2018

15th International Symposium on Neural Transplantation and Restoration

Sheraton Sand Key Resort
Clearwater Beach, Florida, USA
INTERNATIONAL ADVISORY COMMITTEE
(Comprising the organizers of previous INTR symposia)

Anders Björklund
Lotta Granholm-Bentley
Wei-Ming Duan
Stephen Dunnett
Jeffrey Kordower
Emma Lane
Shinn-Zong Lin
Clare Parish
Paul Sanberg
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Lachlan Thompson

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Kevin Nash
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Maj-Linda Selenica
Beth Vernaleo

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Fredric Manfredsson - President-Elect
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David Eve
Agnes Luo
Lalitha Madhavan
Frederic Manfredsson
Julien Rossignal
John Stanford
Vivian Guedes,
Student Representative

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Paula Bickford
David Eve
Yuji Kaneko
Doug Shytle
Alison Willing

**Conference Specialists**

Donna Morrison - Director
Inger Mills – Manager
Sharon Linton – Coordinator
# PREVIOUS (& FORTHCOMING) INTERNATIONAL INTR SYMPOSIA

<table>
<thead>
<tr>
<th>DOCUMENT</th>
<th>DATES</th>
<th>VENUE</th>
<th>HOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTR1</td>
<td>1984</td>
<td>Lund, Sweden</td>
<td>Anders Björklund</td>
</tr>
<tr>
<td>INTR2</td>
<td>1986</td>
<td>Rochester NY, USA</td>
<td>John Sladek</td>
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<tr>
<td>INTR3</td>
<td>1989</td>
<td>Cambridge, UK</td>
<td>Stephen Dunnett</td>
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<tr>
<td>INTR4</td>
<td>1992</td>
<td>Washington DC, USA</td>
<td>William Freed</td>
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<tr>
<td>INTR5</td>
<td>1994</td>
<td>Paris, France</td>
<td>Marc Peschanski</td>
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<tr>
<td>INTR6</td>
<td>1997</td>
<td>San Diego CA, USA</td>
<td>Fred H Gage</td>
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<tr>
<td>INTR7</td>
<td>1999</td>
<td>Odense, Denmark</td>
<td>Jens Zimmer</td>
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<tr>
<td>INTR8</td>
<td>2002</td>
<td>Keystone CO, USA</td>
<td>Lotta Granholm</td>
</tr>
<tr>
<td>INTR9</td>
<td>2005</td>
<td>Taipei, Taiwan</td>
<td>Shinn-Zong Lin</td>
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<tr>
<td>INTR10</td>
<td>2008</td>
<td>Freiburg, Germany</td>
<td>Guido Nikkhah</td>
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<tr>
<td>INTR11</td>
<td>2010</td>
<td>Clearwater Beach, FL, USA</td>
<td>Dan Peterson</td>
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<tr>
<td>INTR12</td>
<td>2013</td>
<td>Cardiff, Wales, UK</td>
<td>Emma Lane</td>
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<tr>
<td>INTR13</td>
<td>2015</td>
<td>Beijing, China</td>
<td>Wei-Ming Duan</td>
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<tr>
<td>INTR14</td>
<td>2017</td>
<td>Queensland, Australia</td>
<td>Lachlan Thompson</td>
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<tr>
<td>INTR15</td>
<td>2018</td>
<td>Clearwater Beach, FL, USA</td>
<td>Mike Modo</td>
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<tr>
<td>INTR16</td>
<td>2021</td>
<td>Edinburgh University</td>
<td>Tilo Kunath</td>
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<tr>
<td>INTR17</td>
<td>2024</td>
<td>Europe/Asia</td>
<td></td>
</tr>
<tr>
<td>INTR18</td>
<td>2027</td>
<td>USA</td>
<td></td>
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</table>
Dear colleagues and friends,

Welcome to the 25th annual American Society for Neural Therapy and Repair (ASNTR) meeting and the 15th International Symposia on Neural Transplantation and Repair (INTR)!

As a result of the foresight of Paul Sanberg and John Sladek, our founding members, the society continues the annual tradition to gather our peers to showcase our best results and stimulate discussions on how we can mend the damaged brain and spinal cord. Our gratitude is also due to all past presidents and officers who have successfully steered the society, as well as the attendees who made this meeting such a vibrant and social gathering. However, the lifelines of the society are Donna Morrison and Inger Mills, as without their support, persistence, and continuity, our society and meeting could not flourish. Donna and Inger, on behalf of all of us, we very much appreciate all your efforts and nudges. Keep the energy for another 25, or more…

The program for this year is the result of a 12 months effort by the program committee and our experienced program chairs John Sladek and Jeffrey Kordower. I would like to thank all of them for their time, input and discussions. I am especially excited to see a large number of clinical trials being presented, highlighting the increasing progress our field is seeing. It is also intriguing to see the many new technological developments, such as image-guided delivery and the use of biomaterials, that are set to improve on the status quo of delivering regenerative medicine products to the CNS. I am especially grateful to Tom Carmichael to present his pioneering work on the use of biomaterial and stem cells at the presidential symposium.

I hope that many of our trainees will benefit as much from these presentations and discussions as I have in the almost 20 years since I travelled a first time to Clearwater as a PhD student. Indeed, our trainees are the most valuable asset. Not only are their hands completing experiments, but their minds drive the innovation in our labs with their thirst for new ideas. I am therefore thankful to Frederic Manfredsson for organizing the trainee workshop and Kyle Fink for taking over the important task as chair of the education committee. To elucidate the editorial process and to detail the writing of successful papers, we thank Graham Parker to share his insights and palliate the writing of that first manuscript by our trainees.

After 25 years of progress, it is inspiring to see many of these reparative therapies find their clinical implementation. It might take another quarter of a century to make these dependable and widely-used treatments, but with every little step we provide a new hope to patients. I hope you will enjoy the meeting and come back next year (and many more).

Mike Modo
ASNTR President 2017-2018
INTR-15 Travel Award Sponsors

www.floridahightech.com

usf.edu/research-innovation

nih.gov

ninds.gov

re neuron.com

curecadasil.org

parkinsons.org

ASNTR Past Presidents:
Paula Bickford, Cesar Borlongan,
Paul Carvey, Tim Collier, Marina Emborg,
Gene Redmond, Paul Reier, Paul Sanberg

www.asntr.org
The INTR and ASNTR would like to acknowledge and thank the following organizations for their support of our Travel Award program:

National Institute of Health
National Institute of Neurological Disorders and Stroke
Florida Hi-Tech Corridor Council
Parkinson’s Disease Foundation
ASNTR Past Presidents
USF Connect
Cure Cadasil
ReNeuron

TRAVEL AWARD RECIPIENTS

Diptaman Chatterjee
Matthew Chrostek
Peter Deng
Megan Duffy
Deran Erdengiz
Dylan Finneran
Harman Ghuman
Eric Hamlett
Ahmad Jalloh
Nivya Kolli
Janessa Law
Fucheng Luo
Chao Ma
David Marmion
Jeanette Metzger
Sydney Modrow
Kartik Motwani
Suning Ping
Xuecheng Qiu
Zainuddin Quadri
Lindsey Shelton
Meena Subbarayan
Dan Tran
Scott Vermilyea
Mitsuyoshi Watanabe
Andrew Welleford
Xuegang Yuan
Lyandysha Zholudeva

Education Program Committee: Fredric Manfredsson, Chair, Sandra Acosta, Corinna Burger, Francesca Cicchetti, Timothy Collier, Kyle Fink, Brandon Harvey, Koji Hosaka, Michael Lane, Agnes Luo, Lalitha Madhavan, Mike Modo, Kevin Nash, Julien Rossignal, Ivette Sandoval, Maj-Linda Selenica, Beth Vernaleo
## Conference Schedule

### Wednesday, April 25, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 01:00 pm to 04:00 pm | Trainee Workshop – Travel Award Winners  
“Techniques in Neural Repair - Know How, Do How” – Island II |
| 04:00 pm to 06:00 pm | Conference Registration – Lobby III                                    |
| 04:30 pm to 05:00 pm | Diana Cummings – NINDS “The Grant Funding Process at NINDS” - Island Ballroom |
| 05:00 pm to 06:00 pm | Presidential Lecture – Thomas Carmichael, UCLA - “Neural Repair after Stroke: Novel Biomaterials and Specialized iPS Cells” – Island Ballroom |
| 06:00 pm to 06:15 pm | ASNTR Memorial Award Presentation                                      |
| 06:30 pm to 08:00 pm | Welcome Reception – Salsa Social – Poolside Grass (Cash Bar)           |

