

**Summary of the 7th Aquatic Animal  
Models of Human Disease Conference  
December 13-18, 2014  
Austin, Texas**



## Summary of the 7th Aquatic Animal Models of Human Disease Conference

The 7th Aquatic Animal Models of Human Disease Conference was organized by Dr. Ronald Walter (Texas State University) and was held on December 13-18, 2014 in Austin, Texas. Approximately a hundred scientists, junior faculty, students and postdoctoral researchers from academic institutions in 10 different countries (the USA, Canada, Japan, Germany, Hong Kong/China, Singapore, Taiwan, South Korea, Italy and Spain) attended the meeting. The meeting provided a forum to highlight scientific developments using aquatic species (natural and genetically engineered), as well as to discuss pressing topics that the aquatic research community consider important to advance the use of aquatic species as models for biomedical research. In general, the sessions covered the following research areas: Translational, Aquatic Genomes, Toxicology, Regeneration, Cancer, Developmental Disease, Stem Cell, Infectious Disease, Aging, Metabolic Disease and Aquatic Environments.

**Conference Highlights:** The Keynote speaker was Dr. Monte Westerfield (University of Oregon). The lecture was entitled “Defective protein complex assembly and ER stress as the proximal cause and key to therapeutics for Usher syndrome”. Dr. Westerfield described the advances in the understanding of Usher Syndrome, the most frequent cause of deaf and blindness in humans, using mutant zebrafish. A presentation by Dr. Franziska Grieder (Office of Research Infrastructure Programs (ORIP), National Institutes of Health), provided an overview about the origin of ORIP, organization, mission and infrastructure resources that ORIP supports.

The program was a combination of 13 Sessions and 3 Workshops. A session on “Aquatic Resource Centers” showcased three ORIP-supported Centers: the *Ambystoma* Genetic Stock Center (PI: Dr. Randal Voss, University of Kentucky); the National Resource for *Aplysia* (PI: Dr. Michael Schmale, University of Miami), and the National *Xenopus* Resources (PI: Dr. Marko Horb, Marine Biological Laboratory). The Conference associated workshops discussed 3 topics: a) Aquatic Resources Centers (resources and future needs of the community); b) Bioinformatics (standardization and access to aquatics genomic-transcriptomic data); and c) Phenotyping Resources (phenotyping in aquatic models). Significant scientific developments using aquatic models included: i) identification of optovin, a light activated agonist for the pain-TRPA1 channel (Randall Peterson, Massachusetts General Hospital), and warfarin, a drug that rescue zebrafish phenotypes of Fanconi Anemia (John Postlethwait, University of Oregon), by small molecule screening; ii) the ability for the lamprey to recover from complete spinal cord sectioning to better understand spinal cord regeneration (Jennifer Morgan, Marine Biological Laboratory); iii) the use of the salamander as model for human limb regeneration (Randal Voss, University of Kentucky); and iv) the study of bone homeostasis using a transgenic medaka as a model for bone diseases such as osteoporosis (Seth Kullman, North Carolina State University). Presentations will be published in a special issue of *Comparative Biochemistry and Physiology* (September 2015 issue).

Poster presentations and competition were held to stimulate the next generation of “aquatic” investigators. Poster presentations were evaluated in three different categories (undergraduate, postdoctoral and research assistant) and awards were given to the three best authors in each category.

To promote the ORIP Small Business (SBIR/STTR) Programs, a scientific exhibit display was manned by Dr. Miguel Contreras (ORIP). Dr. Contreras was available to answer questions throughout the non-presentation periods of the meeting. The ORIP Small Business Fact Sheet was also provided as informational material.

The next Conference will be held in Birmingham, AL, in 2017.

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