differentiation of basal forebrain cholinergic neuron, dysfunction of this neuronal population being a principal feature of Alzheimer's disease and correlating with cognitive decline. It is NGF neocortical system (proNGF, TrkA, p75NTR) which the neurotrophic factors primarily and beneficially affects in the rat model of aging suggesting that treatment with mixture of neuropeptides which are an integral part of Cerebrolysin is supportive for aging brain by optimizing NGF-related cortical neuroplasticity.

CLINICAL SCORES FOR EARLY PREDICTION OF RECOVERY AND OUTCOME AFTER ISCHEMIC STROKE

WOLF-DIETER HEISS
Emeritus Director of the Max Planck Institute for Neurological Research, Cologne, Germany

Stroke is a major global health problem and a leading cause of long-term adult disability worldwide. Despite there was a statistically significant reduction in the rates of incidence, mortality and disability-adjusted life years (DALYs) from 1990 to 2013, the absolute number of people affected by stroke has increased significantly [Feigin et al 2013]. Only a small proportion of stroke survivors (approximately 14%) achieve full recovery of activities of daily living (ADLs), while 25%-50% require some assistance, and approximately half experience long-term dependency [Miller et al 2010]. With the stroke, the further life of the individual has been completely changed – and the quality of life is significantly affected by decisions made in the initial period. The aim of this review is to describe data collected from acute stroke patients that may be helpful for the prediction of recovery and long-term outcome. This prediction should be achieved in the subacute stage 1 to 3 weeks after the attack and is important for informing patients and their relatives properly on realistic and attainable goals for treatment and rehabilitation, for planning of discharge and for anticipating possible consequences for home adjustments and community support.

A systemic review of prognostic studies [Veerbeek et al 2011] indicated that age and motor weakness were important predictive variables of outcome in addition to stroke severity; however gender and presence of vascular risk factors were not. Employing simple models, a modestly large percentage of patients could be correctly classified with respect to survival and functional recovery (70.4% and 72.9% [Konig et al 2008]) and to the severity of impairment on the BI (severe vs. mild neurologic deficits, AUC 0.789 to 0.808 depending on time of assessment 2 days to 5 days [Kwakkel et al 2010]). The addition of more clinical variables in a relatively simple model improved prediction accuracy slightly (83.9% [Muscari et al 2011]). The complex model based on an integer score from age, severity of stroke at admission by NIHSS, time from stroke onset to admission, range of visual fields, acute glucose value and level of consciousness reached an AUC of 0.850 in the original population and of 0.903 in a stroke population pooled from 3 centers [Ntaios et al 2012] and was superior to prediction by experienced physicians (3 months mRS:286.5 vs 56.8 % [Ntaios et al 2016]. Especially the changes on the National Institute of Health Stroke Scale (NIHSS) and of symptoms and signs of traditional Chinese medicine during the first 5 days after stroke predicted 90 day outcome [Cao et al 2015]. As motoric functions and walking are in the center of rehabilitative activities several studies concentrated on prediction of recovery of these modalities and developed special models for this application [Haselbach et al 2014, Lamola et al 2015, Kwah et al 2016]. Chances for improvement of post-stroke aphasia can be estimated from the performance in word repetition from a language screening task supporting the importance of perception and motor production for recovery of language function [Glize et al 2016].

Neuroimaging is now widely available and routine in the clinical work-up of stroke patients. Imaging studies provide valuable insights into the pathophysiology of stroke, and the extent of injury and have the potential to improve accuracy of stroke outcome prediction. Despite more studies are needed to establish conclusively which biomarkers are best predictors of functional recovery after stroke [Kim et al 2017] current evidence suggests that the addition of neuroimaging data to models containing clinical predictors yields clinically important increases in predictive accuracy [Kwah et al 2016, Heiss 2017].

A MAJOR CHALLENGE IN NEUROREHABILITATION: REDUCING IMPAIRMENT

VOLKER HÖMBERG
Head of Neurology SRH_GBW Bad Wimpfen and Neurology Coordinator for the SRH group of hospitals and clinics, Germany
Secretary General WFNR, Vice President EFNR

Within the last 10 years the number of survivors after stroke and traumatic brain injury (TBI) has dramatically increased due to advances in acute medical care.

In parallel the need for intensive neurorehabilitation to combat resulting impairment and handicap has increased. Fortunately also over the last 20 years neurologic rehabilitation is more and more conceived as applied neuroscience:

Over the last two decades there has been a remarkable change in our thinking in the invention, design and efficacy evaluation of motor therapies in neuro-rehabilitation which can be described by three paradigmatic changes:

First there is a change from confession to profession i.e. more and more evidence based approaches rather than intuitively driven procedures have come into use. This was accompanied by a change from "hands on" treating to "hands off" coaching approaches, which now dominate most of the evidence procedures. This change in treatment philosophy has had a marked impact also on the self-understanding of the therapists in their relation to the patient mutating from treaters to teachers . Thirdly these developments were accompanied by a transition from intuitevely marshaled individual one to one treatments to quality proven group treatments.

Especially the distinction between treatment strategies targetted to restore function and thereby decrese impairments contrasted to approaches to compensate function in order to improve activities is becoming more and more important.

Are we really able to influence impairment i.e. can we reduce the amount of paresis e.g.after stroke.

In animal experimentation so called „enriched environments" have been proven to facilitate brain repair. There has however been no translation from this experimental animal world tot he clinical bedside

So far only three major strategies have been shown to help decrease impairment in the subacute stage e.g. after stroke: The forced use or constraint induced movement

therapy approach has been proven to be effectve in the multicenter prospective EXCITE trial (Wolf et al 2008). Also the use of antidepressant agents was shown to be effective in the FLAME trial (Chollet et al 2011) . Very recently the CARS trial (Muresanu et al 2016) documented for the first time after decades of frustrane attempts to achieve some sort of neuroprotective and/or neurorestorative effects that a mutimodal drug can improve impairment after stroke .

Possible additional candidates for a true „impairment" oriented treatment approach are neuromodulatory techniques such as peripheral neuromuscular and or sensory stimulation (eg. whole hand subliminal „mesh-glove" stimulation) and more and more also non invasive brain stimulation techniques such as repetitive transcranial magnetic stimulation and transcranial DC stimulation. Also the use of non fatiguable robotic devices to enable a high intensity massed movement treatment appear promising.

As treatment intensity is likely to be the key element for impairment reduction we certainly have to find clever and affordable ways: to increase the daily treatment time of our patients. To day even during inpatient rehabilitation treatment times hardly exceed three hours a day i.e. that we use only a small percentage of waking hours leaving long "idling" time not field by any treatment. In this sense we have to "reinvent" neurorehabilitation within this sensitive post injury period to combat impairment with high frequency treatments combined with neuromodulatory techniques (robot use, peripheral and central stimulation, pharmaceuticals) .

Probably the most important impact in facilitating impairment reduction will however have clever ,economically feasible, approches to increase the net number of therapy or activity hours per day by creating true „ enriched environment" for severely impaired patients . They should enable 6-8 hours of daytime treatment to avoid leaving our patients „inactive and alone" in future.

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LESSONS FROM PEDIATRIC STROKE: IS THE KENNARD PRINCIPLE STILL VALID?