### Thursday, April 26, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>07:00 am to 12:00 pm</td>
<td>Platform Presentations – Island Ballroom</td>
</tr>
<tr>
<td>07:00 am to 08:00 am</td>
<td>Conference Registration – Lobby III</td>
</tr>
<tr>
<td>08:00 am to 08:30 am</td>
<td>Continental Breakfast</td>
</tr>
<tr>
<td>08:00 am to 08:30 am</td>
<td>Welcome/Opening Remarks – Travel Award Recognition</td>
</tr>
<tr>
<td>08:30 am to 09:45 am</td>
<td>Presentations – Inflammation and the Neurovascular Microenvironments</td>
</tr>
<tr>
<td>09:45 am to 10:15 am</td>
<td>Morning Break – Refreshments Provided – Palm/Bay</td>
</tr>
<tr>
<td>10:15 am to 12:00 pm</td>
<td>Presentations – Hitting a Moving Target - Halting Neurodegeneration</td>
</tr>
</tbody>
</table>
| 12:00 pm to 01:00 pm | ASNTR Council Meeting – Sand Key Room  
Current ASNTR Officers |
<p>| 12:00 pm to 03:00 pm | Free Time                                                              |
| 03:00 pm to 05:30 pm | Conference Registration – Lobby III                                    |
| 03:00 pm to 04:30 pm | Presentations – Acute CNS Trauma and Ischemia                          |
| 04:30 pm to 04:45 pm | Afternoon Break – Refreshments Provided                                |
| 04:45 pm to 06:00 pm | Presentations – Biomarkers in Regenerative Medicine                   |
| 06:30 pm to 07:00 pm | Data Blitz Presentations – Palm/Bay                                    |
| 07:00 pm to 08:30 pm | Poster Presentations – Palm/Bay                                         |</p>
<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>07:30 am to 12:30 pm</td>
<td>Conference Registration</td>
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<tr>
<td>07:30 am to 08:30 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>07:45 am to 08:30 am</td>
<td>Workshop “How to Get Published” Presented by: Graham Parker, Wayne State University</td>
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<tr>
<td>08:30 am to 10:05 am</td>
<td>Presentations – Neural Repair Through Trophic Factors</td>
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<tr>
<td>10:05 am to 10:20 am</td>
<td>Morning Break – Refreshments Provided</td>
</tr>
<tr>
<td>10:20 am to 11:20 am</td>
<td>Presentations – Spinal Cord Injury – Therapeutics</td>
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<tr>
<td>11:20 am to 12:20 pm</td>
<td>Roy Bakay Memorial Symposium – Keynote Speaker: Krys Bankiewicz</td>
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<tr>
<td>12:20 pm to 03:00 pm</td>
<td>Free Time</td>
</tr>
<tr>
<td>03:00 pm to 05:30 pm</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>03:00 pm to 04:15 pm</td>
<td>Presentations – Regenerative Rehab</td>
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<tr>
<td>04:15 pm to 05:15 pm</td>
<td>Presentations – ASNTR Past Presidents “State of the Art – Then and Now”</td>
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<tr>
<td>05:15 pm to 05:30 pm</td>
<td>ASNTR Award Presentations</td>
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<tr>
<td>06:00 pm to 07:30 pm</td>
<td>Beach Volleyball Competition – Faculty vs. Post Docs &amp; Students</td>
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**Weekend, April 28, 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>07:00 am to 12:30 pm</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>07:00 am to 08:00 am</td>
<td>Continental Breakfast</td>
</tr>
</tbody>
</table>
| 08:00 am to 09:30 am | Presentations – Clinical Studies:  
Cell Therapy in Patients with Stroke           |
| 09:30 am to 10:00 am | Morning Break – Refreshments Provided – Palm/Bay                                            |
| 10:00 am to 11:15 am | Presentations – Clinical Studies:  
Cell Therapy for Spinal Cord Injury/Parkinson’s Disease                                 |
| 11:15 am to 12:00 pm | Presentations – Biological Materials                                                       |
| 12:00 pm to 03:00 pm | Free Time                                                                                  |
| 03:00 pm to 04:30 pm | Conference Registration                                                                 |
| 03:00 pm to 04:30 pm | Presentations – Therapeutic Delivery                                                       |
| 04:30 pm to 06:00 pm | Presentations – Therapeutic Genome Editing                                                  |
| 06:00 pm to 06:20 pm | Business Meeting – Meeting Closure                                                        |
| 07:00 pm to 10:00 pm | Beach Party                                                                                |
## Conference Agenda

### Wednesday, April 25th 2018

<table>
<thead>
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<tr>
<td>01:00 pm to 04:00 pm</td>
<td>Platform Presentations – Island Ballroom</td>
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<tr>
<td>01:00 pm to 04:00 pm</td>
<td>Workshop: Travel Award Winners – Island II</td>
</tr>
<tr>
<td></td>
<td>“Techniques in Neural Repair - Know How, Do How”</td>
</tr>
<tr>
<td>04:00 pm to 06:00 pm</td>
<td>Conference Registration – Lobby III</td>
</tr>
<tr>
<td>04:30 pm to 05:00 pm</td>
<td>Session I: Diana Cummings, NINDS, NIH</td>
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<td></td>
<td>&quot;The Grants Funding Process at NINDS&quot;</td>
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<tr>
<td>05:00 pm to 06:00 pm</td>
<td>Session 2: Presidential Lecture – S. Thomas Carmichael, UCLA</td>
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<td></td>
<td>“Neural Repair after Stroke: Novel Biomaterials and Specialized iPS Cells”</td>
</tr>
<tr>
<td>06:00 pm to 06:15 pm</td>
<td>ASNTR Memorial Award Presentation</td>
</tr>
<tr>
<td>06:30 pm to 08:00 pm</td>
<td>Welcome Reception (Cash Bar) - Salsa Social – Poolside Grass</td>
</tr>
</tbody>
</table>
Workshop – Travel Award Winners

“Techniques in Neural Repair - Know How, Do How”

1:00 pm – 4:00 pm

Moderator: Fredric Manfredsson

- GENE THERAPY MODALITIES
  Fredric Manfredsson - Michigan State University

- CRISPR/CAS9 TECHNOLOGY. WHAT IS THE BIG DEAL?
  Ivette M. Sandoval, Michigan State University

- NEUROPHYSIOLOGICAL APPROACHES FOR THE STUDY OF NEUROPHARMACOLOGICAL AND GENETIC MANIPULATIONS
  Anthony R. West, Rosalind Franklin University

- iPSC TECHNOLOGY: BREAKING NEW GROUND
  Lalitha Madhavan, University of Arizona
NINDS Presentation

4:30 pm – 5:00 pm

Introduction: Fredric Manfredsson

1-1 THE GRANTS FUNDING PROCESS AT NINDS

Diana Cummings, PhD, NINDS, NIH

Presidential Keynote Address

5:00 pm – 6:00 pm

Introduction: Mike Modo

2-1 NEURAL REPAIR AFTER STROKE: NOVEL BIOMATERIALS AND SPECIALIZED iPS CELLS

S. Thomas Carmichael, MD, PhD, University of California, Los Angeles

Session Sponsored by:

ASNTR Memorial Award Presentation

6:00 pm – 6:15 pm

John Sladek & Paul Sanberg
Session: 1-1

**Diana Cummings, NIH/NINDS**

Dr. Diana Cummings is a Health Program Specialist in the Repair and Plasticity Cluster at the Division of Extramural Research of NINDS. Dr. Cummings received her B.S. in Psychology from Duke University and her Ph.D. in Neuroscience from the University of Virginia. She conducted postdoctoral research at the University of Maryland School of Medicine and the NINDS Intramural Research Program, where she studied the role of activity and adult-generated stem cells in the plasticity of olfactory system neural circuitry. In her current role at NINDS, Dr. Cummings supports extramural efforts in the areas of traumatic brain injury (TBI) and stem cell research.

Session: 2-1

**S. Thomas Carmichael, University of California – Los Angeles**

Dr. S. Thomas Carmichael, MD, PhD, is Professor and Chair of the Department of Neurology in the Geffen School of Medicine at UCLA. As well as being a practicing neurologist on the Neurorehabilitation and Stroke clinical services at UCLA, he is actively involved in neuroscience research as a member of the UCLA Brain Research Institute, and Co-Director of both the UCLA Broad Stem Center and the Regeneration Theme in the School of Medicine. He has made significant contributions to our understanding of the cellular and molecular mechanisms that underlie stroke injury and neural repair with his work on axonal sprouting, white matter injury, stem cell biology and tissue bioengineering.

