

12th Aquatic Models of Human Disease Conference

PROGRAM



Marine Biological Laboratory, Woods Hole, Massachusetts

October 17–21, 2026

***Diving Deeper into Disease Biology:
Emerging Models in Human Health***

AQMHD 2026 — Schedule at a glance

Time	Saturday Oct. 17	Sunday Oct. 18	Monday Oct. 19	Tuesday Oct. 20	Wednesday Oct. 21
7:30 AM		Breakfast	Breakfast	Breakfast	Breakfast
8:30 AM		Session 2: Regeneration & Reproductive Biology	Session 5: Neuro-development & Disease	Session 8: Toxicology & Environmental Health	Departure
10:00 AM		Coffee Break	Coffee Break	Coffee Break	
10:30 AM		Session 3: Cancer & Aging	Session 6: Metabolic & Endocrine Disease	Session 9: Behavior & Physiology	
12:00 PM		Lunch	Lunch	Lunch	
			LSU Nam Demo	Facility Tour	
1:30 PM	Check-In opens at 2 pm	Session 4: Aquatic Genomics	Session 7: Immunity & Microbiome	Session 10: Comparative Disease Models	
3:00 PM		Break	Break	Break	
3:30 PM		Poster Session I + Vendors	Poster Session II + Vendors + LSU NAM Demo	Session 11: Nutrition & Chronic Disease	
	Opening Remarks				
5:00 PM	Session 1: Developmental Disorders	Break	Break/Facility Tour	Break/Facility Tour	
		Panel I: AI & Originality	Panel II: NAMs	Keynote III William R. Jeffery	
6:30 PM	Dinner	Dinner	Dinner	Break	
7:30 PM	Keynote I Veronica Hinman	Keynote II Tatjana Sauka-Spengler	Community Session	Banquet	
8:30 PM	Opening Reception	Evening Social			

ROOMS AND LOCATIONS:

- All sessions, keynotes, and panels, will be held in the **Clapp Auditorium** (Lillie building)
- Poster sessions, opening reception will be held in the **Swope Center/Meigs Room**.
- All meals will be served in the **Swope Dining Hall**.

Saturday, October 17

2:00–4:30 PM	Registration Swope Center
4:45–5:00 PM	Opening remarks Clapp Auditorium

Session 1 — Congenital and Developmental Disorders

5:00–6:30 PM • Chair: Stefan Materna

5:00–5:20 PM	Sarah McMenamin (invited) — Boston College <i>Thyroid hormone regulates axis patterning, epidermis and orientation of zebrafish fins</i>
5:20–5:35 PM	Casey Griffin — New York University <i>The characterization of neural crest migration defects in Nager/Rodriguez syndromes</i>
5:35–5:50 PM	Adrian Romero Mora — UTHealth Houston <i>DYRK1A regulates nephron progenitor survival and kidney development in <i>Xenopus laevis</i></i>
5:50–6:05 PM	Brent Hawkins — Boston Children's Hospital <i>Zebrafish models of imperforate anus and anorectal malformations</i>
6:05–6:25 PM	Rosa Uribe (invited) — Rice University <i>Unraveling the genetic, cellular, and tissue-level mechanisms of vertebrate enteric nervous system construction</i>
6:30–7:30 PM	Dinner Swope Center
7:30–8:30 PM	Keynote Lecture 1 Veronica Hinman — University of Florida <i>A regeneration-specific blastema integrates developmental and regenerative gene regulatory programs in sea star larvae</i> Introduction: Stefan Materna
8:30–10:30 PM	Opening Reception Meigs Room — Swope Center

Sunday, October 18

7:30–8:30 AM	Registration and breakfast Swope Center
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Session 2 — Regeneration and Reproductive Biology