KRISTINA MÜLLER
Head of Neuropediatrics at St Mauritius Therapy Clinic in Meerbusch-Osterath, Germany

Pediatric stroke is an important cause for aquired brain injury in children. Morbidity rates are high, with 60-70% of the children suffering long term impairments including motor, cognitive, language deficits and epilepsy (de Veber et al. Pediat Neurol 2017; 69: 58-70). The causes vary completely from those in adult stroke. Pathophysiology of pediatric stroke is still poorly understood until today. Information on epidemiology, treatment, risk factors and outcome is more and more provided by population based national and international stroke registries. The Kennard principle states that brain damage may be less deleterious, if sustained early in life (Kennard M. Am J. Physiol. 1936; 115:138-146) due to higher neuronal plasticity of the developing brain. Outcome studies show that children do not recover better than adults. Specially the perinatal group performed more poorly on most cognitive measures than older age groups (Greenham M et al. Curr Opin Neurol 2017; 30:127-132).

ANTICORRELATED PROCESSES IN NEUROBIOLOGY – POSSIBLE CONSEQUENCES FOR NEUROREHABILITATION STRATEGIES

DAFIN F. MUREȘANU
Chairman Department of Neurosciences
University of Medicine and Pharmacy 'Iuliu Hatieganu', Cluj-Napoca, Romania

Brain damage affects all three levels of structural and functional organization: cellular and molecular level, circuitries level and dynamic network level and launches an endogenous continuous brain defense response which consists in neuroprotection (the immediate response) and neurorecovery (a later response).
Endogenous neuromodulation represents at the cellular and molecular level the optimization of common biological processes that could potentially generate cell death or promote neurodegeneration. At the circuitries and dynamic network levels, it represents the tendency in reinbalancing of functional connectivity in resting-state netwoks.
In the last years, there has been a substantial effort in understanding the brain functioning and how to enhance endogenous neuromodulation and neurorehabilitation in general, by using a large spectrum of neurotechnologies such as imaging techniques (functional magnetic resonance imaging, ligant-based positron emission tomography, diffusion-tensor imaging), quantitative electroencephalogram, magnetoencephalography, eye tracking, optogenetics, transcranial magnetic stimulation, transcranial direct current simulation, deep brain simulation, computational neuroscience and brain-computer interfaces. The combination between these technologies provide valuable information about the structure-function relationship underling resting-state networks, about the dynamic cross-talk between networks and about the abnormalities in the functional connectivity in different pathologies.

This presentation aims to highlight the limitations of the classic models in brain protection and recovery. Beside these aspects, the new principles related to anticorrelated processes can explain and account for the complexity of brain function and open avenues to new therapeutic interventions.

Neurorecovery can be enhanced by pharmacological intervention, physical activity, electromagnetic stimulation, psychological support, environmental stimulation or any demonstrated combinations of these factors capable of improving the patient's condition after brain and spinal cord injuries. From the pharmacological perspective, it is clear that the focusing on molecules that are capable of mimic the function of endogenous molecules with multimodal and pleiotropic neuroprotective effects is the best approach in neurorecovery, especially when they are associated

with intensive physical training.
Biological agents (e.g., neurotrophic factors and related molecules) with modulating and multimodal effects are better pharmacological agents for brain and spinal cord protection and recovery, because they usually have also pleiotropic neuroprotective effect . That is why they are capable of pharmacologically bridging acute neuroprotective processes with the long-term recovery processes.

Except thrombolytic therapy and thrombectomy there is still no widely accepted therapy for acute ischemic stroke. Current data shows that even if advanced procedures can be used, 60% of stroke patients die or remain with a certain level of defi cit. As it is widely accepted that immobilization-related complications cause over 50% of stroke patients' deaths, rehabilitation plays an important role in stroke care.

It is getting clearer that multimodal drugs may play an important role in pharmacological support of neurorehabilitation after stroke.

The results of recently published large and well-controlled clinical studies show a positive effect ofneurotrophic factors on neurological recovery after acute ischemic stroke. The newly published CARS study assessed the e cacy and safety of neurotrophic factors in combination with a standardized rehabilitation program. The primary study endpoint was the Action Research Arm Test (ARAT) at day 90, assessing upper-limb motor functions. The neurotrophic factors were administered for 21 days, starting within 48-72 hours after ischemic stroke.

Furthermore, CARS 1 and CARS 2 meta-analysis provides evidence that the neurotrophic factors has a beneficial effect on motor function recovery in early rehabilitation patients after stroke. All pre-planned primary meta-analytic results were statistically signifi cant.

UPPER LIMB MOVEMENT REHABILITATION STRATEGIES

IWONA SARZYŃSKA-DŁUGOSZ
2nd Department of Neurology, Neurorehabiltiation Ward, Institute of Psychiatry and Neurology, Warsaw, Poland

The majority of stroke patients experience problems with the upper limb – most commonly paresis. It is the key impairment in most cases and causes activity limitations and participation restrictions. Only a small portion of stroke victims fully recover from upper extremity paresis. There are variety of upper limb rehabiltiation strategies and different motor function tests for evaluation of their effectiveness.

Most of rehabiltiation methods are well known: task-specific training, constraint-induced movement therapy, bilateral upper limb training, neuromuscular electrical stimulation. In last years: the robotic therapy, mental practice, virtual reality and video gaming became popular. Many other interventions for upper limb motor rehabiltiation have been examined, but have not yet been shown to be consistenty beneficial. These include: somatosensory stimulation, transcranial magnetic stimulation or transcranial direct current stimulation in combination with upper extremity exercise therapy, as well as interventions targeting motor apraxia or manual therapy approaches. During evaluation effectiveness of different upper limb motor rehabilitation methods is important to assess the specific changes in limb function. One of the best evaluation test to assess specific changes in limb function among individuals who sustained cortical damage resulting in hemiplegia is The Action Research Arm Test (ARAT). It assesses patient's ability to handle objects differing in size, weight and shape.

NEUROPROTECTIVE EFFECTS OF ANTI-TAU (PHOSPHO S422) ANTIBODY IN ALZHEIMER'S DISEASE IS POTENTIATED BY TIO2-NANOWIRED DELIVERY OF NEUROTROPHIC FACTORS

HARI S SHARMA[1]

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2. Dept of Neurosciences, University of Basque Country, Bilbao, Spain
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4. University of Maryland, Dept. of Pathology, Baltimore, MD, USA
5. Case Western Reserve Medical University, Dept. of Pathology, Cleveland, OH, USA
6. School of Biomedical Engineering, Dept. of Biomaterials, Indian Institute of technology, Banaras Hindu University, Varanasi, India
7. Dept. Chemistry & Biochemistry & B. Biomedical Engineering, University of Arkansas, Fayetteville, AR, USA
8. COMAMO LifeScience GmbH, Austria

Brain pathology in Alzheimer's Disease (AD) is quite complicated. In spite of our knowledge and research in the field of AD induced brain pathology our understanding regarding critical players in AD pathology e.g., amyloid beta protein (AβP), tau, ubiquitin and/or alpha synuclein (α-synuclein) are still unclear. Increased levels of

these proetins or enzymes could either be interpreted as harmful agents as this could occur in association with AD brain pathology. On the other hand, alternative theory could also indicate that an upregulation of these proetins and enzymes in AD could results in some kind of endogenous neuroprotective approach against toxic events. Interestingly inhibitors of these proteins and enzymes sometimes produce conflicting results. Thus, AD-induced brain pathology is still not very well know and require additional investigation using novel approach for the treatment strategies.

Our laboratory is engaged in exploring possible mechanisms of AD-induced brain pathology so that novel therapeutic strategies may be worked out that could be relevant in clinical trials of AD in future. In this investigation, we examined the role of tau in the brain pathology of AβP infusion induced AD in our rat model using antibodies of phosphorylated tau. In addition, we also used co-administration of TiO2-nanowired neuotrophic factors that is known to reduce brain levels of tau in our model of AD. Thus, it would be interesting to see whether a combination of tau antibodies and nanodelivery of neuotrophic factors could potentiate neuroprotective effects of each other in our AD model.