Session: 4-1

**John Heiss, Surgical Neurology, NINDS, NIH**

John D. Heiss, M.D. is the Chair of the Surgical Neurology Branch and Program Director of the Neurological Surgery Residency Training Program in the National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health in Bethesda, Maryland. He is actively involved in clinical research to improve the treatment of Parkinson’s disease, cancer pain, and syringomyelia. He is board certified in neurological surgery and is the principal investigator of a clinical trial of delivery of AAV2-GDNF to the putamen to treat Parkinson’s disease. He is Vice-Chair of the Combined Neurosciences Institutional Review Board at the National Institutes of Health and has served on numerous grant review panels. Dr. Heiss received both his B.S. in Biomedical Sciences and his M.D. degree from the University of Michigan. He completed his surgical internship and his residency in neurosurgery at the University of Cincinnati College of Medicine.
Session: 6-1

**Eric Ahrens**, University of California – San Diego

Dr. Ahrens’ research involves imaging innovations and adapting MRI to visualize molecular and cellular events in vivo. Currently, Ahrens is a Professor in the Department of Radiology at the University of California San Diego, Director of Stem Cell Molecular Imaging at the Sanford Consortium for Regenerative Medicine, and Director of the Molecular Imaging Center at Stanford. Formally, he was a Professor of Biological Sciences at Carnegie Mellon University. He has also served as a senior research fellow in the Department of Biology, California Institute of Technology. He holds a Ph.D. in physics from the University of California at Los Angeles and was a graduate fellow at Los Alamos National Laboratory. Ahrens is engaged in the design, characterization and application of novel contrast agents for clinical cell tracking and visualizing gene expression using MRI. He has pioneered the use of fluorine-19 probes for clinical cell tracking and has published widely on spin physics, imaging probe development, in vivo imaging in animal models using high-field MRI, and the conduct of clinical trials. He is an inventor on 9 patents related to MRI.

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**FRIDAY, APRIL 27th 2018**

Session: 9-1

**Graham Parker**, Wayne State University

Graham is in the Children’s Research Center of Michigan of the Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine located at Children’s Hospital of Michigan. Graham is the co-leader of the Integrative Health Sciences Facility Core of the NIH NIEHS funded program grant, Center for Urban Responses to Environmental Stressors (CURES), housed at the new integrative bioscience center at Wayne State University. Graham’s research interests include the therapeutic potential and vulnerability of human stem cells with a particular focus on developmental models of the #1 inherited killer of infants, Spinal Muscular Atrophy. Graham is also the Editor-in-Chief of Stem Cells and Development, Executive Editor of Nucleic Acid Therapeutics, former Co-Editor-in-Chief of the World Stem Cell Report, a Section Editor for BioResearch Open Access, and Ethical Advisor for Mary Ann Liebert, Inc. publishers.

Session: 10-1

**Mart Saarma**, University of Helsinki

Mart Saarma is the Professor of Biotechnology and Director of the Laboratory of Molecular Neuroscience at the Institute of Biotechnology, HiLIFE, University of Helsinki. He was in 2015-2016 the Vice President of the European Research Council and in 2011-2016 the member of the EMBO Council. He is the member of several academies, EMBO and Academia Europea. Dr. Saarma group has characterized several new GDNF family receptors, discovered a new neurotrophic factor CDNF and shown that it very efficiently protects and repairs dopamine neurons in animal models of Parkinson’s disease. Currently CDNF is in Phase I-II clinical trials on Parkinson’s disease patients.
Session: 10-2

Henri Huttunen, Herantis Pharma

Dr. Huttunen has a Ph.D. degree in biochemistry and has previously held research positions at the University of Helsinki, Massachusetts General Hospital, Harvard Medical School and Orion Pharma. Currently, he serves as the Chief Scientific Officer at Herantis Pharma, a spinout company of University of Helsinki publicly listed in the NASDAQ Helsinki Stock Exchange First North marketplace. He also leads a research group at the Neuroscience Center, University of Helsinki. His academic research focuses on molecular mechanisms of neuro-degenerative diseases, with a particular interest in Tau, alpha-synuclein and cell-to-cell transmission of proteinopathies.

Session: 10-4

Mikko Airavaara, University of Helsinki

Mikko Airavaara is a senior investigator at the Institute of Biotechnology, HiLIFE, University of Helsinki, Finland. He is a pharmacologist whose research aims to find molecular mediators of neurorepair in stroke and Parkinson’s disease. He finished his PhD studies in University of Helsinki 2006 and afterwards did a post-doctoral training in the National Institute on Drug Abuse (2007-2011) NIH, Baltimore, MD, USA. Since 2011 he has been group leader with a primary focus on neurotrophic factors. He is known for his research documenting the functions of GDNF on midbrain dopamine systems and neuroprotective effects of MANF in ischemic stroke. He has recently published several seminal papers including Tseng et al., Molecular Therapy 2018, Anttila et al., eNeuro accepted, Mätlik et al., Science advances, accepted. Mikko Airavaara is a member of the SFN and ASGCT and he was recently selected as a member for ASGCT stem cell committee. He is also steering group member of Doctoral Program of Drug Research and neuroscience master program in the University of Helsinki.

Session: 12-1

Krzysztof Bankiewicz, University of California – San Francisco

Krzysztof Bankiewicz is a leader in gene therapy and has brought multiple AAV-based therapies to the clinic for the purpose of neural repair. Throughout his career, he has maintained a strong focus on the development of translational approaches for gene and cell replacement therapies, AND HAS displayed the ability to synthesize distinct technologies into powerful new approaches to the treatment of neurological diseases

He holds the Kinetics Foundation Chair and Professorship in Translational Research in Neurological Surgery and Neurology at the University of California at San Francisco. Krys also serves as Vice Chair for Research in Neurosurgery, directs the Interventional Neurology Center at UCSF, and is Co-Director of a similar center at Brodno Hospital in Warsaw, Poland.

He has industry and academic experience, is an inventor on numerous patents, and has over 200 peer-reviewed publications. He is principal investigator on several multi-center, grants and clinical trials.

The Bankiewicz Group has evolved as one of the leading neurological translational teams in the World.
**Session: 13-1**

**Randolph Nudo**, University of Kansas Medical Center

Randolph J. Nudo, Ph.D. is a University Distinguished Professor and Vice Chairman of Research in the Department of Rehabilitation Medicine, and the Marion Merrell Dow Distinguished Professor in Aging at the Kansas University Medical Center. He is also the Director of the Landon Center on Aging and the Director of the Institute for Neurological Discoveries. He is a leading authority on neuroplasticity and recovery after brain injury, and is recognized internationally for his work on the effects of physiotherapy on functional plasticity after stroke. This work has been funded by NIH for over three decades. He currently holds other grants from the Department of Defense and private foundations for his research in traumatic brain injury and spinal cord injury. Dr. Nudo is the Editor-in-Chief of Neurorehabilitation & Neural Repair, the leading journal in the field of rehabilitation, and serves on the National Advisory Board for Medical Rehabilitation Research at NIH-NICHD. In addition to continuing fundamental research on post-stroke neuroplasticity, he and his colleagues are now developing microimplantable devices for repairing neural circuits after brain and spinal cord injury.

