Day 1: Wednesday, November 1
PPG Place Wintergarden

6:00 p.m.  Doors open

6:30 p.m.  Welcome to Pittsburgh and Opening Remarks
Gwendolyn Sowa, MD, PhD
University of Pittsburgh School of Medicine

6:40–9 p.m.  Special Session: Regenerative Rehabilitation for Traumatic Brain Injury (TBI)
Moderator: Gwendolyn Sowa, MD, PhD
University of Pittsburgh School of Medicine

6:40–6:50 p.m.  Overview and Development of TBI Research Program at Pittsburgh
Rocky S. Tuan, PhD
University of Pittsburgh School of Medicine

6:50–7:20 p.m.  Cell Replacement After Traumatic Brain Injuries: Contributions of Resident vs. Transplanted Neural Stem Cells
Steven W. Levison, PhD
Rutgers University, Cancer Research Center

7:20–7:50 p.m.  New Therapies for TBI: Operation Brain Trauma Therapy (OBTT) and Beyond
Patrick M. Kochanek, MD, MCCM
Children’s Hospital of Pittsburgh of UPMC

7:50–8:20 p.m.  Optimizing TBI Rehabilitation to Promote Regeneration and Recovery
Elizabeth R. Skidmore, PhD, OTR/L, FAOTA
School of Health and Rehabilitation Sciences University of Pittsburgh

8:20–9:00 p.m.  Panel Discussion with TBI presenters

9:00–10:00 p.m.  Networking Reception with Hors d’oeuvres and Wine Bar
7:45–8:45 a.m. **Continental Breakfast**
Seating available in Sterlings I, II and III

8:30–8:50 a.m. **Introduction and Welcome**
Commonwealth Two

8:30–8:40 a.m. Fabrisia Ambrosio, PhD, MPT
University of Pittsburgh

8:40–8:50 a.m. Hiroshi Kuroki, PT, PhD
Kyoto University, Japan

8:50–9:40 a.m. **Keynote Speaker: Exploiting Mechanics to Promote Regeneration**
David J. Mooney, PhD
Harvard University

9:40–9:55 a.m. **Morning Break**
Commonwealth Foyer

9:55–11:55 a.m. **Session 1: Applied Mechanobiology Part I**
Commonwealth Two

9:55–10:20 a.m. Advanced Biofabrication Strategies for Engineering 3D Muscle Tissue
Adam Feinberg, PhD
Carnegie Mellon University

10:20–10:45 a.m. Regenerative Rehabilitation Therapy for Volumetric Muscle Loss
Thomas A. Rando, MD, PhD
Stanford University School of Medicine

10:45–11:10 a.m. Regenerative Therapy for Muscle Dystrophy by Transplantation of Muscle Stem Cells Derived from Human iPS Cells
Hidetoshi Sakurai, MD, PhD
Kyoto University, Japan

11:10–11:35 a.m. Physiologically Oriented Engineered Skeletal Muscle for Treatment of Volumetric Muscle Loss
Ngan F. Huang, PhD
Stanford University

11:35–11:45 a.m. Oral Presentation: Pathologic Fibrosis Progressively Increases following Volumetric Muscle Loss Injury
Sarah M. Greising, PhD
US Army Institute of Surgical Research

11:45–11:55 a.m. Oral Presentation: Pericyte Response to Muscle Contraction
Svyatoslav Dvoretsky
University of Illinois at Champaign-Urbana
## Sixth Annual Symposium on Regenerative Rehabilitation
### AGENDA
#### Day 2: Thursday, November 2
Wyndham Grand Downtown Pittsburgh

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>11:55 a.m.–noon</td>
<td>Group Picture of all Symposium Attendees and Presenters</td>
<td>TBD</td>
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<tr>
<td>Noon–2:00 p.m.</td>
<td>Lunch and networking&lt;br&gt;Buffet lunch will be provided&lt;br&gt;Seating available in Sterlings I, II &amp; III</td>
<td>Sterlings Foyer</td>
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<tr>
<td>2:00–3:15 p.m.</td>
<td><strong>Session 1: Applied Mechanobiology Part II</strong>&lt;br&gt;Moderator: Christopher Evans, PhD&lt;br&gt;Mayo Clinic</td>
<td>Commonwealth Two</td>
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<td>2:00–2:25 p.m.</td>
<td>Multiaxial Load as a Driver of Human MSC Chondrogenesis&lt;br&gt;Martin Stoddart, PhD, FRSB&lt;br&gt;AO Research Institute, Davos, Switzerland</td>
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<td>2:25–2:50 p.m.</td>
<td>Mechanomedicine: Mechanobiology and Its Implications for the Field of Regenerative Rehabilitation&lt;br&gt;Keiji Naruse, MD, PhD&lt;br&gt;Okayama University, Japan</td>
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<td>2:50–3:15 p.m.</td>
<td>Mechanical Control of MSC Fate: The Role of the Actin Cytoskeleton&lt;br&gt;William Thompson, DPT, PhD&lt;br&gt;Indiana University – Purdue University Indianapolis</td>
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<td>3:15–5:45 p.m.</td>
<td><strong>Session 2: Neurologic Applications of Regenerative Rehabilitation</strong>&lt;br&gt;Moderator: Linda Noble-Haeusslein, PhD&lt;br&gt;The University of Texas at Austin</td>
<td>Commonwealth Two</td>
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<td>3:15–3:40 p.m.</td>
<td>Re-Building Brain Tissue After Stroke&lt;br&gt;S. Thomas Carmichael, MD, PhD&lt;br&gt;Geffen School of Medicine, UCLA</td>
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<td>3:40–4:05 p.m.</td>
<td>Exploring Synergistic Effects of Physical and Cell Therapy in Stroke&lt;br&gt;Michel Modo, PhD&lt;br&gt;University of Pittsburgh</td>
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<td>4:05–4:20 p.m.</td>
<td>Afternoon Break</td>
<td>Commonwealth Lobby</td>
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<td>4:20–4:45 p.m.</td>
<td><strong>Clinical Trials of Stem Cell Transplantation for Treatment of Stroke</strong>&lt;br&gt;Lawrence R. Wechsler, MD&lt;br&gt;University of Pittsburgh School of Medicine</td>
<td>Commonwealth Two</td>
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<td>4:45–5:10 p.m.</td>
<td><strong>Clinical and Neurophysiological Evidences of Brain Plasticity</strong>&lt;br&gt;Carmelo Chisari, MD&lt;br&gt;University Hospital of Pisa, Pisa, Italy</td>
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5:10–5:35 p.m. **The Use of Autologous Stem Cells in Rehabilitation of Multiple Sclerosis**
George H. Kraft, MD, MS
University of Washington