8:30–10:00 AM • Chair: Rosa Uribe

8:30–8:50 AM	Shawn Burgess (invited) — National Human Genome Research Institute <i>Dynamic chromatin loop rewiring underlies sensory epithelial regeneration within a stable higher-order genome architecture</i>
8:50–9:05 AM	Catherine McCusker — University of Massachusetts Boston <i>Scaling the regenerating axolotl limb: regulation of allometric skeletal growth</i>
9:05–9:20 AM	Hui Chen — University of South Carolina <i>Early embryonic shape directly regulates development</i>
9:20–9:35 AM	John Postlethwait — University of Oregon <i>The wild zebrafish sex determination mechanism inhibits the feminizing effects of mutations in androgen receptor and dmrt1 genes</i>
9:35–9:55 AM	Katerina Ragkousi (invited) — Amherst College <i>Epithelial organization in proliferating tissues: insights from sea anemone embryos</i>
10:00–10:30 AM	Coffee break

Session 3 — Cancer and Aging

10:30 AM–12:00 PM • Chair: Manfred Scharlt

10:30 –10:50 AM	Kristin Gribble (invited) — Marine Biological Laboratory <i>Transcriptional and mitochondrial signatures of intergenerational and transgenerational inheritance of maternal age</i>
10:50 –11:05 AM	Ravi Nath — Princeton University <i>A functional genetic screen of neuropeptides for vertebrate longevity</i>
11:05 –11:20 AM	Abby Quimby — Texas State University <i>Sex-, morph-, and age-associated transcriptomic differences in <i>Xiphophorus multilineatus</i> skeletal muscle</i>
11:20 –11:35 AM	Riss Kell — Gloucester Marine Genomics Institute <i>Ancient defenses: genotoxic stress activates the DNA damage response and innate immune pathways in sea urchin coelomocytes</i>
11:35 –11:55 AM	Enoch Ng'oma (invited) — University of Missouri–Columbia <i>From pools to pathways: Ecology becomes biologically embedded to shape vertebrate aging</i>
12:00 –1:30 PM	Lunch Swope Center

Session 4 — Aquatic Genomics and Genetic Approaches to Disease Discovery

1:30–3:00 PM • Chair: Elizabeth Heath-Heckman

1:30–1:50 PM	Daniel Wagner (invited) — University of California, San Francisco <i>Genetic mechanisms of cell fate canalization and resilience in the developing zebrafish</i>
1:50–2:05 PM	James Preston — Iowa State University <i>Zebrafish <i>runx1-2A-creERT2</i> CRISPR knock-in lineage tracing of definitive hematopoietic stem cells from embryo to adult</i>
2:05–2:20 PM	Jorge Perez-Moreno — University of Massachusetts Amherst <i>Protein language models resolve neuronal receptor repertoires across Mollusca</i>
2:20–2:40 PM	Carrie Albertin (invited) — Harvard University <i>Neurogenesis in the largest invertebrate nervous system</i>

2:40–3:00 PM	Poster Session I: Lightning Talks — Clapp Auditorium
2:40–2:43 PM	Swapnil Hingole — University of Colorado Anschutz Medical Campus <i>Engineering quasi-enhancer traps for endogenous expression-driven transgenes in zebrafish</i>
2:43–2:46 PM	Jessica Parker — Texas State University <i>Leveraging on evolutionary adaptation to melanoma for understanding cancer resilience</i>
2:46–2:49 PM	Aaliyah Ruiz-Corral — University of California, Merced <i>Nesprin-1 is required for establishment of left-right asymmetry in zebrafish</i>
2:49–2:52 PM	Anthony Wang — University of California, Merced <i>Towards rapid generation and ready access of monoclonal antibody reagents</i>
2:52–2:55 PM	Miranda Wilson — Boston Children's Hospital <i>Exposing dynamic functions of KCNH1 underlying disease etiologies and morphological variation</i>
3:00–3:30 PM	Coffee break (Swope Center)
3:30–5:00 PM	Poster Session I + Exhibitors <i>Topics associated with Sessions 1 – 7</i> Swope Center + Meigs Room
5:00–5:30 PM	Break
5:30–6:30 PM	Panel Discussion I — Originality, integrity, and artificial intelligence Clapp Auditorium Facilitators: Dan Gorelick — Baylor College of Medicine Rosa Uribe — Rice University
6:30–7:30 PM	Dinner Swope Center
7:30–8:30 PM	Keynote Lecture 2 Tatjana Sauka-Spengler — Stowers Institute for Medical Research <i>Deciphering gene regulatory circuitry underlying cranial neural crest fate decisions</i> Introduction: Andrew Thompson