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**Session: 15-1**

**Robert Mays**, Athersys, Inc.

Dr. Mays is the Head of Neurosciences and Vice President of Regenerative Medicine at Athersys, Inc. He is focused on the company’s novel adult human stem cell product, MultiStem®, and its applications in Regenerative Medicine and drug discovery, with a specific focus on injuries and diseases affecting the central nervous system. Dr. Mays was the Principal Investigator of the MASTERS (MultiStem Administration for Stroke Treatment and Enhanced Recovery Study) clinical trial assessing the safety and efficacy of MultiStem in treatment of ischemic stroke. He is also the Principal Investigator of the pivotal Phase III MASTERS-2 study, which has received RMAT, Fast Track and Special Protocol Assessment designations from the FDA. He graduated from Carnegie Mellon in 1987 with a B.S. in Cell and Developmental Biology. In 1994, he received his Ph.D. in Molecular and Cellular Physiology at Stanford University. After doing Post-doctoral research at the University of Utrecht in the Netherlands, the Weizmann Institute in Rehovot, Israel and the University of California, San Francisco, Dr. Mays co-founded Athersys Inc., which focuses on developing novel and proprietary best-in-class therapies designed to extend and enhance the quality of human life.
Session: 15-2

**Damien Bates, SanBio**

Dr. Bates is the Chief Medical Officer & Head of Research for SanBio, Inc. a stem cell company based in both Tokyo and Mountain View, California. Prior to his current position at SanBio, Dr. Bates has held senior executive & leadership roles in clinical development and medical affairs in multiple US based companies including Baxter, Organogenesis and Allergan. As Chief Medical Officer of Organogenesis, he successfully led the first BLA approval of an allogeneic cell based product in the US in 2012. Dr. Bates has also led the design and execution of over 20 IND, IDE and CTN studies across drugs, biologics and devices in the US and Asia and has had extensive regulatory interactions with the FDA, PMDA and EMA around the development and approval of cell based medicines. Dr. Bates received his medical degree from the University of Sydney, his PhD in Developmental Biology from the University of Melbourne, his Fellowship in Plastic & Reconstructive Surgery from the Royal Australasian College of Surgeons, and his MBA from the Wharton Business School.

Session: 15-3

**John Sinden, ReNeuron**

John Sinden is Chief Scientific Officer of ReNeuron. Prior to co-founding ReNeuron and becoming its first employee, he was Reader in Neurobiology of Behaviour at the Institute of Psychiatry at Kings College London. He graduated in Psychology from the University of Sydney and completed a Ph.D. in Neuroscience from the University of Paris at the College de France. He subsequently held post-doctoral appointments at Oxford University and the Institute of Psychiatry prior to joining the tenured staff of the Institute in 1987. John has Honorary Professorships in the Faculty of Medical Sciences at University College London and at the University of Exeter Medical School. He has over 140 scientific publications and book chapters and is inventor in over 10 issued patent families. He holds Fellowships of the Royal Society of Medicine and the Royal Society of Biology and is a member of the Expert Working Group on Cell and Gene Therapies for the Bioindustry Organization BioSafe Committee.

Session: 16-1

**Nathan Manley, Asterias Biotherapeutics, Inc.**

Nathan Manley, Ph.D., is Associate Director of Neurobiology at Asterias Biotherapeutics, a Fremont-based company developing stem cell therapies for neurological injury and cancer. Prior to joining Asterias, he was an academic researcher at Stanford University School of Medicine in the Biology and Neurosurgery departments. While at Stanford, his research focused on the development of gene- and cell-based therapies for stroke, emphasizing the use of preclinical models to assess product efficacy and safety. At Asterias, Nathan directs the preclinical development of AST-OPC1, an oligodendrocyte progenitor cell therapy currently in clinical testing as a treatment for cervical spinal cord injury. He has published numerous scientific papers and has coauthored several pending patent applications.
Session: 16-2

**Roldolfo Gonzalez, International Stem Cell Corporation**

Dr. Rodolfo Gonzalez is currently the Director of Research and Development at International Stem Cell Corporation (ISCO). At ISCO, he invented the methods for generating the company’s first clinical product; human neural stem cells derived from pluripotent parthenogenetic stem cells (ISC-hpNSC®) and successfully led the preclinical studies that resulted in the world’s-first approval of a pluripotent stem cell-based Phase I study for the treatment of Parkinson’s disease. He holds both a B.S. in Cell Biology and a Ph.D. in Molecular Pathology from the University of California, San Diego (UCSD) and completed a California Institute for Regenerative Medicine (CIRM) post-doctoral fellowships at The Scripps Research Institute (TSRI) and at the Genomics Institute of the Novartis Research Foundation (GNF) with Dr. Peter Schultz.

Session: 18-1

**Rafael Guzman, University of Basel**

Dr. Guzman has focused on central nervous system regenerative medicine for the past 20 years. He has been interested in translational approaches for cell treatment in stroke and neonatal hypoxia. A part of his work has been dedicated to intraarterial stem cell delivery for stroke treatment and elucidating the molecular mechanisms responsible for transendothelial stem cell migration. Currently he is studying the cellular interaction between host and transplanted cells in the neurogenic zone microenvironment. After training at the University of Bern Switzerland, Dr. Guzman has completed a postdoc at Stanford University and is currently professor of neurosurgery at the University of Basel, Switzerland.

Session: 18-2

**Dileep Yavagal, University of Miami**

Dr. Dileep R. Yavagal, MD is Director of Interventional Neurology and Co-Director of Neuroendovascular Surgery and Clinical Professor of Neurology and Neurosurgery at the University of Miami & Jackson Memorial Hospitals. Dr. Yavagal is an international thought leader in endovascular therapy for ischemic and hemorrhagic stroke. He was on the the steering committee of the SWIFT-Prime and MR RESCUE, both landmark randomized clinical trials of endovascular stroke therapy. He co-authored the landmark 2015 AHA Endovascular Stroke Therapy Guidelines as well as the recent groundbreaking DAWN stroke trial in the New England Journal of Medicine. He is the founder and Past-President of the Society for Vascular and Interventional Neurology (SVIN). Dr. Yavagal has received several state and federal research grants to study endovascular stem cell therapies for ischemic stroke using small and large animal models of stroke in his research laboratory. He was the national Co-PI of the first US multicenter clinical trial of Intra-arterial delivery of autologous bone marrow stem cells for ischemic stroke: RECOVER Stroke. He is considered a pioneering researcher the field of intra-arterial delivery of stem cells in stroke therapy.
Miroslaw Janowski, Johns Hopkins University

Miroslaw Janowski, MD, PhD has been trained as a neurosurgeon in European Union and he currently serves as an Associate Professor in the Department of Radiology at the Johns Hopkins University.

Dr. Janowski has received master of art (MA) degree in Psychology and medical doctor (MD) degree, and later on he pursued training in neurosurgery with a special interest in neurotransplantation. After completing his residency and passing board exam in neurosurgery, and defending his PhD thesis in neuroscience, he has moved to the Johns Hopkins University. He is focusing on the minimally invasive methods of stem cell transplantation to the central nervous system using various routes of delivery. Particularly, he has developed a method for predictable and precise intra-arterial delivery of stem cells to the central nervous system using real-time MRI guidance. He has also proposed a concept of stem cells for treatment of myopia and using miRNA as a biomarker for blast TBI. This method has also been shown to be compelling to eliminate variability in intra-arterial blood brain barrier opening and targeted delivery of any therapeutic agent. He has published over 50 papers, which were cited over 1000 times. His research is supported by multiple NIH, DoD and Maryland Stem Cell Research Fund grants. He also serves as an editorial board member for STROKE – leading journal in this field.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>07:00 am to 12:00 pm</td>
<td>Platform Presentations – Island Ballroom</td>
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<tr>
<td>07:00 am to 08:00 am</td>
<td>Conference Registration – Lobby III</td>
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<tr>
<td>07:00 am to 08:30 am</td>
<td>Continental Breakfast – Palm/Bay</td>
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<tr>
<td>08:00 am to 08:30 am</td>
<td>Opening Remarks – Travel Award Presentations</td>
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<tr>
<td>08:30 am to 09:45 am</td>
<td>Session 3: <em>Inflammation and the Neurovascular Microenvironments</em></td>
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<tr>
<td>09:45 am to 10:15 am</td>
<td>Morning Break – Refreshments Provided – Palm/Bay</td>
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<tr>
<td>10:15 am to 12:00 pm</td>
<td>Session 4: <em>Hitting a Moving Target - Halting Neurodegeneration</em></td>
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<tr>
<td>12:00 pm to 01:00 pm</td>
<td>ASNTR Council Meeting – Sand Key Room</td>
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<td>Current ASNTR Officers</td>
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<tr>
<td>12:00 pm to 03:00 pm</td>
<td>Free Time</td>
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<tr>
<td>03:00 pm to 05:30 pm</td>
<td>Conference Registration – Lobby III</td>
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<tr>
<td>03:00 pm to 04:30 pm</td>
<td>Session 5: <em>Acute CNS Trauma and Ischemia</em></td>
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<tr>
<td>04:30 pm to 04:45 pm</td>
<td>Afternoon Break – Refreshments Provided – Palm/Bay</td>
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<tr>
<td>04:45 pm to 06:00 pm</td>
<td>Session 6: <em>Biomarkers in Regenerative Medicine</em></td>
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<tr>
<td>06:30 pm to 07:00 pm</td>
<td>Session 7: <em>Data Blitz Presentations</em></td>
</tr>
<tr>
<td>07:00 pm to 08:30 pm</td>
<td>Session 8: <em>Poster Presentations</em> – Palm/Bay (Reception with Cash Bar)</td>
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</tbody>
</table>
Inflammation and the Neurovascular Microenvironments

