



## Modeling Hearing and Balance Disorders in Mice: The Hear@JAX Workshop

September 15-20, 2024

### Schedule, lab session descriptions, organizers, faculty, students

#### **Sunday, Sept 15**

- 17:00 **Registration** at Highseas 1<sup>st</sup> floor Conference Center
- 18:00-18:30 **Welcome and introductions**  
*Basile Tarchini, Matt Kelley, Mike Bowl, Guy Richardson, Ronna Hertzano, Cat Weisz*
- 18:30-19:30 **Dinner** at Highseas
- 19:30-20:00 **Transport to Bar Harbor, Atlantic Brewery Midtown**
- 20:00-21:30 **3-5 minute introductory presentations and opening mixer**
- 21:30-22:00 **Return to Highseas**

#### **Monday, Sept 16**

- 7:30-9:00 **Breakfast and late registration** – Highseas 1<sup>st</sup> floor  
Highseas 3<sup>rd</sup> floor
- 8:30-9:00 **Sound and inner ear anatomy basics**  
*Matt Kelley*
- 9:00-9:45 **Introduction to inner ear development**  
*Betsy Driver*
- 9:45-10:30 **Hair Cell Development**  
*Matt Kelley*
- 10:30-10:45 **Coffee break**
- 10:45-11:30 **Mechanisms of planar polarity in the inner ear**  
*Basile Tarchini*
- 11:30-12:15 **Afferent and efferent innervation of the inner ear**  
*Cat Weisz*
- 12:15-13:00 **Lunch** - Highseas 1<sup>st</sup> floor
- 13:00 **Transportation to GRB Training Laboratory** -Meet in Highseas 1<sup>st</sup> floor lobby
- 13:15 pm **Laboratory Session:** Dissection and culturing of the inner ear /microscopy/  
immunohistochemistry - *Matt Kelley, Guy Richardson, Basile Tarchini, Ronna Hertzano, Betsy Driver*
- A. Cochlear dissection demonstration
  - B. Hands on cochlear dissection
  - C. Begin cochlear immunolabeling
  - D. Lecture on Microscopy in Inner Ear Research – *Betsy Driver*
  - E. Cochlear immunolabelling into primary antibody
- 18:00 **Transportation to Highseas**

18:30-19:30 **Dinner** - Highseas 1<sup>st</sup> floor  
19:30-20:30 **Poster session**

### **Tuesday, Sept 17**

7:30-8:30 **Breakfast** - Highseas 1<sup>st</sup> floor  
Highseas 3<sup>rd</sup> floor  
8:30-9:15 **Hair cells, mechanotransduction and adaptation**  
*Guy Richardson*  
9:15-10:00 **A historical perspective of the mouse as a model for deafness & ARRIVE guidelines**  
*Mike Bowl*  
10:00-10:30 **Coffee break**  
10:30-11:15 **Surveying the genetic landscape of auditory function: mouse and human models of hearing loss**  
*Hela Azaiez*  
11:15-12:00 **From gene discovery to ultrastructure**  
*Uli Mueller*  
12:00 **Transportation to GRB Training Laboratory** - Meet in Highseas 1<sup>st</sup> floor lobby  
12:15-13:00 **Lunch** - Jackson Labs  
13:00 **Laboratory Session:** *Basile Tarchini, Guy Richardson, Ronna Hertzano, Cat Weisz, Betsy Driver*  
A. Continue cochlear immunolabeling  
B. Cochlear culture overview – *Guy Richardson/Basile Tarchini*  
C. Dissect cochleae for culture  
D. Complete immunolabeling and mount cochleae for imaging  
E. Begin immunos for cochlear mutant challenge exercise  
18:00 **Transportation to Highseas**  
18:30-19:30 **Dinner** - Highseas 1<sup>st</sup> floor  
19:30-20:00 **Transport to Bar Harbor – Fogtown Brewery**  
  
**20:00-22:00** **The approach to the patient with hearing loss - an otolaryngologist's perspective**  
*Ronna Hertzano*  
  
22:00 **Return to High Seas**

### **Wednesday, Sept 18**

7:30-8:30 **Breakfast** – Highseas 1<sup>st</sup> floor  
8:30-9:15 **OHC electromotility and basilar membrane motion**  
*Lisa Olson*  
9:15-10:00 **The vestibular periphery**  
*Radha Kalluri*  
10:00-10:45 **Fast and powerful communication in the auditory brainstem**  
*Cat Weisz*  
10:45-11:00 **Coffee Break**  
11:00-12:00 **Cell type-specific analysis of the inner ear**  
*Ronna Hertzano*  
12:00-12:45 **CRISPR-Cas – primer and models for deafness**  
*Michael Bowl*  
12:45-13:30 **Lunch** - Highseas 1<sup>st</sup> floor  
13:30-18:30 **Free afternoon** (group activities will be organized)

18:30-19:30 **Dinner** - Highseas 1<sup>st</sup> floor  
19:30-21:30 **gEAR workshop** - Highseas 3<sup>rd</sup> floor  
*Ronna Hertzano*

**Thursday, Sept 19**

7:30-8:30 **Breakfast** (Highseas 1<sup>st</sup> floor)  
8:30-9:15 **NIHL, ototoxicity & synaptopathy**  
*Ronna Hertzano*  
9:15-10:00 **Hair cell regeneration**  
*Ksenia Gnedeva*  
10:00-10:15 **Coffee break**  
10:15-11:00 **Gene therapy**  
*Jeff Holt*  
11:00-14:15 **Tutorial Session (Working Lunch):** ABR, DPOAE, CAP, endocochlear potential (EP), VsEP  
lecture - *Ronna Hertzano, Matthew Ingersoll*  
14:15-14:45 **Transportation to GRB Training Laboratory** (Meet in Highseas 1<sup>st</sup> floor lobby)  
14:45-18:30 **Laboratory session:**  
Microscopy (fixed & live samples)  
Injection for gene therapy  
Demos

- a. MET Channel assay
- b. Calcium imaging
- c. Paint fill
- d. Cochlear mutant challenge results

*Matt Kelley, Guy Richardson, Betsy Driver, Basile Tarchini*  
18:30 **Transportation to Highseas**  
19:00 **Lobster Dinner** - Highseas 1<sup>st</sup> floor  
20:00-20:45 **Inner Ear Jeopardy/Future for hearing research**  
*Ronna Hertzano/Mike Bowl*

**Friday, Sept 20**

7:30-8:30 **Breakfast** (Highseas 1<sup>st</sup> floor)  
9:00 **Room check-out and departures**

Course organizers

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Jackson Laboratory

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Students

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