8:30–10:30 PM	Evening Social Swope Center
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Monday, October 19

7:30–8:30 AM	Breakfast Swope Center
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Session 5 — Functional Genetic Screens in Disease

8:30–10:00 AM • Chair: Andrew Thompson

8:30–8:50 AM	Ellen Hoffman (invited) — Yale School of Medicine <i>Genetic and pharmacological screens identify suppressors of autism gene-associated phenotypes in zebrafish</i>
8:50–9:05 AM	Ankit Sabharwal — Dell Medical School, The University of Texas at Austin <i>Z-Terminator: systematic engineering of loss-of-function alleles in the zebrafish mitochondrially encoded proteome</i>
9:05–9:20 AM	Keith Cheng — Penn State College of Medicine <i>Topological definition of the Geometry of Life and Disease (GOLD) as a ground truth foundation for Digital Biology</i>
9:20–9:35 AM	Patricia Schneider — Louisiana State University <i>A conserved enhancer cluster drives dorsal retinal expression across vertebrates</i>
9:35–9:55 AM	Nicole Edwards (invited) — University of Michigan <i>Discovering the developmental basis of endosome trafficking disorders and congenital anomalies using Xenopus</i>
10:00–10:30 AM	Coffee break

Session 6 — Metabolic and Endocrine Disease

10:30 AM–12:00 PM • Chair: Ben Lovely

10:30 –10:50 AM	Jane Khudyakov (invited) — University of the Pacific <i>Adaptations to rapid weight gain and loss in marine mammals</i>
10:50 –11:05 AM	Christopher Murray — Woods Hole Oceanographic Institution <i>Cell type-specific transcriptional responses to aryl hydrocarbon receptor (AHR) activation in larval zebrafish</i>
11:05 –11:20 AM	Jaya Krishnan — Oklahoma Medical Research Foundation <i>Nutrient-responsive gene regulatory programs underlying physiological adaptation in cavefish</i>
11:20 –11:35 AM	Aneesh Acharya — Molecular Instruments <i>HCR imaging of diverse target types from tissue sections to whole-mount embryos</i>
11:35 –11:55 AM	Ramji Bhandari (invited) — University of Missouri <i>Nutritional reprogramming of DNA methylation signatures associated with fatty liver disease in Medaka</i>
12:00–1:00 PM	Lunch Swope Center
1:00–1:30 PM	LSU AgCenter NAM Community Development Clapp Auditorium Jack Koch — LSU Agricultural Center <i>Interdisciplinary technologies for accessible and reproducible new approach methodologies</i>

Session 7 — Immunity and the Microbiome

1:30–3:00 PM • Chair: Jane Khudyakov

1:30–1:50 PM	Elizabeth Heath-Heckman (invited) — Michigan State University <i>A canonical neuropeptide pulls double duty as a neuronal marker and an Immunodevelopmental Cue in the squid-vibrio symbiosis</i>
1:50–2:05 PM	Michele Nishiguchi — University of California, Merced <i>How the "mimi ika" became a model to study bacterial animal associations</i>
2:05–2:20 PM	Emma Copen — University of Missouri–Columbia <i>Linking host and viral genomics at a wildlife-wastewater interface: a case study from Eagle Bluffs Conservation Area</i>
2:20–2:40 PM	Jeff Yoder (invited) — North Carolina State University <i>Novel immune-type receptors as putative natural killer (NK) receptors in ray-finned fish</i>