Experiments were carried out on Male Sprague Dawley rats (250-300 g, Age 30 to 35 weeks). AD like symptoms was produced by intraventricularly (i.c.v.) administration of AβP (1-40) in the left lateral ventricle in a dose of 250 ng/10 µl once daily for 4 weeks. Control group received physiological saline (0.9% NaCl) instead of AβP infusion. After 30 days of the 1st AβP or saline infusion, the rats were examined for blood-brain barrier (BBB) disturbances to endogenous/ exogenous protein tracers, brain edema formation, AβP deposits and brain pathology comprising, neuronal, glial and axonal changes using standard procedures. In addition these animals were also tested for behavioral disturbances using Rota Rod treadmill, inclined plane angle test and water maze performances. Separate group of rats received Anti-Tau (phospho S422) antibody [EPR2866] (ab79415) 10 µl (1:20 dilution in phosphate buffer pH 7.0) i.c.v. into the left lateral ventricle after 1 week of the start of AβP infusion that was repeated 3 more times (10 µl each) at the interval of 5 days. Another group of rats received co-administration of nanowired neuotrophic factors after 1 week of AβP infusion in tau antibodies treated group daily for 2 weeks. In all these antibodies treated animals with or without NWCBL co-administration, brain pathology and behavioral functions were analyzed using standard protocol.

Our observations showed marked AD like symptoms in untreated AβP infusion group as described earlier. Thus, AβP deposits in the cortex and in hippocampus, neuronal damage and cell death, activation of astrocytes as seen using glial fibrillary acidic protein (GFAP) immunoreactivity, loss of myelin basic protein (MBP) and increase in albumin immunoreaction were prominent in AβP administered

group as compared to saline treated rats. Breakdown of the BBB to Evans blue albumin or radioiodine ([131]-I) and edema formation was much more pronounced in several brain areas following AβP infusion. The behavioral disturbances on Rota Rod performances and inclined plane angle tests were significantly deteriorated along with the ability to retrieve platform in water maze tests in AβP infused rats as compared to saline treated control group.

When tau antibodies were administered (4 times) alone in AβP infused group, the AD-like brain pathology e.g., neuronal glial and axonal damages, AβP deposits, BBB breakdown and behavioral functions were slightly but significantly reduced. Likewise, when the NWCBL (25 µl) alone was administered in AβP group, the reduction in pathological changes and improvement in behavioral parameters were moderately enhanced. On the other hand, when tau antibodies were co-administered with NWCBL infusion in βP group the reduction in brain pathology and improvement in behavioral functions were significantly potentiated.

These observations suggest that phosphorylated tau participates in AD-induced brain pathology and neutralization of tau-antigen with monoclonal tau-specific antibody in vivo is capable to markedly reduce AD-induced brain pathology. Furthermore, a combination of tau antibodies together with nanodelivery of cerebrolysin- a multimodal drug with balanced composition of several neurotrophic factors and active peptide fragments significantly potentiated tau-antibodies induced neuroprotection in AD, not reported earlier.

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THE HUMAN BRAIN PROJECT. THE ESSENTIAL NEED FOR THEORY

IDAN SEGEV
The Hebrew University of Jerusalem, Israel

The human brain is the most powerful, energy efficient, self-learning, self-repairing computing machine imaginable. Several recent heroic scientific projects (such as the EU HBP flagship, the US BRAIN project, the Neuroscope by Allen Inst. among others) are promoting the development of new, industrial-scale brain research platforms with the hope to provide the very-missing breakthrough in understanding the brain in health and in disease.

In my talk will describe in brief the Human Brain Project (HBP) and, in particular, its mission to mathematically simulate brain processes at many levels, from synapses to neurons to network to the whole system. I will discuss underlying concepts, the difficulties in modeling and simulating the brain and I will discuss several early successes in this mission. I will highlight a few insights that emerged in the last few years from the systematic bottom-up attempt to "building a digital cortex" of rodents and, presently, of the Human brain.

MULTIDIMENSIONAL STRATEGIES TO IMPROVE TBI CLINICAL RESEARCH - TOWARDS A NEW GOLD STANDARD

JOHANNES VESTER
Senior Consultant Biometry and Clinical Research
idv - Data Analysis and Study Planning, Germany

Recent reports from interdisciplinary working groups consisting mostly from neurologists, neurosurgeons, neuropsychologists, and biostatisticians, state that to create improvements in TBI treatment, important methodological lessons from the past must be taken into account in future clinical research.

Is TBI clinical research stifled by backward oriented designs?

An evaluation of neuroprotection intervention studies conducted in the last 30 years has determined that methodological design flaws are among the major reasons why pharmacological agents fail to demonstrate efficacy. Almost all the inconclusive studies used a single outcome measure approach. This classic approach in clinical TBI trials cannot capture all clinical relevant functional information in survivors of

any kind of TBI. Even survivors of mild to moderate TBI may experience lifelong disturbances in the physical, behavioral, emotional, cognitive (memory, attention, reasoning, communication and planning), motor, sensory, perception and social domains of life that may affect specific or global functioning.

Leading interdisciplinary research groups recently highlighted the multidimensional nature of TBI, such as, e.g., the International Mission on Prognosis and Clinical Trial Design in TBI (IMPACT), stating that "outcome after TBI is by definition multidimensional" or the US Traumatic Brain Injury Clinical Trials Network Group, pointing out that "multiple measures are necessary to address the breadth of potential deficits and recovery following TBI".

The multidimensional strategy is expected to become a key development in TBI clinical research, opening up new horizons for TBI management. Examples from the literature and current study designs in neurosciences are discussed and their implications related to future developments.

INTRACEREBRAL HEMORRHAGE IN ISCHEMIC STROKE: THROMBOEMBOLIC OCCLUSION, MICROVESSEL STRUCTURE/ PERMEABILITY, AND INTERVENTIONS

GREGORY DEL ZOPPO
Department of Medicine, Department of Neurology, University of Washington School of Medicine, Seattle, Washington, USA

Focal ischemic injury to the brain is associated with hemorrhagic transformation (HT) in a majority of patients, the etiology of which may not be evident acutely. A number of contributors have been identified that increase (and decrease) the risk of clinically-relevant intracerebral hemorrhage following ischemic stroke. HT can be defined either as parenchymal hematoma (PH) formation or as hemorrhagic infarction (HI), which can be symptomatic or asymptomatic. Broadly, PH has been associated with occlusion of large brain-supplying arteries, while HI has been associated with structural alterations in cerebral microvessels in the regions of evolving focal ischemic injury. In large animal models these events are stochastic and heterogeneous in time and space.

This presentation will explore i) the clinical presentation and pathophysiology of HT in the acute and subacute settings following ischemic stroke onset, ii) clinical characteristics of hemorrhage risk, iii) the risks of symptomatic HT, iv) the

development of HT in focal ischemia models, v) alterations in microvessel structure in response to focal ischemia, and vi) the impact of ischemia on microvessel permeability.

Important in this presentation will be how events in the evolution of cerebral injury can help explain outcomes from recent clinical trials of both medical (e.g. anti-platelet, anticoagulant, and plasminogen activator) and acute endovascular interventions.

Unknowns yet to be explored are how thromboembolic events can cause hemorrhage, roles of the circulating and brain-associated hemostatic system in the protection of the brain from hemorrhage, and the impact of innate inflammation within the neuropil on microvessel responses to ischemic injury. These offer opportunities for future research that might provide new strategies to reduce the hemorrhagic risk.

