



Houston Methodist Research Institute Neuroregeneration Symposium

CNS Neuroregeneration Strategies: Discovery and Implementation

Center for Neuroregeneration

Center for Regenerative and Restorative Neurosurgery

March 15, 2017

Marriott Houston Medical Center Ballroom – 2nd Floor Salon A-D
6580 Fannin Street, Houston, TX 77030

- 5:00–6:00pm** Registration, reception and dinner
- 7:00-9:00pm:** Welcome Comments
Philip Horner PhD, Director, Center for Neuroregeneration
Gavin Britz MD, Chairman, Department of Neurosurgery
Keynote Address: TBD
Keynote Address: **John A. Rogers PhD**, University of Illinois Urbana/Champaign

March 16, 2017 (Day 2)

All sessions will take place in The Houston Methodist Research Institute Bookout Auditorium on the 2nd floor
6670 Bertner Avenue, Houston, TX 77030

- 7:15-7:50am:** Registration/Continental Breakfast
- 7:50-8:00am:** Introduction: **Philip Horner PhD**

Session 1: Functional Electric Stimulation/BCI: Clinical Applications

Moderator: **Jose L. Contreras –Vidal PhD**, University of Houston

- 8:00-8:30am:** *Neurotechnologies to Help the Body Move, Heal, and Feel Again: Research at the Center for Sensorimotor Neural Engineering*, **Rajesh Rao PhD**, University of Washington
- 8:30-9:00am:** **Monica Perez PT PhD**, Miami Project to Cure Paralysis
- 9:00-9:30am:** *Human Cortical Reorganization in Response to Bidirectional Brain-Computer Interface*, **Jeff Ojemann MD**, University of Washington
- 9:30-10:00am:** **Erica Dale PhD**, UCLA
- 10:00-10:10am:** **Selected Trainee Presentation: Atilla Kilicarslan PhD**, University of Houston
- 10:10-10:30am:** Coffee Break



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Session 2: Molecular Pathways for Plasticity and Regeneration

Moderator: **Philip Horner PhD**, Houston Methodist

- 10:30-11:00am:** *Novel Neuroimmune Strategies for Improving Axon Plasticity and Spinal Cord Repair*, **Andrew Gaudet PhD**, University of Colorado
- 11:00-11:30am:** *Regeneration of the Adult Zebrafish Brain after Traumatic Brain Injury*, **Michael Brand PhD**, University of Dresden
- 11:30am-12:00pm:** *Reversible Optogenetic Activation of Neurotrophin-Mediated Signal Transduction During Differentiation and Embryonic Development*, **Kai Zhang PhD**, University Illinois Urbana/Champaign
- 12:00-12:30pm** *Spatial Light Interference Microscopy (SLIM) for Studying Emergence in Cellular Systems*, **Gabriel Popescu PhD**, University of Illinois Urbana/Champaign
- 12:30-12:40pm** **Selected Trainee Presentation:** *The systematic analysis of coding and long non-coding RNAs in the sub-chronic and chronic stages of spinal cord injury*, **Raquel Cuevas-Diaz Duran PhD**, McGovern Medical School, University of Texas Health Science Center at Houston
- 12:40pm** Box Lunch
Poster Viewing

Session 3: Tissue Engineering and Model Systems

Moderator: TBD

- 1:30-2:00pm** *Materials for Ultracompliant High-Resolution Conformal PNI*, **Christopher Bettinger PhD**, Carnegie Mellon
- 2:00-2:30pm** *Immunoengineering Nerve Repair*, **Ravi Bellamkonda PhD**, Georgia Tech
- 2:30-3:00pm** *Reconstruction and Regulation of Neural Circuit by Human Stem Cells*, **Su-Chun Zhang MD PhD**, University of Wisconsin
- 3:00-3:10pm** **Selected Trainee Presentation:** *Unraveling the interaction between central nervous system and its extracellular matrix*, **Francesca Taraballi PhD**, Houston Methodist Research Institute



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3:15-4:30pm

Panel A:

Session Breakouts

Clinical Challenges

Chairs: **Robert Grossman MD**, Houston Methodist and **Philip Horner PhD**, Houston Methodist

Panel B:

Materials and Cell Stimulation

Chairs: **Jane Grande-Allen PhD**, Rice University and **TBD**

4:30-5:30pm

Cocktails and Poster Viewing

6:30pm

Speaker Dinner at Third Coast



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March 17, 2017 (Day 3)

7:30-8:30am: Continental Breakfast

Session 4: Regenerative Models System/ High Throughput Screening

Moderator: **Stephen T. Wong PhD**, Dunn Chair in Biomedical Engineering, Houston Methodist

8:30-9:00am: *Microtubule-Based Therapies for Treating Disease and Injury of the Nervous System*, **Peter Baas PhD**, Drexel University

9:00-9:30am: *Signaling Mechanisms of Spinal Cord and Muscle Regeneration*, **Laura Borodinsky PhD**, UC Davis

9:30-10:00am: *From Axon Regeneration to Functional Recovery*, **Zhigang He PhD**, Harvard

10:00-10:10am: **Selected Trainee Presentation: TITLE**, **Mayssa Mokalled PhD**, Duke University Medical Center

10:10-10:30am: Coffee Break

Session 5: Nuclear Reprogramming and Cellular Plasticity

Moderator: **John Cooke, MD PhD**, Houston Methodist

10:30-11:00am: **Jose Cibelli PhD**, Michigan State

11:00-11:30am: *Transcriptional Regulatory Mechanisms of Xenopus Spinal Cord Regeneration*, **Andrea Wills PhD**, University of Washington

11:30-12:00pm: *A Single-Cell Resolution Blueprint for Fate Engineering*, **Samantha A. Morris PhD**, Washington University

12:00-12:10pm: **Selected Trainee Presentation: Comprehensive transcriptome analysis identifies novel regulators of axon growth and regeneration**, **Andrea Tedeschi PhD**, Ohio State University

12:10pm: Lunch



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12:15-1:30pm:

Session Breakout

Panel C:

Plasticity and Stimulation Combined

Chairs: **Charles Cox Jr. MD**, UT Health and **Ben Deneen PhD**, Baylor College of Medicine

Panel D:

High Throughput Platforms for Activity Based Discovery

Chairs: **Robert Krencik PhD**, Houston Methodist and
Stephen T. Wong PhD, Houston Methodist

Session 6: Emerging Topics

Moderator: **Tetsuo Ashizawa MD**, Houston Methodist

1:30-2:00pm:

Phil Popovich PhD, Ohio State

2:00-2:30pm:

Advances in imaging and monitoring damaged and recovering peripheral nerves with multiple techniques: **Michel Kliot MD**, Northwestern University

2:30-3:00pm:

Future Directions-Closing

Keynote: **Jerry Silver PhD**, Case Western Reserve University

Keynote: **Robert Rostomily MD**, Houston Methodist

3:00-3:15pm:

Closing comments and adjournment

Philip Horner PhD, Houston Methodist and **Gavin Britz MD**, Houston Methodist

4:30-11pm

Houston Livestock Show and Rodeo