2:40–3:00 PM	Poster Session II: Lightning Talks — Clapp Auditorium
2:40–2:43 PM	Neel Aluru — Woods Hole Oceanographic Institution <i>Developmental impacts of harmful algal bloom (HAB) toxins on the vertebrate nervous system</i>
2:43–2:46 PM	Eva Beiga — Marine Biological Laboratory <i>Investigating the neuroendocrine axis of prolactin in the development of <i>Xenopus</i></i>
2:46–2:49 PM	Emma Hepworth — North Carolina State University <i>Utilizing transgenic zebrafish to screen per- and polyfluoroalkyl substances (PFAS) for potential immunotoxicity</i>
2:49–2:52 PM	Gurleen Kaur — University of California, Merced <i>The agrochemical Forchlorfenuron produces early developmental defects in zebrafish embryos</i>
2:52–2:55 PM	Charles Lovely — University of Louisville School of Medicine <i>Gene-ethanol interactions hint at complex pathway dynamics in facial development</i>
3:00–3:30 PM	Coffee break (Swope Center)
3:30–5:00 PM	Poster Session II + Exhibitors + LSU AgCenter NAM Community Development Topics associated with Sessions 8 – 11 Swope Center + Meigs Room

5:00–5:30 PM	Break
5:00–5:30 PM	Optional tour of aquatic facilities at MBL (25 slots)
5:30–6:30 PM	Panel Discussion II — New Approach Methodologies Richard Novak – Unravel Biosciences <i>Frog on the fly: on-demand Xenopus models for rapid clinical translation</i> Erica Gardner – Unravel Biosciences <i>Closing the translational gap: Xenopus advances clinical development in Rett syndrome</i>
6:30–7:30 PM	Dinner Swope Center
7:30–9:00 PM	Community Session • Community Priorities • Society for Aquatic Disease Models

Tuesday, October 20

7:30–8:30 AM	Breakfast Swope Center
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Session 8 — Toxicology, Environmental Exposure, and Disease Risk

8:30–10:00 AM • Chair: Dan Gorelick

8:30–8:50 AM	Frauke Seemann (invited) — Texas A&M University-Corpus Christi <i>Persistent behavioral changes following parental benzo[a]pyrene exposure in Japanese medaka (<i>Oryzias latipes</i>)</i>
8:50–9:05 AM	Evan Tjeerdema — Scripps Institution of Oceanography <i>Discovery of the natural substrates of the drug transporter P-glycoprotein</i>
9:05–9:20 AM	Makenzie Stearsman — University of Louisville <i>Uncovering the role of Bmp-chemokine signaling in ethanol-induced cranial neural crest apoptosis</i>
9:20–9:35 AM	Trinity Parkman — Texas State University <i>Effects of chronic nitrite exposure on maternal health and reproduction during gestation in <i>Xiphophorus couchianus</i></i>
9:35–9:55 AM	Andrew Whitehead (invited) — University of California, Davis <i>The killifish model for revealing mechanisms that underlie resilience to cardiotoxic and neurotoxic pollutants</i>
10:00–10:30 AM	Coffee break

Session 9 — Behavior, Neuroendocrinology, and Physiology

10:30 AM–12:00 PM • Chair: Harini Iyer

10:30 –10:50 AM	Yunlu Zhu (invited) — University of Michigan <i>From gravity sensation to balance dysfunction</i>
10:50 –11:05 AM	Jared Goldstone — Woods Hole Oceanographic Institution <i>Orphan cytochrome P450 20a1 mutants and behavioral phenotypes in zebrafish</i>
11:05 –11:20 AM	Stefan Choy — Lehigh University <i>Identifying the genetic factors underlying reduced stress response in <i>Astyanax mexicanus</i></i>
11:20 –11:35 AM	Rachael Heuer — University of Miami Rosenstiel School of Marine, Atmospheric, and Earth Science <i>Neural and behavioral signatures of environmental stress in zebrafish (<i>Danio rerio</i>)</i>
11:35 –11:55 AM	Summer Thyme (invited) — UMass Chan Medical School <i>Zebrafish screen of schizophrenia risk genes reveals convergent dysregulation of cholesterol metabolism</i>
12:00–1:30 PM	Lunch Swope Center
1:00–1:30 PM	Optional tour of aquatic facilities at MBL (25 slots)