8:30 am – 9:45 am

Moderators: Evan Snyder & Agnes Luo

3-1 RESOLVIN E1 REDUCES INFLAMMATION AND ENHANCES MEMORY IN THE TS65DN MOUSE MODEL OF DOWN SYNDROME
E. Hamlett, X. Wang, A. Ledreux, E. Hjorth, A.-C. Granholm, M. Schultzberg (Travel Award Winner)

3-2 POLYPHENOL SUPPLEMENTATION REVERSES AGE-RELATED MICROGLIAL DECLINE VIA RICTOR-DEPENDENT RAC1/CDC42 SIGNALING
A. Jalloh, C. Hudson, S. Stevens, P.C. Bickford (Travel Award Winner)

3-3 DIFFERENTIAL CLEAVAGE OF THE CHEMOKINE FRACTALKINE ALTERS ITS EFFECT ON PRIMARY MICROGLIA
D.J. Finneran, D. Morgan, K.R. Nash (Travel Award Winner)

3-4 HEMATOPOIETIC GROWTH FACTORS ENHANCE AMYLOID BETA CLEARANCE THROUGH BONE MARROW-DERIVED MONOCYTES/MACROPHAGES
L.-R. Zhao – SUNY Upstate Medical University

3-5 LEWY BODY-LIKE ALPHA-SYNUCLEIN INCLUSIONS TRIGGER REACTIVE MICROGLIOSIS PRIOR TO NIGRAL DEGENERATION
Hitting a Moving Target - Halting Neurodegeneration

10:15 am – 12:00 pm

Moderators: Tim Collier & Kyle Fink

4-1 INTRACEREBRAL GENE THERAPY IN PATIENTS WITH PARKINSON'S DISEASE
J. Heiss – NIH

4-2 VIRAL VECTOR-MEDIATED α-SYNUCLEIN OVEREXPRESSION RAT MODELS OF PARKINSONIAN AND CEREBELLAR VARIANTS OF MULTIPLE SYSTEM ATROPHY
D.J. Marmion, R.J. Mandel, D. Kirik, Y. Chu, T.J. McCown, S.J. Gray, J. H. Kordower (Travel Award Winner)

4-3 ROLE OF CDNF IN SOD1-G93A MOUSE MODEL OF AMYOTROPHIC LATERAL SCLEROSIS
M.H. Voutilainen – University of Helsinki

4-4 ADVANCING STEM CELL THERAPY FOR REPAIR OF BLOOD-SPINAL CORD BARRIER IN SYMPTOMATIC ALS MICE
S. Garbuzova-Davis – University of South Florida

4-5 GRAFT-HOST SYNAPTIC CONNECTIVITY CAN BE OPTOGENETICALLY OR CHEMOGENETICALLY INHIBITED TO ELIMINATE GRAFT-INDUCED DYSKINESIAS (GID) WITHOUT LOSING ANTI-PARKINSONIAN BENEFITS
T. Subramanian – Penn State University College of Medicine

4-6 PRECLINICAL EVALUATION OF iPSC-DERIVED MIDBRAIN DOPAMINERGIC NEURONS FOR PARKINSON’S DISEASE
M.E. Emborg – University of Wisconsin-Madison
Acute CNS Trauma and Ischemia

3:00 pm – 4:30 pm

Moderators: Dan Peterson & Lalitha Madhavan

5-1  STEM CELL FACTOR AND GRANULOCYTE COLONY-STIMULATING FACTOR PROMOTE BRAIN REPAIR AND COGNITIVE FUNCTION THROUGH VEGF-MEDIATED ANGIOGENESIS IN A MOUSE MODEL OF CADASIL

S. Ping, X. Qiu, M. Kyle, K. Hughes, J. Longo, L.-R. Zhao (Travel Award Winner)

5-2  MODULATION OF RECEPTOR PROTEIN TYROSINE PHOSPHATASE σ PROMOTES NEUROREGENERATION AND FUNCTIONAL RECOVERY AFTER EXPERIMENTAL STROKE

F. Luo, J. Silver, Y. Luo (Travel Award Winner)

5-3  GLIAL ENRICHED PROGENITORS: A NOVEL CELL-BASED THERAPEUTIC FOR WHITE MATTER STROKE

I.L. Llorente – University of California, Los Angeles

5-4  POST-STROKE SHH AGONIST TREATMENT IMPROVES FUNCTIONAL RECOVERY BY ENHANCING NEUROGENESIS AND ANGIOGENESIS

Y. Luo – Case Western Reserve University

5-5  TIMING MATTERS: THE IMPACT OF HYPOTHERMIA ON HUMAN NEURAL STEM CELL ACTION IN VITRO SUPPORTS THE NEED TO FIND OPTIMAL TIMING FOR COMBINED CELL-BASED THERAPY WITH HYPOTHERMIA FOR PERINATAL HYPOXIC ISCHEMIC INJURY

J. Law, C. Pernia, W. Niles, E.Y. Snyder (Travel Award Winner)

5-6  EFFECTS OF TRAUMATIC BRAIN INJURY ON MEASURES OF LIMB AND TONGUE FUNCTION IN RATS

J.A. Stanford – University of Kansas Medical Center
**Biomarkers in Regenerative Medicine**

4:45 pm – 6:00 pm

**Moderators:** Ted Teng & Li-Ru Zhao

6-1 **MONITORING CELL THERAPY IN A CLINICAL SETTING USING FLUORINE MRI**

*E. Ahrens – University of California – San Diego*

6-2 **LARGE ANIMAL MODELING AND BRAIN IMAGING IN TRANSLATIONAL STROKE RESEARCH**

*J. Boltze – Fraunhofer Research Institution*

6-3 **DIFFUSION TENSOR IMAGING TO ASSESS BRAIN INJURY AND REPAIR POST NEUROINTERVENTIONAL STEM CELL THERAPIES IN A CANINE MODEL OF STROKE**

*K.E. Bates – University of Miami*

6-4 **BIODISTRIBUTION OF GLIAL PROGENITORS INJECTED INTO THE 3D BIOPRINTED MODEL OF PIGLET CEREBRAL VENTRICULAR SYSTEM DEPENDS ON INFUSION SPEED, VOLUME OF CELL SUSPENSION AND IRON OXIDE LABELING**

*R. Srivastava – Johns Hopkins University*
Data Blitz

6:30 pm - 7:00 pm

Moderator: Barry Hoffer

1 Mousumi Ghosh – University of Miami

2 Matthew Chrostek – University of Minnesota (Travel Award Winner)

3 Kyle Fink – University of California – Davis

4 Xuecheng Qiu – SUNY Upstate Medical University

5 Amanda Dossat – NIDA/NIH

6 Dong-Ki Kim – Texas A&M University

7 Whitney Ratliff - Bay Pines VA Healthcare System (Travel Award Winner)

8 Xuegang Yuan - Florida State University (Travel Award Winner)

9 Cameron Pernia - Sanford Burnham Prebys Medical Discovery Institute

10 Marcel Daadi – Texas Biomedical Research Institute
Poster Session & Reception
7:00 pm – 8:30 pm

1  SCHWANN CELL TRANSPLANTATION ALTERS THE INNATE IMMUNE RESPONSE AFTER SPINAL CORD INJURY  
   M. Ghosh – University of Miami

2  BIOCHEMICAL AND GENETIC METHODS FOR ENHANCING POLYSIALIC ACID ON TRANSPLANTED CELLS AFTER SPINAL CORD INJURY  
   D.D. Pearse – University of Miami

3  CEREBRAL ORGANOID AS A NOVEL SOURCE OF DOPAMINERGIC NEURON PROGENITORS FOR CELL-BASED TREATMENT OF PARKINSON'S DISEASE  

4  MUTANT ALLELE KNOCKDOWN IN THE YAC128 TRANSGENIC MOUSE MODEL OF HUNTINGTON’S DISEASE USING AN ARTIFICIAL TRANSCRIPTION FACTOR  
   K.D. Fink – University of California – Davis

