2018 NIH Hydrocephalus Workshop:  
State-of-the-Science and Future Directions

Mount Washington Conference Center  
5801 Smith Ave, Baltimore, MD 21209

AGENDA

Wednesday, April 18, 2018

7:30 – 8:00 am   REGISTRATION  
Refreshments provided

Opening and Welcome
8:00 – 8:10 am   Welcome and introduction  
Nina Schor, Deputy Director, NINDS

8:10 – 8:20 am   Overview of NIH efforts  
Jill Morris, Program Director, NINDS

8:20 – 9:20 am   An overview of developments in hydrocephalus research  
James (Pat) McAllister, Washington University in St. Louis

Session 1
Genetics of Hydrocephalus

Chair: Hannah Tully

9:20 – 10:05 am   Genetics of hydrocephalus: causes and contributory factors  
Hannah Tully, Seattle Children’s Research Institute

10:05 – 10:35 am  Human genetics of congenital hydrocephalus  
Kristopher Kahle, Yale University School of Medicine

10:35 – 10:50 am  BREAK

10:50 – 11:20 am  Genetics of idiopathic normal pressure hydrocephalus  
Mark Johnson, University of Massachusetts Memorial Health Care

11:20 – 11:50 am  New insights from the choroid plexus in development and disease  
Maria Lehtinen, Boston Children’s Hospital

11:50 – 1:00 pm   WORKING LUNCH: PANEL DISCUSSION

Discussion of Objective 1: Advances in the genetics of hydrocephalus
• Genetic of congenital hydrocephalus
• Genetics of adult idiopathic hydrocephalus

Panel: Hannah Tully, Kristopher Kahle, Mark Johnson, Maria Lehtinen
Session 2
Normal Pressure Hydrocephalus

Chair: Mark Hamilton

1:00 – 1:30 pm  
**Adult hydrocephalus: Changing the paradigm**  
Mark Hamilton, University of Calgary

1:30 – 2:00 pm  
**Putting NPH and NPH research into perspective**  
Michael Williams, University of Washington School of Medicine

2:00 – 2:30 pm  
**High resolution 3D MRI for classification of adult hydrocephalus**  
Ari Blitz, Johns Hopkins Hospital

2:30 – 3:00 pm  
**Precision medicine in normal pressure hydrocephalus: gait and CSF biomarkers**  
Abhay Moghekar, Johns Hopkins University

3:00 – 3:15 pm  
**BREAK**

3:15 – 3:45 pm  
**Automatic MR image segmentation of the CSF spaces in NPH**  
Lotta Ellingsen, University of Iceland and Johns Hopkins University

3:45 – 4:15 pm  
**NPH: epidemiology, diagnosis, management, biomarkers and etiology**  
Neill Graff-Radford, Mayo Clinic Jacksonville

4:15 – 4:45 pm  
**NPH underlying neurodegeneration in two third of cases**  
Alberto Espay, University of Cincinnati

4:45 – 5:15 pm  
**Designing a clinical trial for the effectiveness of shunting in NPH**  
Mark Luciano, Johns Hopkins Hospital

5:15 – 6:00 pm  
**PANEL DISCUSSION**

Discussion of Objective 2: Normal Pressure Hydrocephalus: Should shunting be stopped now?
- Need for differential diagnosis
- Need for biomarkers
- Need for clinical trials

Panel: Mark Hamilton, Ari Blitz, Abhay Moghekar, Lotta Ellingsen, Neill Graff-Radford, Alberto Espay, Mark Luciano, Mark Johnson, Mike Williams

Dinner

Presentation by the Sponsors

6:30 – 8:30 pm  
**Mt. Washington Tavern**  
5700 Newbury St, Baltimore, MD 21209  
*Dinner is sponsored by the Hydrocephalus Association*
Thursday, April 19, 2018

7:30 – 8:00 am  REGISTRATION  
Refreshments provided

Session 3
Preclinical Research  
Chair: Jerold Chun

8:00 – 8:30 am  Cytoarchitecture directs the brain’s ventricle system topography: stem cell function in hydrocephalus  
Joanne Conover, University of Connecticut

8:30 – 9:00 am  The TRPV4 channel in choroid plexus: Implications for the treatment of hydrocephalus  
Bonnie Blazer-Yost, Indiana University-Purdue University Indianapolis

9:00 – 9:30 am  Investigations of motile cilia functions in the CSF flow dynamics  
June Goto, Cincinnati Children’s Hospital Medical Center

9:30 – 9:45 am  BREAK

9:45 – 10:15 pm  Inflammatory hydrocephalus and the innate immune system  
Kristopher Kahle, Yale University School of Medicine

10:15 – 10:45 pm  Posthemorrhagic hydrocephalus – Bringing someday closer to today  
Shenandoah (Dody) Robinson, Johns Hopkins University

10:45 – 11:15 am  Targeting CSF secretion for neonatal brain hemorrhage  
John Zhang, Loma Linda University

11:15 – 11:45 am  New aspects of LPA-initiated hydrocephalus  
Jerold Chun, Sanford Burnham Prebys Medical Discovery Institute

11:45 – 1:00 pm  WORKING LUNCH: PANEL DISCUSSION  
Discussion of Objective 3: Preclinical Research: What are the paths forward?  
Panel: Jerold Chun, Joanne Conover, Bonnie Blazer-Yost, June Goto, Kristopher Kahle, Dody Robinson, John Zhang

Session 4
Clinical Research  
Chair: John Kestle

1:00 – 1:30 pm  The role of fetal Spina Bifida repair in reducing symptomatic hydrocephalus; MOMS and beyond  
Jay Wellons, Vanderbilt Children’s Hospital

1:30 – 2:00 pm  Imaging and CSF biomarkers for diagnosis and management of pediatric hydrocephalus  
Dave Limbrick, St. Louis Children’s Hospital

2:00 – 2:30 pm  Risk factors for CSF shunt infection and reinfection  
Tamara Simon, University of Washington and Seattle Children’s Hospital

2:30 – 2:45 pm  BREAK
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<th>Time</th>
<th>Topic</th>
<th>Speaker(s)</th>
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<tr>
<td>2:45 – 3:15 pm</td>
<td>Endoscopic treatment versus shunting for infant hydrocephalus in Uganda</td>
<td>Benjamin Warf, Boston Children’s Hospital</td>
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<td>3:15 – 3:45 pm</td>
<td>ETV/CPC versus shunt for infants in North America</td>
<td>Abhaya Kulkarni, The Hospital for Sick Children</td>
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<td>3:45 – 4:45 pm</td>
<td>PANEL DISCUSSION</td>
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<td>Discussion of Objective 4: Clinical Research: What are the paths forward?</td>
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<td>• Biomarker validation</td>
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<td>• Comparison of ETV/CPC and shunt placement</td>
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<td>Panel: John Kestle, Dave Limbrick, Tamara Simon, Jay Wellons, Benjamin Warf, Abhaya Kulkarni</td>
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**Summary and Moving Forward**

4:45 – 5:30 pm OPEN DISCUSSION