Session 10 — Evolutionary and Comparative Disease Models

1:30–3:00 PM • Chair: Yuan Lu

1:30–1:50 PM	Matthew Harris (invited) — Harvard Medical School <i>GeroEvoDevo: deep homology of the regulation of longevity and aging across metazoa - from ancient leviathans to humans</i>
1:50–2:05 PM	Roberto Márquez — Virginia Tech <i>Poison frogs as an emerging model in human disease, pharmacology, and behavior</i>
2:05–2:20 PM	Tessa Steiniche — Woods Hole Oceanographic Institution <i>Origins of aryl hydrocarbon receptor ligand specificity</i>
2:20–2:35 PM	Rachel Carroll — University of Missouri <i>Evolutionary insights from a brain in darkness: <i>Astyanax mexicanus</i> as a model of resilience</i>
2:35–2:55 PM	Kory Evans (invited) — Rice University <i>Thyroid hormone signaling drives differences in developmental shape covariation across the flatfish skull.</i>
3:00–3:30 PM	Coffee break

Session 11 — Nutrition and Chronic Disease

3:30–5:00 PM • Chair: Patricia Schneider

3:30–3:50 PM	Wolfram Goessling (invited) — Yale School of Medicine <i>Vitamin D and nutrient sensing in zebrafish</i>
3:50–4:05 PM	Victoria Gibbs — University of Alabama at Birmingham <i>Establishing the freshwater crustacean, <i>Daphnia pulex</i>, as an alternative, short-lived animal model of healthspan and aging: impacts of diet and culture medium</i>
4:05–4:20 PM	Javier Rodriguez-Casarego — Florida International University <i>Epigenetic encoding of hypoxia resistance in the sea hare <i>Aplysia californica</i></i>
4:20–4:35 PM	Christian Mosimann — University of Colorado Anschutz Medical Campus <i>Expanded site-directed transgenesis tools for zebrafish and beyond</i>
4:35–4:55 PM	Peggy Biga (invited) — Texas State University <i>Comparative nutrition in fish: applications to human health and agricultural production</i>

5:00–5:30 PM	Break
5:00–5:30 PM	Optional tour of aquatic facilities at MBL (25 slots)
5:30–6:30 PM	Keynote Lecture 3 William R. Jeffery — University of Maryland <i>The Mexican tetra Astyanax: a model for the biology of heart asymmetry</i> Introduction: Harini Iyer
7:00–9:00 PM	Banquet and Awards Ceremony Swope Center

Wednesday, October 21

7:30–9:00 AM	Breakfast Swope Center
9:00 AM	Departure Check out time is 10 am. Closing time; you don't have to go home but you can't stay here.

Poster Session 1 (odd-numbered poster boards)

KhaiChung Ang — Penn State College of Medicine

Zebrafish 3D microanatomical atlas: a reference framework for multimodal imaging and 3D phenotyping

Swapnil Hingole — University of Colorado Anschutz

Engineering quasi-enhancer traps for endogenous expression-driven transgenes in zebrafish

DeConvo Genetics

Agentic Artificial Intelligence for Bioinformatics Automation

Irene Marti Gil — LSU AgCenter

Aquatic germplasm and genetic resources centers (AGGRC): the future of germplasm repositories in intersectoral and interdisciplinary

Jennan Lahamer — University of Louisville School of Medicine

Investigating the impact of ethanol on differential gene expression and alternative splicing during zebrafish development using newly assembled T-T genome

Yuan Lu — Texas State University

Ethanol extract of Sutherlandia inhibits Hedgehog signaling

Brandon Martz — Rice University

Developing genetic and behavioral tools to study microglial biology using zebrafish

