Midbrain/Hindbrain Malformations and Hydrocephalus: Understanding the Causes, Consequences and Gaps in Understanding

Midbrain/Hindbrain Malformations and Hydrocephalus Workshop 2014

Neuroscience Center
6001 Executive Blvd.
Room C/D
Bethesda, MD

AGENDA

MONDAY, June 23rd

7:30–8:00 am **Registration**

8:00 am **Opening and Welcome:**
8:00–8:10 am
Story Landis, Director, NINDS

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

8:20 am **Session 1: Classifications: Purpose and Problems (Chair: Jim Barkovich)**

8:20–8:50 am
Dan Doherty, University of Washington: *Advances in midbrain-hindbrain malformation diagnosis*

8:50–9:20 am
Dave Limbrick, Washington University School of Medicine: *Hydrocephalus: A Clinician's Perspective*

9:20–9:50 am
Jim Barkovich, University of California, San Francisco: *MBHB Malformations: a classification*

9:50–10:05 am **BREAK**

10:05–10:35 am
Francis Brunelle and Nathalie Boddaert, Necker Hospital: *Midbrain-hindbrain malformation. A practical genetic imaging algorithm: from MRI to genes*

10:35–11:05 am

Charles Raybaud, The Hospital for Sick Children: *Fetal hydrocephalus with mid/hindbrain malformation: what do we understand?*

11:05–11:35 am

Hannah Tully, Seattle Children's Research Institute: *A new approach to the classification of developmental hydrocephalus*

11:35 – 1:15 pm **WORKING LUNCH: PANEL DISCUSSION**

Panel Discussion of Objective 1:

- Classifications and Diagnosis: Purpose and Problems
  a. Pre-natal malformation detection: Is it predictive?
  b. Structural features: Correlation with natural history, outcomes

1:15 pm **Session 2: Genetics of Midbrain/Hindbrain Malformations and Congenital Hydrocephalus: common biology? (Chair: Bill Dobyns)**

1:15-1:45 pm

Bill Dobyns, Seattle Children's Research Institute: *A new approach to the genetics of developmental hydrocephalus*

1:45–2:15 pm

Naiara Akizu, University of California, San Diego: *Unveiling mechanism and treatment of cerebellar disorders from disease gene discovery*

2:15–2:45 pm

Colin Johnson, University of Leeds*: Insights into the complex disease mechanisms of severe ciliopathies: from genes to mouse models*

2:45 –3:00 pm **BREAK**

3:00–3:30 pm

Viktor Chizhikov, The University of Tennessee Health Science Center: *Misspecification of cerebellar neurons into brain stem fates leads to cerebellar agenesis in the absence of Ptf1a function*

3:30–4:00 pm

Tamara Caspary, Emory University: *Interpreting signaling through the primary cilium*

4:00–4:30 pm

Allison Ashley-Koch, Duke University School of Medicine: *Genetics of Chiari Malformations: Current findings*

4:30–5:00 pm

Russell J. Ferland, Albany Medical College: *Mutations in CSPP1 cause primary cilia defects and Joubert syndrome*

5:00 – 6:00 pm **PANEL DISCUSSION**

Discussion of Objective 2:

- Genetics of Midbrain/Hindbrain Malformations and Hydrocephalus: Common biology?

6:30 pm **Dinner and Presentations by the Sponsors**

Dinner is sponsored by the Hydrocephalus Association, Chiari & Syringomyelia Foundation and the Dandy Walker Alliance

TUESDAY, June 24th:

8:00 am **Session 3: Animal Models of Midbrain/Hindbrain Malformations and Hydrocephalus: What can we learn? (Chair: Kathleen J. Millen)**

8:00–8:30 am

Roy Sillitoe, Baylor College of Medicine: *Mapping cerebellar circuits: development and dysfunction*

8:30–9:00 am

Alexandra Joyner, Sloan-Kettering Institute: *Regulating the production of input neurons and target fields to form normal cerebellar circuits*

9:00–9:30 am

Eva Anton, University of North Carolina at Chapel Hill School of Medicine: *Arl13b, Primary Cilia, and the Formation of Cerebral Cortex*

9:30–9:45 am **BREAK**

9:45–10:15 am

Kathleen Millen, U of Washington: *Head mesenchyme influences very early choroid plexus and cerebellar development*

10:15 – 10:45 am

Tim Vogel, Cincinnati Children's Hospital: *Ciliopathy mouse models to study the genesis of hydrocephalus*

10:45 – 11:15 am

Jennifer Schmidt, University of Illinois at Chicago: *Abnormal ciliary microtubule organization and juvenile hydrocephalus in Jhy^{lacZ} mice*

11:15 – 11:45 am

James P. (Pat) McAllister, University of Utah: *Critical comparisons between genetic and acquired models of hydrocephalus*

11:45 – 1:00 pm **WORKING LUNCH: PANEL DISCUSSION**

Panel Discussion of Objective 3:

- Animal models of Midbrain/Hindbrain Malformations and Hydrocephalus: What can we learn?

1:00 pm **Session 4: New Models for Thinking about Midbrain/Hindbrain Malformations and Hydrocephalus and Potential Treatments (Chair: Dave Limbrick)**

1:00–1:30 pm

Bonnie Blazer-Yost, Indiana University-Purdue University: *TRP channels in hydrocephalus*

1:30–2:00 pm

Jerold Chun, Scripps Research Institute: *Lysophospholipid signaling in post-hemorrhagic hydrocephalus*

2:00-2:30 pm

Dave Limbrick, Washington University School of Medicine: *CSF Markers of Hydrocephalus: Progress Towards Improving Clinical Management and Outcomes*

2:30-2:45 pm **BREAK**

2:45-3:15 pm

Anthony Wynshaw-Boris, Case Western University School of Medicine: *The Wnt/PCP pathway, ependymal cilia polarity and hydrocephalus*

3:15-3:45 pm

Gregory Heuer, The Children's Hospital of Philadelphia: *Impact of Fetal Myelomeningocele Closure on Chiari Malformation and Hydrocephalus*

3:45-4:45 pm **FINAL PANEL DISCUSSION**

Discussion of Mission Aim 4:

- New Models for Thinking about Midbrain/Hindbrain Malformations and Hydrocephalus and Potential Treatments

4:45-5:30 pm **SUMMARY AND MOVING FORWARD**