CURRICULUM VITAE

JAROSLAW ARONOWSKI

USA

Dr. Aronowski is Professor and Vice Chair of Neurology, Director of Stroke Research, and the Roy M. and Phyllis Gough Huffington Chair in Neurology at the University of Texas Health Sciences Center (UTHealth) in Houston. He received his degrees from the Warsaw Medical School and Polish Academy of Sciences. He has published more than 100 papers, and given more than 100 plenary lectures and invited presentations around the world Aronowski has served on more than 100 NIH and AHA study sections and acted as a member of the Planning Group to Establish NIH Future Goals/Priorities in Stroke Research-National Institute of Neurological Disorders and Stroke (NINDS). Aronowski's research has been sponsored continuously for two decades with grants from the National Institutes of Health (NIH) and the AHA.

Discoveries in Aronowski's laboratory have resulted in clinical trials for ischemic stroke and intracerebral hemorrhage. He is the Associate Editor for Basic Science for the Stroke journal. He currently serves as a Treasurer and member of the Financial Committee for the International Society for Cerebral Blood Flow and Metabolism.
In the field of experimental research, Aronowski has trained dozens of clinical stroke fellows, research fellows, and scientists who today play instrumental roles in leading clinical stroke research around the world.

His research focuses on understanding the cellular and molecular mechanisms underlying the pathology of acute cerebral ischemia, reperfusion injury, and secondary injury after intracerebral hemorrhage, with emphasis on the role of transcription factors (specifically NF-κB, Nrf2 and PPAR), neuroinflammation (including the role of microglia, neutrophil, and oligodendroglia), stem cell therapy, and the use of ultrasound in tPA-mediated thrombolysis. This year, he was honored with the 2017 Thomas Willis Award from the American Heart Association for his significant and long-term contributions to the basic science of stroke.

MIHAELA BĂCIUŢ
ROMANIA

Professor, Department of Maxillofacial Surgery and Implantology,
Faculty of Dental Medicine, „Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, Romania

UNIVERSITY STUDIES
Faculty of Dental Medicine and Faculty of Medicine, „Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca

POSTGRADUATE SPECIALIZATION
Oral and maxillofacial surgery

POSTGRADUATE TRAINING
Oral Implantology, 1994, Microsurgery, 1994, International Cancer Management Course, 1998, Competence course in maxillo-dental radiodiagnostic, Ultrasonography, Orthognathic surgery, Lasertherapy, Cleft surgery and management

SCIENTIFIC AND PROFESSIONAL SOCIETIES

Founding member of the Romanian Society of Reconstructive Microsurgery
Vicepresident of the Romanian Society of Oral and Maxillofacial Surgery (SRCOMF)

• Member: Romanian Society of Angiology and Vascular Surgery 1991, International Association of Oral and Maxillofacial Surgeons (IAOMS) 1994, European Association of Cranio-Maxillofacial Surgery (EACMFS) 1994, Association of Transylvanian Dermatologists 1996, Romanian Society of Plastic and Esthetic Surgery 2001, Romanian Society of Ultrasonography in Medicine and Biology 1998, Romanian Society of Oral Implantology and Biomaterials 2000, Romanian Society of Lasers in Dentistry 2003

SCIENTIFIC ACTIVITY

- Scientific articles and studies - 190 papers
- Books and textbooks - 10 books authored and coauthored
- Papers communicated in conferences – 71 papers

OTHER PROFESSIONAL ACTIVITIES

Member of the Editorial Board Journal of Cranio-Maxillofacial Surgery – the official journal of the

European Association of Cranio-Maxillofacial Surgery
Member of the editorial boards:

- Dento-Medica (Sibiu, Romanian – French Dental Association, "Victor Papilian" Faculty of Medicine 1996)
- Quo Vadis (Cluj-Napoca, Humanitarian Foundation "Hipocrate" 1997)
- Romanian Journal of Ultrasonography 1999
- Transilvania Stomatologică 2001

DOMAINS OF RESEARCH AND INTEREST

- Neuroregeneration and neuroplasticity of cranial nerves
- Stem cell based regeneration
- Craniofacial surgery of complex congenital malformations
- Orthognathic surgery of facial deformities and asymmetry
- Oral implantology
- Biomaterials
- Medical rapid prototyping and medical imaging to optimize healthcare systems
- Craniofacial bone reconstruction and regeneration
- Osteogenesis using callus distraction
- Lasertherapy
- Craniofacial ultrasonography

Research projects – national and international - 22

OVIDIU BĂJENARU
ROMANIA

Corresponding Member of the Romanian Academy
Member of the Romanian Academy of Medical Sciences of Romania
Professor of Neurology and Director of the Clinical Neuroscience Department at the University of Medicine and Pharmacy "Carol Davila" Bucharest, Chairman of the Department of Neurology – University Emergency Hospital Bucharest

- Graduate of the Faculty of Medicine – University of Medicine and Pharmacy (UMF) „Carol Davila" Bucharest (1983)

- Specialist in Neurology (1989), Senior Neurologist (1994); competence in MRI diagnostic in neurologic disorders (1991)
- PhD (1993) - UMF „Carol Davila" Bucharest
- 2006: Doctor Honoris Causa –University „Ovidius" – Constanta
- Postdoctoral specialization at the University „René Descartes" (Paris) during 1993-1994, in clinical Neurology (CHU „Saint-Anne" and „Kremlin-Bicetre") and research grants in Clinical and Experimental Neurophysiology (CHU „Cochin-Port Royale" and Faculté de Medecine Paris V)
- 2001-2013: President of the Romanian Society of Neurology
- Since 2013: Honorary President ad vitam of the Romanian Society of Neurology
- Since 2001: Coordinator and Chairman of all annual National Congresses of the Romanian Society of Neurology and many other scientific events and teaching courses organized for neurologists in Romania
- Visiting Professor in Vietnam (2013) and Kazakhstan (2015), on behalf of WFN
- Member of the Executive Committee of ENS (European Society of Neurology) between 2005-2009, of the Scientific Committee of ECTRIMS (2004-2009)
- Member of European Academy of Neurology (since 2014), American Academy of Neurology, International Parkinson's Disease and Movement Disorders Society, European Stroke Organisation, Danube Neurological Association (member of the Scientific Board and Deputy Secretary General), and others
- Since 2008: official representative of Romania for UEMS - European Board of Neurology (secretary of the Executive Committee between 2010-2015) and member of the examination board for the title of European Neurologist
- Author of more than 1000 scientific papers reported and published in scientific journals, among 147 cited in ISI Web of Science (Hirsch index 16) and Pubmed. Author of chapters in 2 international books of neurology and author and co-author in more than 15 medical books published in Romania.
- Coordinator of the National Diagnostic and Treatment Guidelines in Neurological Disorders
- National Principal Investigator and Investigator in more than 50 international, multicentric, controlled clinical trials in: stroke, Parkinson's disease and movement disorders, multiple sclerosis, dementia, epilepsy, and others.
- Director of more national research grants
- 9 awards of excellency in medicine from different socio-professional national and international organizations, the Romanian Ministery of Health and the Romanian Orthodox Patriarchate
- Initiator and coordinator of the National Medical Programs of the Ministery of Health and National Health Insurance System for the treatment of: acute stroke, multiple sclerosis, rare neurological diseases, advanced Parkinson's disease (1999 – 2015)
- President of Consultative Commision of Neurology of the Ministery of Health and National Health Insurance System (2008 – 2015)

NATAN M. BORNSTEIN
ISRAEL

Affiliation: Professor of Neurology at the Tel-Aviv University, Sackler Faculty of Medicine.
Director of the Brain Division at the Shaare-Zedek Medical Center
Head of Stroke Unit at the Tel-Aviv Medical Center (1989-2016)
Chairman of the ESNCH (2013)
Chairman of the Israeli Neurological Association (since 2009)
Vice President of the World Stroke Organization (WSO) (since 2008).
President of the European Neurosonology Society (2013).
Chairman of Neurology Department, Tel-Aviv Medical Center (2002-2007)
Consulting Editor of Stroke
Editorial Board of CVD, EjoN, Acta Neurologica Scandinavica, International Journal of Stroke, Neurosonology, Frontiers in Stroke, Journal of Annals of Medical Science.
Fellowship program in vascular neurology (stroke) in Toronto, Canada with Prof. John Norris (1984-87)
Main research interests are: Epidemiology of stroke, Stroke prevention, Vascular dementia, Inflammation and stroke, Neurosonology.

