



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: **Jake Christensen**, Owner and Operator, J Bar K Ranch
Keynote Address: **John A. Rogers PhD**, Northwestern University, IL

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: **Atila 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: Anthony Guiseppi-Elie PhD, Texas A&M University

- 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, Phil Horner PhD, Jeff Ojemann MD, and Michel Kliot MD

Panel B:

Materials and Cell Stimulation

Chairs: Jane Grande-Allen PhD, Francesca Taraballi PhD, and Anthony Guiseppi-Elei PhD

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**, 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, Phil Horner PhD, Laura Borodinsky PhD, Erica Dale PhD.**

Panel D: *High Throughput Platforms for Activity Based Discovery*

Chairs: **Robert Krencik PhD, Stephen T. Wong PhD**

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**