5 ARGININE SENSING INDUCED mTORC1 ACTIVATION AFFECTS TAUOPATHIES  

6  NEURODEGENERATION AND NEUROPROTECTION IN A NONHUMAN PRIMATE MODEL OF PARKINSONIAN CARDIAC DYSAUTONOMIA  
   J. Metzger, R. Feddermann, H. Matsoff, G. Wachowski, V. Bondarenko, H. Simmons, A. Kapoor, T. Ziegler, C.F. Moore, M.E. Emborg (Travel Award Winner)
7  SOMATIC TRANSGENESIS MODELING IN THE BRAIN USING DIFFERENT PROMOTERS TO TARGET CELL TYPE SPECIFIC GENE EXPRESSION
   S. Modrow – University of Florida

8  CEREBRAL CHEMOKINE RECEPTOR CCR5 CONTRIBUTES TO POST-ISCHEMIC BRAIN PROTECTION
   S. Ping – SUNY Upstate Medical University

9  COMBINED STEM CELL FACTOR AND GRANULOCYTE COLONY-STIMULATING FACTOR PROMOTE CORTICOSPINAL TRACT SPROUTING AND IMPROVE NEUROLOGICAL FUNCTION IN THE CHRONIC PHASE OF TRAUMATIC BRAIN INJURY
   X. Qiu, M. Kyle, K. Hughes and L.-R. Zhao

10  BRAIN SLICE CULTURE MODELS OF CNS TARGETED GENE EXPRESSION
   K.E. Rewis – University of Florida

11  THE HSP90 ACTIVATOR AHA1 PROMOTES PATHOGENIC TAU
   L.B. Shelton, J.D. Baker, D. Zheng, J. Koren III, B.S.J. Blagg, L.J. Blair (Travel Award Winner)

12  SOLUBLE CX3CL1 RESCUES COGNITIVE DEFICITS IN CX3CL1 KNOCK-OUT MICE
   M.S. Subbarayan, A.N. Winter, B. Grimmig, M. Peters, E. Weeber, K.R. Nash, P.C. Bickford (Travel Award Winner)

13  LISPRO MITIGATES ALZHEIMER-LIKE COGNITIVE- AND NEUROPSYCHIATRIC-BEHAVIORAL DEFICITS IN APP/PS1 MICE
   R.D. Shytle – University of South Florida

14  ACTIVATION OF THE CYTOMEGALOVIRUS (CMV) PROMOTER:  CONSIDERATIONS FOR VIRAL VECTOR-MEDIATED TRANSGENE EXPRESSION
   S.M. Bäck – NIDA/NIH
15 NOGO RECEPTOR-1 REGULATES POST-TRAUMATIC COGNITIVE, MOTIONAL, AND EMOTIONAL BEHAVIORS IN MICE

Y.-H. Chiang – Taipei Medical University

16 KAINIC ACID AND GLUTAMATE INDUCE ENDOPLASMIC RETICULUM CALCIUM DEPLETION IN PRIMARY CORTICAL NEURONS

A.M. Dossat – NIDA/NIH

17 INTRODUCING A NOVEL METHOD OF INTRAVASCULAR ADENO-ASSOCIATED VIRUS-MEDIATED GENE DELIVERY

H.Z. Fazal – University of Florida

18 INSULIN-LIKE GROWTH FACTOR-2, AN INCREASING FACTOR IN NEONATAL WHITE MATTER BRAIN INJURY, PROMOTES THE DIFFERENTIATION OF OLIGODENDROCYTE PROGENITOR CELLS IN VITRO

H. Hida – Nagoya City University

19 DOPAMINE RELEASE IN THE NUCLEUS ACCUMBENS IS ALTERED FOLLOWING TRAUMATIC BRAIN INJURY

B.J. Hoffer – Case Western Reserve University

20 A1-EXOSOMES SUPPRESS SYSTEMIC INFLAMMATION AND NEUROINFLAMMATION INDUCED BY LPS IN MICE

D.-K. Kim – Texas A&M University

21 A9 DOPAMINE NEURON DIFFERENTIATION FROM MONKEY INDUCED PLURIPOTENT SOMATIC CELLS AND SOMATIC CELL NUCLEAR TRANSFER

R. Malpass – Yale University

22 LOCAL ACTION OF MONOCYTE CHEMOATTRACTANT PROTEIN-1 AND OSTEOPONTIN IN MURINE ANEURYSM HEALING

K. Motwani, D. Wajima, S. Hourani, H.Z. Fazal, K. Hosaka, B.L. Hoh (Travel Award Winner)
23 GENE EXPRESSION CHANGES AND CHRONIC RESPONSES IN A REPETITIVE MILD TBI MOUSE MODEL

W.A. Ratliff, D.C. Driscoll, S. Neyra, D. Qupty, C.G. Pick, B.A. Citron (Travel Award Winner)

24 DIFFERENTIATION AND CHARACTERIZATION OF ISOGENIC CELLS FROM AFRICAN GREEN MONKEY FOR POTENTIAL TRANSPLANTATION

M. Seay – Yale School of Medicine

25 CHARACTERIZATION OF THE EFFECTS OF CONDITIONED MEDIUM DERIVED FROM ENDOTHELIAL PROGENITOR CELLS ON CULTURED STRIATAL NEURONAL STEM CELLS

H.R. Widmer – University of Bern

26 INTRAVENOUS HUMAN BONE MARROW DERIVED ENDOTHELIAL PROGENITOR CELL TRANSPLANTATION INTO SYMPTOMATIC ALS MICE POTENTIALLY REPAIRS BLOOD-SPINAL CORD BARRIER

M. Khatib, S. Hailu, D.J. Eve, J. Cruz, S, Navarro, K.J. Boccio, R. Ford, P.R. Sanberg, C.V. Borlongan, S. Garbuzova-Davis

27 ECM HYDROGEL INJECTION FOR THE TREATMENT OF STROKE: TIME COURSE COMPARISON OF HYDROGEL RETENTION AND PHENOTYPIC CHARACTERIZATION OF INVADING CELLS

H. Ghuman – University of Pittsburgh

28 MULTIPLE INTRA-ARTERIAL DOSING OF THE MESENCHYMAL STEM CELLS REDUCES ISCHEMIC BRAIN INJURY IN A RAT STROKE MODEL

M. Watanabe, P. Bhattacharya, A. Khan, J.M. Hare, M. Perez-Pinzon, A.P. Raval, D.R. Yavagal (Travel Award Winner)

29 INTRAVENTRICULAR IMPLANTATION OF HUMAN MESENCHUMAL STEM CELL 3D AGGREGATES AS REGENERATION CENTER FOR ISCHEMIC STROKE TREATMENT

X. Yuan, A. Bagdasarian, J.T. Rosenberg, S.C. Grant, T. Ma (Travel Award Winner)
30  EXOSOMAL BIOMARKERS IN BLOOD FOR NEURODEGENERATIVE DISEASE
    E. Hamlett – University of Denver

31  INTRACELLULAR CALCIUM LEADS TO α-SYNUCLEIN AGGREGATION AND RELEASE
    IN DOPAMINERGIC CELLS
    D. Erdengiz, K.A. Maguire-Zeiss (Travel Award Winner)

32  THE ROLE OF EIF5A HYPOUSINATION ON TDP-43 ACCUMULATION AND STRESS
    GRANULE FORMATION IN FTD TDP-43 PROTEINOPATHY
    Z. Quadri, S. Sazi, S. Smeltzer, F. Zamudio, M.-L.B. Selenica (Travel Award
    Winner)

33  THE DIFFERENCE BETWEEN ACTIVITY AND FUNCTION: UTILIZING MOUSE
    MODELS AND hiPSCS TO ELUCIDATE THE ELECTROPATHOPHYSIOLOGY OF
    BIPOLAR DISORDER

34  MELANOMA-DERIVED EXOSOMES INDUCE INFLAMMATORY
    MICROENVIRONMENTS: POSSIBLE INVOLVEMENT IN BRAIN METASTASES
    E. Yoo, S.K. Hur, Q. Liu, S. Fang, D.-K. Kim, D. Kim

35  A NOVEL DRUG HEXACHLOROPHENE REDUCES TAU AGGREGATION AND
    POTENTIAL THERAPEUTIC AGENT FOR TREATMENT OF ALZHEIMER’S DISEASE
    V. Manavalan – University of South Florida