MICHAEL BRAININ
AUSTRIA

Professor Brainin was appointed in 2000 full Professor of Clinical Neurology and Director and Chair of the Department of Clinical Neurosciences and Prevention at the Danube University in Krems, Austria. From 1994-2016 he acted as Chair and Director of the Neurological Department of the University Hospital Tulln. In 1997 he set up the first stroke unit in Austria at his institution.

His research focus is on cerebrovascular diseases including acute therapy, recovery and cognition. He has published more than 200 peer-reviewed, Pub med listed articles. His h-index is 40, he has over 8.000 citations.

He has been an invited lecturer and chairperson to more than 1.000 international conferences. He has published and edited several books, among them the Textbook of Stroke Medicine (with WD Heiss, Cambridge Univ Press, 2nd edition 2015).

From 2012-2014 he was President of the European Stroke Organization (ESO). In 2015, he was elected President Elect of the World Stroke Organisation (WSO) and is due to take office in 2018. Since 2014 he is elected full Board Member of the European Academy of Neurology. He acted as chairman of the WSO Education Committee (2008-2017) for which he has co-directed teaching programmes in many regions of the world. Since 2008 he is editor-in-chief of the World Stroke Academy. He directs several postgraduate teaching programmes at his university, among them the WSO supported ESO European Master's Programme in Stroke Medicine, currently attended by medical doctors and neurologists from 23 countries.

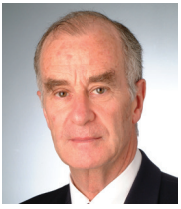
He serves as Associate Editor for the European Journal of Neurology, also as Senior Consulting Editor for Stroke. He serves on the Editorial Boards of the International Journal of Stroke, the European Stroke Journal, Neuroepidemiology, the Journal of Neurological Sciences, and Frontiers in Neurology.

Professor Brainin is an Honorary Member of the ESO and International Fellow of the American Stroke Association and Fellow of the European Academy of Neurology. He received several awards, such as the Marinescu Award 2015 from the Romanian Society of Neurology and Honorary Doctorates from Hanoi University, Vietnam, and from the University of Cluj, Romania, an honorary professorship from Zhengzhou University, as well as honorary memberships of the French Neurological Society, Hungarian Stroke Society and Indian Stroke Society.

NATALIA GULYAEVA
RUSSIA

Natalia V. Gulyaeva received her MS in 1974 and PhD in 1978 (Biochemistry) at Moscow State University (Biological Faculty). In 1978 she received a researcher position in the Institute of Higher Nervous Activity & Neurophysiology, Russian Academy of Sciences, where she

founded the Department of Functional Biochemistry of the Nervous System and at present serves as Deputy Director. Dr. Gulyaeva serves as a lecturer in Moscow State University and is Head of a Division in Moscow Research and Clinical Center for Neuropsychiatry. She defended her DSc Thesis in 1989 (Pathophysiology), received her Professor degree in 1997 (Neurophysiology) and published more than 400 papers over the course of her carrier. Her research interests include translational neuroscience, neurochemistry and mechanisms of neuroplasticity, pathophysiology; cerebral pathologies (depression, epilepsy, stroke, head trauma, ALS, dementia, comorbidity) - modeling and human studies; molecular and cellular mechanisms of stress-induced diseases, neurodegeneration and cognitive impairment, neuroinflammation, neurogenesis, neurotrophic factors, proteases, free radicals, nitrosative stress. Dr. Gulyaeva is Co-Editor of Neurochemical Journal, Deputy Editor of Journal of Higher Nervous Activity, Handling Editor of Journal of Neurochemistry; Member of Editorial Boards Neurochemical Research, Metabolic Brain Disease, Biochemistry, ARC Journal of Neuroscience, Translational Brain Rhytmicity, Neurochemistry & Neuropharmacology.



WOLF DIETER HEISS

GERMANY

Wolf-Dieter Heiss graduated in medicine from the University of Vienna, Austria, in 1965. He achieved his training in neurology, neurophysiology, psychiatry and nuclear medicine at the University hospital in Vienna and spent research fellowships at the MIT, Cambridge, USA, the Physiological Institute in Stockholm, Sweden, the Department of Physiology of SUNY, Buffalo, NY and the Department of Neurology of the University of Minnessota, Minneapolis, USA. 1976 he was appointed associate professor at the Department of Neurology of the University of Vienna. In 1978 he became director of the Center for Cerebrovascular Research of the Max Planck Institute for Brain Research and of the Department of Neurology of the City Hospital Cologne-Merheim, Germany. 1981 he was appointed as director at the Max Planck Institute for Neurological Research. 1985 – 2005 he was professor of neurology and chairman of the Department of Neurology of the University of Cologne and director of the Department of General Neurology at the MPI in Cologne. He was president of the International Stroke Society 1992-96, was on the board of directors of the Society for Cerebral Blood Flow and Metabolism, deputy editor of the Journal of Cerebral Blood Flow and Metabolism and at present is associate editor of the Journal of Nuclear Medicine and section editor of Stroke. He was chairman of the program committee of the European Federation of Neurological Societies (EFNS) 1998 - 2001 and was president of the EFNS 2001 – 2005. Since 2005 he is Visiting Professor at the Danube Univerity in Krems, Austria, since 2009 Adjunct Professor

at the McGill University in Montreal, Canada, and since 2013 Associate Professor, Dept of Neurosciences, Univ. Iuliu Hatieganu, Cluj, Romania. In December 2014 he received Dr. honoris causa of Univ. Iuliu Hategianu, Cluj, Romania.

VOLKER HÖMBERG
GERMANY

Prof. Hömberg had his medical education at the Universities of Düsseldorf, Freiburg and Boston Massachusetts. After spending electives in Neurology at Boston City Hospital and the National Hospital for Nervous Diseases Queens Square London he was a research fellow at the C. and O. Vogt Institute for Brain Research in Düsseldorf. In 1981 he started a residency in neurology with Prof. Hans Freund at Heinrich Heine University Düsseldorf. In 1987 he was appointed Director of the Neurological Therapy Centre (NTC) a newly founded Institute at Heinrich Heine University in Düsseldorf. He was also founding Director of the NTC in Cologne . He was involved in the setup of many in and out patient rehabilitation hospitals in Germany. In 2001 he started the St. Mauritius Therapy Clinic in Meerbusch near Düsseldorf and since 2011 he is Director of the Dept. of Neurology at the Gesundheitszentrum Bad Wimpfen and works as senior neurology group leader for the SRH-Group ,one of the biggest hospital groups in Germany.

He was founder, president and vice president of the German Society for Neurorehabilitation for many years. He serves as Secretary General for the World Federation of Neurorehabilitation (WFNR) for more than 12 years and is Vice President of the European Federation of Neurorehabilitation Societies. (EFNR)

He is regular reviewer and co-editor for many international peer reviewing journals.