5:35–5:45 p.m. **Oral Presentation: Conductive Conduits to Augment Cell Therapy for Peripheral Nerve Injury**
Shang Song, PhD
Stanford University School of Medicine

5:45–7:00 p.m. **Poster Session**
Poster presenters please be at your posters

6:15–7:15 p.m. **Networking Reception with Cheese and Wine Bar**
Commonwealth Foyer, One & Two

7:00–8:00 p.m. **Special Session Panel Discussion: “Glories, Gripe & Grapes”**
Moderator: Michael Boninger, MD
University of Pittsburgh School of Medicine

Panelists: Esther E. Dupont-Versteegden, PhD
University of Kentucky

G. Kelley Fitzgerald, PT, PhD, FAPTA
University of Pittsburgh

Ralph Nitkin, PhD
Health Scientist Administrator NIH (NICHD)

Martin Stoddart, PhD, FRSB
AO Research Institute, Davos, Switzerland

Kimberly S. Topp, PT, PhD, FAAA
University of California, San Francisco
Day 3: Friday, November 3
Wyndham Grand Downtown Pittsburgh

7:30–8:15 a.m. **Special Interest Group: Clinical-track Breakfast/Networking**
Spend breakfast meeting with clinicians and clinical-track students, sharing stories, debating treatments and brainstorming strategies. As the frontline in dealing with this new clinical population, your ideas and enthusiasm are key to translational success of Regenerative Rehabilitation.

7:45–8:45 a.m. **Continental Breakfast**
General seating in Sterlings I & II

8:30 a.m. **Fabrisia Ambrosio, PhD, MPT**
University of Pittsburgh

8:35–11:00 a.m. **Session 3: Translate Your Science: Regenerative Rehabilitation Technologies, Methods & Approaches**
Moderator: M. Terry Loghmani, PT, PhD
Indiana University – Purdue University Indianapolis

- **8:35–8:50 a.m.** Rehabilitation and Regeneration of Peripheral Nerve Injury
  Ryosuke Ikeguchi, MD, PhD
  Kyoto University Graduate School of Medicine, Japan

- **8:50–9:05 a.m.** Introduction of Scaffold-Free Bio 3D Printer for Organ Regeneration
  Koichi Nakayama, MD, PhD
  Saga University, Japan

- **9:05–9:10 a.m.** Joint Question and Answer Session

- **9:10–9:35 a.m.** Human Brain-Computer Interfaces for Sensorimotor Science and Rehabilitation
  Robert Gaunt, PhD
  University of Pittsburgh

- **9:35–9:50 a.m.** Comprehensive Evaluation of VML Injury and Repair in Animal Models: From Biological Relevance to Biomechanics
  George J. Christ, PhD
  University of Virginia

- **9:50–10:05 a.m.** Quantifying the Impact of TA VML Injuries on Rat Gait
  Shawn Russell, PhD
  University of Virginia

- **10:05–10:10 a.m.** Joint Question and Answer Session

- **10:10–10:25 a.m.** Morning Break

-- Commonwealth Foyer
10:25–10:50 a.m.  Evaluating Clinical Outcomes of Biological Treatments  Commonwealth Two
James J. Irrgang, PT, PhD, ATC, FAPTA
University of Pittsburgh

10:50–11:00 a.m. Oral Presentation: Comprehensive Characterization of Rodent Gait Kinetics and Kinematics as a Standard of Comparison for Regenerative Therapies  Commonwealth Two
Jack Dienes
University of Virginia

11:00 a.m. Final remarks  Commonwealth Two

11:15 p.m. Symposium adjournment

Noon Hotel check-out

Post-Symposium Workshops  Sterlings Rooms
Preregistration required; no on-site registration will be offered.
Box lunch will be provided.

Noon–12:30 p.m. Workshop check-in and boxed lunch pick-up  Sterlings Foyer

Regenerative Rehabilitation Research Workshops – concurrent sessions

12:30–2:00 p.m. Track 1 Clinical Study Design for Regenerative Rehabilitation  Commonwealth Two
Marcas Bamman, PhD, FACSM
University of Alabama, Birmingham

12:30–2:00 p.m. Track 2 Rehabilitation Strategies in Preclinical Models: An Overview of the Fundamentals  Sterlings III
Linda Noble-Haeusslein, PhD
The University of Texas at Austin
and
Gordon L. Warren, III, PhD, FACSM
Georgia State University