Bridget Maynard — Unravel Biosciences

Xenopus-based seizure modeling of neurological disorders

Biby Medrano — University of Massachusetts Boston

The role of dmrt1 in sex determination and testis development in zebrafish

Jessica Parker — Texas State University

Leveraging on evolutionary adaptation to melanoma for understanding cancer resilience

John H. Postlethwait — University of Oregon

The mystery of zebrafish gonad development: a graphic novel

Aaliyah M. Ruiz-Corral — University of California, Merced

Nesprin-1 is required for establishment of left-right asymmetry in zebrafish

Hieu Vo — University of Louisville

Introduction of a new scale to analyze ethanol sensitivity of compound Bmp and Fgf double mutants

Brandy L. Walker — UTHealth Houston

Dnmbp interacts with Daam1 to facilitate assembly of cadherin-mediated junctions in epithelializing nephric tubules

Linjian (Anthony) Wang — University of California, Merced

Towards rapid generation and ready access of monoclonal antibody reagents

Miranda L. Wilson — Boston Children's Hospital

Exposing dynamic functions of KCNH1 underlying disease etiologies and morphological variation

Poster Session 2 (even-numbered poster boards)

Neel Aluru — Woods Hole Oceanographic Institution

Developmental impacts of harmful algal bloom (HAB) toxins on the vertebrate nervous system

Eva Beiga — Marine Biological Laboratory

*Investigating the neuroendocrine axis of prolactin in the development of *Xenopus**

Petra Bora — Western Michigan University

Developing killifish models for functional and comparative genetics

Kelsey Coppenrath — Marine Biological Laboratory

**Xenopus* models to study genetic function in human pathology*

Jonathan L. Crooke-Rosado — University of Puerto Rico

*Spatial characterization of egg-laying hormone and caudodorsal cell peptides in the central nervous system of *Biomphalaria glabrata**

Mark E. Hahn — Woods Hole Oceanographic Institution

On the evolution of the aryl hydrocarbon receptor (AHR), a promiscuous sensor of xenobiotic and endobiotic chemicals

Emma Marie Wilber Hepworth — North Carolina State University

Utilizing transgenic zebrafish to screen per- and polyfluoroalkyl substances (PFAS) for potential immunotoxicity

Andrew R. Kaczmar — Western Michigan University

A single-nucleus transcriptomic atlas of post-organogenesis diapause in a vertebrate

Sibel I. Karchner — Woods Hole Oceanographic Institution

Studies on the role of AIP (AHR-interacting protein), a human tumor suppressor, in controlling sensitivity and resistance to aryl hydrocarbon receptor (AHR) agonists

Gurleen Kaur — University of California, Merced

The agrochemical forchlorfenuron produces early developmental defects in zebrafish embryos

Sam Lampman — Western Michigan University

Investigating programmed genome rearrangement across divergent lamprey life histories

C. Ben Lovely — University of Louisville School of Medicine

Gene-ethanol interactions hint at complex pathway dynamics in facial development

Emilio Mendez Scolari — Rice University

*Evolved differences in microglial cell biology between surface and cave populations of *Astyanax mexicanus**

Heather A. Murphy — Marine Biological Laboratory

*Evolutionary dynamics and master regulator turnover in *Xenopus* sex determination*

Indiana Olson — Boston Children's Hospital

Establishing clams as an innovative model system to understand biomineralization and aging

Juliana Morena Bonita Ricci — Texas State University

*In-vitro cultured embryos of *Xiphophorus* as multipurpose tools for biomedical studies*

Arelys Rivas Jiménez — University of Puerto Rico Medical Sciences Campus

*Neurochemical adaptation during aestivation in the freshwater snail *Biomphalaria glabrata**

Frauke Seemann — Texas A&M University-Corpus Christi

*Transgenerational epigenetic reprogramming of germline and gonadal tissues following ancestral benzo[a]pyrene exposure in Japanese medaka (*Oryzias latipes*)*

Justin Waletich — Boston Children's Hospital

Molecular genetic dissection of the mantle in mediating variation in biomineralization and age pathology in clams