He is regular (co) -programme chairman for neurorehabilitation for major international meetings as the World and European Neurorehabilitation Congresses (WCNR, ECNR), Controversies in Neurology (CONy) and the European Stroke Congress (ESC).

He has published more than 250 articles in international peer reviewed journals and many book chapters. His primary scientific interest are the fields of motor rehabilitation, cognition epistemiology, neurological music therapy and pharmacology in neurorehabilitation.

KRISTINA MÜLLER
GERMANY

since July 1984:	Training in General Pediatrics in the Department of Pediatrics at the „Heinrich-Heine"-Universität Düsseldorf, Specialization in Pediatric Neurology (Prof. H.-G. Lenard)
Jan. 89 - Dec. 90:	Research Project about "Motor development in children " sponsored by the Ministry of Research and Technology of Germany.
November 1991:	Board Qualification in Pediatrics
January 1992:	Senior Registrar at the Department of Pediatrics of the „Heinrich-Heine"- Universität, Düsseldorf
Oct. 92- April 93:	Fellowship at the Hospital for Sick Children , Department of Neuropaediatrics (Prof. B. Neville) , Great Ormond Street , London
February 93:	Habilitation
May 93-Nov. 93:	Training in Neurology in the Department of Neurology „Heinrich-Heine"-Universität Düsseldorf (Prof. Dr.H-J Freund)
since May 93	Consultant at the Department of Pediatrics at the „Heinrich-Heine-Universität" Düsseldorf
Feb - Dec 99	Research Project: Locomotion in Children with mit Cerebral Palsy
March – June 2000 on	Work at the Rehabilitation Institute of Chicago (Chicago, USA) special aspects of neuro-rehabilitation for children
since October 2000:	Head of Neuropediatrics at St Mauritius Therapy Clinic in Meerbusch-Osterath (www.stmtk.de)
March 2007	Additional designation for the field of Rehabilitation
Special interest:	Motor rehabilitation of children

DAFIN F. MUREȘANU

ROMANIA

Professor of Neurology, Senior Neurologist, Chairman of the Neurosciences Department, Faculty of Medicine, University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Past President of the Romanian Society of Neurology, President of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN), member of the Academy of Medical Sciences, Romania, secretary of its Cluj Branch. He is member of 16 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. Mureșanu is a specialist in Leadership and Management of Research and Health Care Systems (specialization in Management and Leadership, Arthur Anderson Institute, Illinois, USA, 1998 and several international courses and training stages in Neurology, research, management and leadership). Professor Dafin F. Mureșanu 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 Neurotraumatolgy (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 400 scientific participations as "invited speaker" in national and international scientific events, a significant portfolio of scientific articles (154 papers indexed on Web of Science-ISI, H-index: 17) as well as contributions in monographs and books published by prestigious international publishing houses. Prof. Dr. Dafin F. Mureșanu has been honoured with: the University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Faculty of Medicine, "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,

University of Medicine and Pharmacy "Iuliu Hatieganu" 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.

IWONA SARZYŃSKA-DŁUGOSZ
POLAND

Iwona Sarzyńska-Długosz MD, PhD, graduated from the Medical Academy in Lublin, Poland in 1998.

In 2000 she has started training in neurology at the 2nd Department of Neurology of the Institute of Psychiatry and Neurology in Warsaw, Poland. In 2004 she received her PhD degree based on the dissertation "The risk factors, clinical course and outcome in recurrent stroke". In 2006 she became a specialist in neurology and in 2011 in rehabilitation medicine after passing her board examinations. From the beginning of her work at the 2nd Department of Neurology of the Institute of Psychiatry and Neurology she has been interested in stroke epidemiology and organization of stroke care – from acute to rehabilitation services. She was involved in POLKARD - National Cardiovascular Disease Prevention and Treatment Program by Polish Ministry of Health and mainly involved in stroke care organization, promotion of thrombolysis treatment, development of neurorehabilitation in Poland. Due to this initiative stroke units and neurorehabilitation networks, and modern therapies in Poland has markedly developed. In 2014 she received her habilitation on the basis of study: "The development of stroke care in Poland in years 2003-2012". She is certified specialist in treatment of migraine, dystonia and focal spasticity with botulinum toxin. She has also international certificate in neurosonology.

She is associate professor of neurology and rehabiltiation medicine. She acts as the head of Neurological Rehabilitation Ward in 2nd Department of Neurology, Institute of Psychiatry and Neurology, Warsaw, Poland with medical, scientific, and administrative responsibilities. She is the Regional Consultant in Neurology for Mazovian Region in Poland.

She has authored or co-authored 29 original papers, 1 monography, 7 chapters in published books and a number of conference abstracts.

IDAN SEGEV
ISRAEL

The main focus of my lab ("The Lab. for Understanding Neurons" http://lobster.ls.huji.ac.il/idan/index.html) is to utilizes computational and theoretical tools to study how neurons compute and dynamically adapt to our ever-changing environment. This led to major publications and new insights regarding (i) Principles of dendritic integration; (ii) Computational impact of dendritic nonlinearities; (iii) Role of dendritic morphology and nonlinearities (in particular the back propagation AP and local dendritic Ca spikes) for synaptic plasticity and (iv) Development of new methods (e.g., the multiple objective optimization, MOO) for detailed modeling and classification of the diverse spiking activity of various neuron types. In recent years, his group worked jointly with several experimental groups worldwide (K. Martin, B. Sakmann, H. Markram, Y. Yarom, A. Borst) in an endeavor to realistically model specific neuronal networks (e.g., the VS system of the fly visual system, the olivary nucleus in mouse) as well as a whole piece of the mammalian cortex (in rats), with the ultimate goal to unravel how local dendritic structure and physiology, and network connectivity underlie specific behavioral function. Idan Segev takes a keen interest in the connection between art and the brain and recently co-edited an "Artists" book with original etchings by ten top Israeli artists prompted by an encounter with ELSC researchers.

HARI SHANKER SHARMA
SWEDEN

Hari Shanker Sharma, Director of Research (International Experimental Central Nervous System Injury & Repair, IECNSIR), University Hospital, Uppsala University is Professor of Neurobiology (MRC), Docent in Neuroanatomy (UU) and is currently affiliated with Department of Surgical Sciences, Division of Anesthesiology and Intensive Care Medicine, Uppsala University, Sweden. Hari Sharma was born on January 15, 1955 in an Industrialist town Dalmianagar (Bihar), India. He did his Bachelor of Science with Honors from the prestigious L. S. College Muzaffarpur in 1973 and secured 1st position in his batch. He