36  DISEASE AND STEM CELL-BASED ANALYSIS OF THE 2018 ASNTR-INTR MEETING
    D.J. Eve – University of South Florida

37  STANDARDS FOR DERIVING NONHUMAN PRIMATE INDUCED PLURIPOTENT STEM
    CELLS
    M. Daadi – Texas Biomedical Research Institute
## Conference Agenda

**Friday, April 27th 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>07:30 am to 12:30 pm</td>
<td>Conference Registration – Lobby III</td>
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<tr>
<td>07:30 am to 08:30 am</td>
<td>Continental Breakfast – Palm/Bay</td>
</tr>
<tr>
<td>07:45 am to 08:30 am</td>
<td>Session 9: <strong>Workshop - How to Get Published</strong>&lt;br&gt;Presented by - Graham Parker, Wayne State University</td>
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<tr>
<td>08:30 am to 10:05 am</td>
<td>Session 10: <strong>Neural Repair Through Trophic Factors</strong></td>
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<tr>
<td>10:05 am to 10:20 am</td>
<td>Morning Break – Refreshments Provided – Palm/Bay</td>
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<tr>
<td>10:20 am to 11:20 am</td>
<td>Session 11: <strong>Spinal Cord Injury - Therapeutic Options</strong></td>
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<tr>
<td>11:20 am to 12:20 pm</td>
<td>Session 12: <strong>Inaugural Roy Bakay Lecture</strong></td>
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<tr>
<td>12:20 pm to 03:00 pm</td>
<td>Free Time</td>
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<tr>
<td>03:00 pm to 05:30 pm</td>
<td>Conference Registration – Lobby III</td>
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<tr>
<td>03:00 pm to 04:15 pm</td>
<td>Session 13: <strong>Regenerative Rehab</strong></td>
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<tr>
<td>04:15 pm to 05:15 pm</td>
<td>Session 14: <strong>Past Presidents Symposium</strong>&lt;br&gt;State of the Art – Then and Now</td>
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<tr>
<td>05:15 pm to 05:30 pm</td>
<td>ASNTR Memorial Award Presentation</td>
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<tr>
<td>06:00 pm to 07:30 pm</td>
<td>Beach Volleyball Competition – Faculty vs Post Docs/Students</td>
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Neural Repair Through Trophic Factors

08:30 am – 10:05 am

Session Moderators: Gene Redmond & Brandon Harvey

10-1 ENDOPLASMIC RETICULUM LOCATED TROPHIC FACTOR CDNF PROTECTS AND MAINTAINS DOPAMINE NEURONS
   M. Saarma – University of Helsinki

10-2 CDNF – ADVANCE IN CLINICAL DEVELOPMENT
   H.J. Huttunen – Herantis Pharma Plc

10-3 THE TALE OF THE TAIL OF MANF: ER CALCIUM HOMEOSTASIS AS A THERAPEUTIC TARGET
   B.K. Harvey – NIDA/NIH

10-4 REGENERATIVE PROPERTIES OF MANF IN DEVELOPING NEURONS
   M. Airavaara – University of Helsinki

10-5 CEREBRAL ANEURYSM HEALING: MCP-1, IL6 AND OPN
   K. Hosaka – University of Florida
Spinal Cord Injury - Therapeutic Options

10:20 am – 11:20 am

Session Moderators: Gary Dunbar & John Stanford

11-1 THE EFFECT OF LOW DOSE CARBON MONOXIDE ON ADULT NEUROGENESIS IN INJURED MAMMALIAN SPINAL CORD

Y.D. Teng – Massachusetts General Hospital

11-2 USING MOUSE ORGANOTYPIC SPINAL CORD CULTURES TO VALIDATE NEW SELF-COMPLIMENTARY AAV TO TARGET CENTRAL NERVOUS SYSTEM CELLS BY USING AAV6 TRIPLE TYROSINE MUTANT (T492V-Y70SF-Y731F)

D.V. Tran, P.E. Cruz, V.Q. Truong, D. Deng, A.M. Rosario, K.-L. Schob, M. Parianos, V. Richards, M. Pardo, A. Hernandez, C. Ceballos, X. Liu, G. Aslanidi, J. Ayers, T.E. Golde (Travel Award Winner)

11-3 INVOLVEMENT OF NUCLEAR FACTOR-KB (NF-KB) PATHWAY IN THE TREATMENT OF SPINAL CORD INJURY

P. Jendelova – Czech Academy of Sciences

11-4 TRANSPLANTATION OF NEURAL PROGENITOR CELLS AND V2A INTERNEURONS INTO THE INJURED CERVICAL SPINAL CORD

L.V. Zholudeva, N. Iyer, L. Qiang, V.M. Spruance, M.L. Randelman, T. Bezudnaya I. Fischer, S. Sakiyama-Elbert, M.A. Lane (Travel Award Winner)

Inaugural Roy Bakay Lecture

11:20 am – 12:20 pm

Krystof Bankiewicz MD, PhD

Introductions: Jeffrey Kordower
Regenerative Rehab

3:00 pm – 4:15 pm

Session Moderators: Fredric Manfredsson & Scott Counts

13-1 CORTICAL PLASTICITY IN NEUROREHABILITATION
   R. Nudo – University of Kansa Medical Center

13-2 SUB-ADDITIVE EFFECTS OF CELL AND PHYSICAL THERAPY IN A RODENT MODEL OF STROKE
   H. Ghuman, F. Nitzsche, M. Gerwig, J. Moorhead, L. Grice, N. Perry, A. Poplawsky, B. Wahlberg, F. Ambrosio, M. Modo (Travel Award Winner)

13-3 SPROUTING OF THE CORTICO-RUBRAL TRACT INDUCED BY AN INTENSIVE REHABILITATION CONTRIBUTED TO FUNCTIONAL RECOVERY IN INTERNAL CAPSULE HEMORRHAGE RATS
   A. Ishida – Nagoya City University

13-4 MECHANISMS OF AGE-RELATED COGNITIVE DECLINE
   C. Burger – University of Wisconsin-Madison
Past President’s Symposium

“State of the Art – Then and Now”

4:15 pm – 5:15 pm

Session Moderators: John Sladek & Paul Sanberg

- In the Beginning... 1994-95 - John Sladek
- Keeping the Momentum Going 1995-96 – Paul Sanberg
- Gene Therapy – Next Steps 1996-97 - Jeffrey H. Kordower
- Advances in Shifting Cell Therapy to Stem Cells 2002-03 - Gene Redmond
- Neural Repair in Stroke 2005-06 - Walter Low
- The Aged Brain as a Potential Host 2007-08 - Tim Collier
- Stem Cells, Stem Cells, Stem Cells... 2008-09 - Evan Snyder
- Graft-Induced Dyskinesias: The Mysterious Confound to Cell Replacement” 2009-10 Kathy Steece-Collier
- Direct in vivo Reprogramming” 2010-11 - Daniel Peterson
- Bench-to-Bedside Stem Cell Therapy for Stroke 2015-16 – Cesar Borlongan

ASNTR Memorial Award Presentation

5:15 pm – 5:30 pm

John Sladek & Paul Sanberg
Conference Agenda

Saturday, April 28th 2018

Platform Presentations – Island Ballroom

07:00 am to 12:30 pm Conference Registration – Lobby III

07:00 am to 08:00 am Continental Breakfast – Palm/Bay

08:00 am to 09:30 am Session 15: Clinical Studies: Cell Therapy in Patients with Stroke

09:30 am to 10:00 am Morning Break – Refreshments Provided – Palm/Bay

10:00 am to 11:15 am Session 16: Clinical Studies: Cell Therapy for Spinal Cord Injury/Parkinson’s Disease

11:15 am to 12:00 pm Session 17: Biological Materials

12:00 pm to 03:00 pm Free Time

03:00 pm to 04:30 pm Conference Registration – Lobby III

03:00 pm to 04:30 pm Session 18: Therapeutic Delivery

04:30 pm to 06:00 pm Session 19: Therapeutic Genome Editing

06:00 pm to 06:20 pm Session 20: Business Meeting - Meeting Closure

07:00 pm to 10:00 pm ASNTR Beach Party – Dinner & Dancing (Cash Bar)
Clinical Studies: Cell Therapy for Stroke Patients

8:00 am – 9:30 am

Moderators: Walter Low & Alison Willing

15-1 CONSERVED MECHANISMS UNDERLYING BENEFIT OF MULTISTEM CELL THERAPY FOR NEUROLOGICAL INJURY AND DISEASE

R.W. Mays – Athersys, Inc.