obtained his Master Degree from Bihar University with special expertise in Cell Biology in 1976 and awarded Gold Medal of Bihar University for securing 1st potion in the 1st Class. Hari Sharma joined the group of Professor Prasanta Kumar Dey, a neurophysiologist by training in the Department of Physiology, Institute of Medical; Sciences, Banaras Hindu University, Varanasi in 1977 to obtain Doctor of Philosophy Degree (D.Phil.) in Neurosciences and was awarded Ph.D. in 1982 on "Blood-Brain Barrier in Stress." Hari Sharma after carrying out a series of Government of India funded Research Projects on the BBB and brain dysfunction (1982–1987), joined the lab of Neuropathology at Uppsala University with Professor Yngve Olsson in 1988 to investigate passage of tracer transport across the BBB caused by stress or traumatic insults to the Brain and Spinal cord at light and electron microscopy. Dr. Sharma awarded the prestigious Alexander von Humboldt Foundation Fellowship of German Government (1989–1991) to work on hyperthermia induced BBB dysfunction at the ultrastructural level in the laboratory of Professor Jorge Cervós-Navarro (a living "Legend in Neuropathology in Europe"). Dr. Sharma joined again Uppsala University and established a network of collaboration on "Experimental CNS Injury Research Group" as a lead investigator with eminent collaborators in various parts of Europe, USA, and Australia (1991–). On his work on hyperthermia Dr. Sharma received the prestigious Neuroanatomy award "Rönnows Research prize" of Uppsala University for "best neuroanatomical research of the year 1996" followed by the Award of the Degree of Doctor of Medical Sciences of Uppsala University in Neuroanatomy in 1999 and selected for the Best Thesis Award of the Medical faculty, "The Hwassers Prize" of 1999. On his meticulous works on the Blood Brain barrier and Brain edema (2000–2003) Dr. Sharma earned the prestigious title of "Docent in Neuroanatomy" of Medical Faculty, Uppsala University in April 2004. Currently his main research interest is Neuroprotection and Neuroregeneration, in relation to the Blood-brain barrier in stress, trauma, and drugs of abuse in health and disease.

Dr. Sharma on his research on brain pathology and neuroprotectio

n in different models received the prestigious awards from The Laerdal Foundation of Acute Medicine, Stavanger, Norway, in 2005 followed by Distinguished International Scientists Collaboration Award by National Institute on Drug Abuse (NIDA), Baltimore, MD (2006–2008). His recent work on 5-HT3 receptor mediated neuroprotection in morphine withdrawal induced neurotoxicity won the coveted prize of Best Investigator Award 2008 and Best Scientific Presentation by European Federation of the International Association for Study of Pain (ISAP), and Awarded during their VI Annual Meeting in Lisbon, September 9–12, 2008. His recent research is aimed to find out the role of nanoparticles in Neurodegeneration and Neuroprotection using various treatment strategies that is supported by European Aerospace Research and Development (EOARD), London, UK and US Air Force Research Laboratory, Wright Patterson Air Force Base, Dayton, Oh, USA. On his works on Blood–brain barrier in hypertension and diabetes together with Romanian colleagues, University of Medicine and Pharmacy "Iuliu Hatieganu," Cluj-Napoca, Romania awarded Dr. Sharma with Honorary Doctorate of Medical Sciences in 2009. Dr. Sharma's work over 30 years on the blood-brain barrier and brain edema won him the US Neurosurgeon Dr. Anthony Marmarou Award (2011) by the International Brain Edema Society at their 15th Congress in Tokyo, Japan, November 20–24, 2011. His works on Nanoneuroscience and development of nanomedicine to treat the CNS injuries has won accolades at various Government and International Scotties or Organization across the World. Accordingly Dr Sharma was decorated with the most prestigious "Hind Rattan Award 2012" (Jewel of India) on the eve

of Republic Day of India 25th January 2012 and Mahatma Gandhi Pravasi Gold Medal on October 12, 2012 in House of Lords, London, UK. Based on his outstanding contribution in Nanoneuropharmacology and nanodrug delivery to treat central nervous system (CNS) diseases including Neurodegenerative diseases such as Alzheimer's and Parkinson's Hari Sharma bestowed with Prestigious Gujarat Govt. International Visionary Award 2012 in a glittering function in Ahmedabad, Gujarat on Nov 23, 2012. His further research on co-morbidity factors e.g., hypertension or diabetes may alter pathophysiology of brain injuries and require higher drug dose or nanodrug delivery of neuroprotective agents to minimize brain dysfunction is recognized by Govt. of India by presenting him one of the coveted "Bharat Jyoti Award 2013" (Glory of India) by His Excellency Governor Balmiki Prasad Singh in Hotel Le Meridien, New Delhi on Jan 12, 2013. Dr Sharma also received the highest Award of the Govt. of India "Navrattan Award 2013" (Nine Jewels of India) on the eve of 64th Republic Day of India (25th January 2013) by His Excellency Governor Bhishma Narain Singh, in Ashok Hotel, New Delhi. Hari Sharma is Founding President of the Global College of Neuroprotection & Neuroregeneration (2004-); Elected President of International Association of Neurorestoratology (IANR) (2014-); and selected Senior Expert of Asia-Pacific CEO Association, Worldwide (APCEO) (2012-) for his contribution to uplift scientific research in many countries Globally that may have better economic and social benefit for the mankind. Hari Sharma awarded coveted National Award "Sword of Honor" 2015 by Govt. of India on the eve of 66th Republic Day of India 25th January 2015 in New Delhi Eros Hotel International during the 34th Non-resident Indian (NRI) conclave by Speaker of Lok Sabha (Indian Parliament) the Hon'ble Mrs Meira Kumar of Indian national Congress (INC) Party for the continued extraordinary achievement in nanomedicine for public health awareness and possible therapeutic measures.

Based on his expertise in Nanoneuroscience, Hari Sharma was also invited to organize and chair Nanosymposium in Society for Neuroscience meetings in Chicago (2009), San Diego (2010), Washington DC (2011), New Orleans (2012), San Diego (2013) and Washington DC (2014, Nov 15-19, 2014); Chair Neurobiology Symposium 14th Int. Amino Acid & Peptide, Vienna, Austria; Keynote speaker & Chair Nanotechnology-2015, Frankfurt, Germany. Hari Sharma is also the recipient of Prestigious US TechConnect Global Innovation Award 2013 at the National Innovation Summit & Innovation Showcase, Washington DC May 12-16, 2013 on his work on Nanowired cerebrolysin in Neuropathic Pain, followed by Nanodelivery of Cerebrolysin and Neprilysin for the treatment of Alzheimer's disease, Washington DC, May 14-17, 2017. This investigation is now selected for Defense Innovation in Miami Florida Oct 3-5, 2017 for further funding by Dept of Defense (DOD, US Govt). Hari Sharma Served as one of the Poster Judges in 2014 180th Annual Meeting of American Association of Advancement of Science (AAAS) Held in Chicago, IL, USA Feb 13-17, 2014 followed by 181st Annual Meeting of American Association of Advancement of Science (AAAS) held in San José, CA, USA Feb 12-16, 2015; 182nd AAAS Annual Meeting in Washington DC, USA Feb 11-15, 2016 & 183rd Annual Meeting of AAAS held in Boston, MA, USA Feb 16-20, 2017. Hari Sharma has published over 350 research papers and 85 reviews, 14 monographs, and 80 international book chapters and edited 18 book volumes with Current H-index = 40 (ISI Database) as of today. He served as Guest Editor of Curr. Pharm. Desig. (2005, 2007, 2010–); J Neural. Transmiss. (2006, 2011–

) and is the founding Editor-in-Chief of Int. J. Neuroprotec. Neuroregen. (2004–), UK and the European Editor of Central Nervous system-Neurological Disorders Drug Target (2013-). Dr. Sharma is on board of various International Journals including CNS and Neurological Disorders-Drug Targets, USA (2010), Journal of Neurodegeneration and Regeneration, USA (2009–); Austin Journal of Nanomedicine & Nanotechnology (2014-); and is associate editor of Journal of Nanoscience and Nanotechnology (Nanoneuroscience 2006–), USA, Review Editor—Frontiers in Neuroengineering (2007–), Frontiers in Neurorestoratology, and Associate Editor of Frontiers in Aging Neuroscience (2008–), Frontiers of Fractal Physiology (2010–), Switzerland, Journal of Neurorestoratology, Dove Medical press, London, UK (2012–), WebMD Central, Neurology Faculty, Advisory Board Member (2010–), World Journal of Pharmacology (2011–), Journal of Physical Medicine and Rehabilitation, USA (2012–). Dr. Sharma served as volume editor of several progress in Brain research series (Volumes 104, 115, 162 and 180), International review of Neurobiology (Volume 82 and 102) and other Springer Volumes on Spinal cord injury (1988) and Handbook of Neurochemistry (2009) apart from stand alone books (Elsevier, Springer and Academic Press since 1994). His latest edited and contributed Book Drug and Gene Delivery to the Central Nervous System for Neuroprotection. Nanotechnological Advances from Springer Nature Publishing (June 2017; Sharma, Muresanu & Sharma Eds.) became a bestseller book on the subject. Dr. Hari Sharma is invited to join several National Academies of repute including New York Academy fo Science, USA (since 1994–); International Academy of Stress, New York (2003–), Swedish Academy of Pharmaceutical Sciences (2010–). Dr. Sharma has served as an expert evaluator and advisor to various Boards, Councils and Institutions for their Research Grants including Wellcome Trust, London, UK (2011–); Catalan Agency for Health Information and Quality, TV3 (2010–), European Commission Projects (2002–), European Nanomed Council (2009–), Ministry of Health Science Foundation; Medical research Council and University Commission of Grants in various countries in Europe, USA, UK, Canada, Hong Kong, Singapore and in Australia. Some of the notable organizations include: Australia and New Zealand Health Council (2000–); University Commission of Grants, Hong Kong (2002–), Singapore Medical Council, Singapore (2003–); UK Charity Organization "Research on Ageing: Help the Aged" (2003–); Euro Nanomed (2010–). Dr. Sharma is designated as ambassador of the City of Uppsala 2007, by Uppsala County administration and Uppsala Tourism for promoting Uppsala, Sweden as International Research Collaboration/Meetings and Conference Destination. Dr. Hari Sharma is married to Aruna Sharma (nee Bajpai) since 23rd April 1979 and has two sons. Dr Sharma is designated as Visiting Professor, University of Basque Country, Bilbao, Spain supported by Basque Govt. Foundation. His political affiliation belongs to Swedish Social Democrat Party (Socialdemokraterna, Sverige) where he is associated with the development of Education and Research matters in Sweden actively. Contact information: Hari S. Sharma, Permanent Address: Frödingsgatan 12, Bldg. 28, LGH 1103, SE-75421 Uppsala, Sweden.

JOHANNES VESTER
GERMANY

Born, 1952, he specialized in Veterinary Medicine between 1971 and 1974 at the University in Munich, then changed to the University in Cologne in 1974 and specialized in Human Medicine from 1974 to 1980. In 1976 to 1979, he additionally studied biometric methods for pharmacology and clinical research at the Institute for Data Analysis and Study Planning in Munich.

While studying human medicine, he completed research work on pattern recognition in the visual brain and developed a pharmacodynamic Neuron Simulation Model at the Institute for Medical Documentation and Statistics of the University at Cologne.

From 1985 to 1995, he was member of the Ultrahigh Dexamethasone Head Injury Study Group and the leading biometrician of the German GUDHIS project in Traumatic Brain Injury, involving 10 Departments of Neurosurgery in Germany.

Since 1982 he holds > 100 advanced training courses on biometry for professionals in clinical research as well as teaching courses for universitary institutions and international societies.

Since 1995 he is Senior Consultant for Biometry & Clinical Research. He planned and evaluated about 150 randomized clinical studies worldwide.

Since 2013 Elected Member of the International Scientific Committee of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN).

Since 2013 Elected Member of the World Academy for Multidisciplinary Neurotraumatology (AMN), since 2016 Elected Member of the Presidium of the AMN.

Since 2015 Member of the PhD Neuroscience International Faculty, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

Since 2017 Invited Associate Professor, Department of Neuroscience, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

He is head of the Multidimensional Department at the Institute for Data Analysis and Study Planning, and statistical peer reviewer for leading medical journals such as Stroke (American Heart Association).

He is member of various international Advisory Boards and Steering Committees including participation as biometric expert in regulatory authority panels, in FDA, EMA, and BfArM hearings, and in workshops of the International Biometric Society (IBS)

GREGORY DEL ZOPPO

USA

Dr. del Zoppo has contributed to the science of acute anti-thrombotic treatment strategies for ischemic stroke and of the impact of ischemia on the cerebral microvasculature. He was a pioneer of the acute clinical use of plasminogen activators for the treatment of thrombotic/thromboembolic stroke in the early 1980s. In consequence his group has focused on microvessel/neuron responses in the acute evolution of post-ischemic cerebral injury in experimental systems including non-human primate models to murine in vitro systems, and in clinical trial design. Fundamental first contributions to our understanding of cerebral microvessel responses to focal ischemia (ischemic stroke) include the focal "no-reflow" phenomenon, the role of peripheral inflammatory responses to microvessel events, acute alterations in microvessel structure, acute endothelial- and astrocyte-matrix adhesion receptor and matrix alterations in edema and hemorrhagic transformation, and related glial events associated with neuron injury (innate inflammation). Current attention is focused on the relationships and interactions among endothelial cell and astrocyte adhesion to the matrix, the tight junction and adherens complexes, and their management of the permeability barrier under normoxia and injury. Those studies support the concept of the "neurovascular unit." Dr. del Zoppo has also designed and conducted clinical trials in acute interventions in ischemic stroke, and problems of hemostasis and thrombosis. Currently, he serves on DSMBs and Advisory Boards for clinical trials in ischemic stroke.

Following research work at the California Institute of Technology, Dr. del Zoppo trained in internal medicine and hematology, and served at the Institute of Neurology, Queen Square (London). Experimental and clinical programs were undertaken at The Scripps Research Institute, the Klinikum RWTH Aachen (Gastprofessur der Deutsche Forschungsgemeinschaft, DFG), and the University of Washington. For this work Dr. del Zoppo received the Javits Neuroscience Investigator Award, election to the AAP, the ANA, and the Japanese Society of Neurology, and the 2012 Willis Lecture Award of the AHA/ASA. He is a fellow of the American Heart Association (the Stroke Council and Council of the ATVB) and a fellow of the American Neurological Association. Dr. del Zoppo is currently Professor of Medicine (in the Division of Hematology) and Adjunct Professor of Neurology at the University of Washington (Seattle).

GENERAL INFORMATION

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REGISTRATION DESK

All materials and documentation will be available at the registration desk located at SSNN booth.
The staff will be pleased to help you with all enquiries regarding registration, materials and program. Please do not hesitate to contact the staff members if there is something they can do to make your stay more enjoyable.

LOGISTIC PARTNER:

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GENERAL INFORMATION

LANGUAGE

The official language is English. Simultaneous translation will not be provided.

CHANGES IN PROGRAM

The organizers cannot assume liability for any changes in the program due to external or unforeseen circumstances.

NAME BADGES

Participants are kindly requested to wear their name badge at all times. The badge enables admission to the scientific sessions and dinners.

FINAL PROGRAM & ABSTRACT BOOK

The participants documents include the program and abstract book which will be handed out at the registration counter.

COFFEE BREAKS

Coffee, tea and water are served during morning coffee breaks and are free of charge to all registered participants.

MOBILE PHONES

Participants are kindly requested to keep their mobile phones turned off while attending the scientific sessions in the meeting rooms.

CURRENCY

The official currency in Greece is EUR.

ELECTRICITY

Electrical power is 220 volts, 50 Hz. Two-prong plugs are standard.

TIME

The time in Greece is Eastern European Time (GMT+2).

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