15-2 INTRACEREBRAL TRANSPANTATION OF MODIFIED MSCS IN PATIENTS WITH STROKE

D. Bates – SanBio

15-3 THE DEVELOPMENT OF A NEURAL STEM CELL THERAPY FOR CHRONIC DISABILITY AFTER STROKE

J. Sinden – ReNeuron
Clinical Studies: Cell Therapy for Spinal Cord Injury/Parkinson’s Disease

10:00 am – 11:15 am

Moderators: Cesar Borlongan & Julien Rossignol

16-1 ESC-DERIVED OLIGODENDROCYTE PROGENITOR CELLS (AST-OPC1): CLINICAL UPDATE AND PRECLINICAL PROGRESS IN CERVICAL SPINAL CORD INJURY

N.C. Manley – Asterias Biotherapeutics

16-2 PHASE I DOSE ESCALATION STUDY OF NEURAL STEM CELLS IN PATIENTS WITH PARKINSON'S DISEASE

R. Gonzalez – International Stem Cell Corporation

16-3 RNA-SEQ AND HISTOLOGICAL CHARACTERIZATION OF HUMAN PERIPHERAL NERVE TISSUE FOR USE IN BRAIN GRAFTS FOR THE TREATMENT OF PARKINSON'S DISEASE

A.S. Welleford, C.G. van Horne, J.E. Quintero, E.M. Blalock, J.A. Stanford, S.M. Shapiro, S.M. Riordan, G.A. Gerhardt (Travel Award Winner)
Biological Materials

11:15 am – 12:00 pm

Moderators: Kathy Steece-Collier & Ty Subramanian

17-1 PROTEASOME-TARGETED NANOBODIES ALLEVIATE PATHOLOGY IN A SYNUCLEIN-BASED PARKINSON’S DISEASE MODEL

D. Chatterjee, M. Bhatt, D. Butler, E. De Genst, C. Dobson, A. Messer, J.H. Kordower (Travel Award Winner)

17-2 ZIKA VIRUS AS AN ONCOLYTIC AGENT IN HUMAN AND MURINE MALIGNANT GLIOMAS

A.T. Crane – University of Minnesota

17-3 BILATERAL TRANSPLANTATION OF HUMAN FETAL RETINAL PIGMENT EPITHELIAL CELLS (HFRPEC) ATTACHED TO MICROCARRIERS INTO THE SHELL OF THE NUCLEUS ACCUMBENS OF COCAINE SELF-ADMINISTERING RATS PROTECTS AGAINST DRUG SEEKING

K. Venkiteswaran – Penn State University
Therapeutic Delivery

3:00 pm – 4:30 pm

Moderators: Raphael Guzman & Dileep Yavagal

18-1 TRANSENDOTHELIAL MIGRATION OF STEM CELLS AFTER INTRA-ARTERIAL INJECTION
   R. Guzman – University of Basel

18-2 INTRA-ARTERIAL DELIVERY OF CELL THERAPY IN A LARGE ANIMAL MODEL OF STROKE
   D.R. Yavagal – University of Miami

18-3 INTRA-ARTERIAL HIGHWAY TO THE BRAIN FOR CELL THERAPY
   M. Janowski – Johns Hopkins University
Therapeutic Genome Editing

04:30 pm – 06:00 pm

Moderators: Marina Emborg & Mike Modo

19-1 BRAIN REPAIR VIA IN SITU ASTROCYTE-TO-NEURON CONVERSION
G. Chen – Pennsylvania State University

19-2 DELIVERY OF A ZINC FINGER ARTIFICIAL TRANSCRIPTION FACTOR FOR UBE3A RE-ACTIVATION VIA MESENCHYMAL STEM CELLS IN ANGELMAN SYNDROME
P. Deng, U. Beitnere, B. Pyles, H. O’Geen, J.A.N.M. Halmai, J. Carter, S. Carter, J.A. Nolta, D.J. Segal, K.D. Fink (Travel Award Winner)

19-3 LRRK2 GENOMIC EDITING IN COMMON MARMOSET STEM CELLS
S.C. Vermilyea, A. Babinski, S. Guthrie, T.G. Golos, M.E. Emborg (Travel Award Winner)

19-4 AAV-MEDIATED SILENCING OF STRIATAL CAV1.3 CALCIUM CHANNELS CAN PREVENT AND REVERSE EXPRESSION OF LEVODOPA-INDUCED DYSKINESIA
K. Steece-Collier – Michigan State University

19-5 CRISPR-CAS9 MEDIATED NON-HOMOLOGOUS END JOINING (NHEJ) MECHANISM FOR SILENCING OF THE MUTANT HUNTINGTIN GENE IN AN IN-VITRO MODEL OF HUNTINGTON’S DISEASE
N. Kolli, M. Lu, P. Maiti, J. Rossignol, G.L. Dunbar (Travel Award Winner)

19-6 PAMAM DENDRIMERS CROSS THE BLOOD-BRAIN BARRIER WHEN INJECTED SYSTEMATICALLY VIA TAIL VEIN IN VIVO AND USE OF DENDRIMERS AS A VEHICLE TO DELIVER LARGE CODING AND NON-CODING PLASMIDS IN VITRO
B. Srinageshwar, A.J. Dil, J.P. Sturgis, M.N. Florendo, A.E. Wedster, D. Swanson, G.L. Dunbar, A. Sharma, J. Rossignol
ASNTR Business Meeting

6:00 pm – 6:20 pm

All members and nonmembers are strongly encouraged to attend this meeting to welcome new ASNTR officers and to become actively involved in the future direction of the society.

ASNTR BEACH PARTY
JOIN US FOR DINNER & DANCING
(CASH BAR)

7:00 pm - 10:00 pm
NAME BADGE REQUIRED FOR ADMISSION

Thank you for another great year!
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<tr>
<th>Name</th>
<th>Affiliation</th>
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Property Highlights

Resort Amenities:

- Beachside pool and whirlpool
- Fire pit
- Beach Hammocks
- Turtle Bar - Poolside
- Kiddie Pool
- Children’s playground and planned activities from June through August
- Rusty’s Bistro serving breakfast and dinner – 6 time “Golden Spoon” winner
- Island Grille informal lunch
- Mainstay Tavern serving lunch and dinner
- Sheraton Fitness Center, massages and facials
- 3 hard tennis courts
- Water sports include sail boats, kayaks, wave runners
- Blue Water Provisions 24 hour convenience store
- Sea Grapes Apparel specialty store

Area Attractions:

- Across the street from the Shoppes of Sand Key which has multiple restaurants and shopping options
- Golf, fishing and boat rentals only minutes away
- Minutes away from the Clearwater Marine Aquarium, the home of Winter the Dolphin
- Busch Gardens 45 minutes away
- Orlando attractions 90 minutes away
- Trolley service throughout Sand Key/Clearwater Beach & neighboring beach communities
77 Companies

Founded in 2001, the Tampa Bay Technology Incubator (TBTI) is a University-driven community partnership providing critical services & resources to 77 early stage companies in the past year - approximately 50% technology & 50% bio-life sciences.

25 Companies accepted into the Student Innovation Incubator class of AY 17 - 18

STEM Impact

250+ Patents

Received by current TBTI companies to date

Economic Impact

Current TBTI companies created and retained 359 jobs with salaries for full-time positions averaging $79,461

$123.3M

Total funding received by current TBTI companies to date

$14.25M+

Annual salaries paid by current TBTI companies

Services Provided

- Entrepreneurs-In-Residence & a network of mentors in the Council of Professionals
- Access to world class research faculty & students
- Client networking opportunities
- Comprehensive business assistance from industry experts
- Technology Licensing & Commercialization
- Client screening & graduation
- Educational events
- Wet lab space and critical research equipment
- Professional business facilities - offices, conference & mentor rooms, copier, phone & internet services

USF’s Innovation Enterprise is made up of 3 areas:

- Tampa Bay Technology Incubator (TBTI)
- Technology Transfer Office/Patents & Licensing
- USF Research Park

$400M+*

USF’s Innovation Enterprise annual statewide impact

$395M+*

USF’s Innovation Enterprise annual impact on the Tampa Bay region

Reporting period: October 1, 2016 - September 30, 2017

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Learn more at: www.usfconnect.org

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Make plans now to join us next year!

Sheraton Sand Key Resort
Clearwater Beach, FL, USA

April 25-28th
2019

26th annual meeting of the America Society for Neural Therapy and Repair

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