Society for Risk Analysis
New England Chapter

2014-2015 Event Series

MEETING ANNOUNCEMENT
Wednesday, April 29, 2015
Refreshments: 5:00 pm – 5:30 pm
Presentation: 5:30 pm – 6:00 pm
Discussion: 6:00 – 6:30 pm

USING SMALL FISH MODELS TO STUDY THE MECHANISMS AND EFFECTS OF PCBS

John J. Stegeman, Ph.D.
Senior Scientist, Biology Department, Woods Hole Oceanographic Institution
Director, The Woods Hole Center for Oceans and Human Health
Project PI, Superfund Research Program at Boston University

Location
Boston University School of Public Health
BU Medical Campus
Instructional Building - Room L-301
Room Location: Proceed straight through the lobby; take the elevator to the third floor
72 East Concord Street
Boston, MA 02118

Please RSVP by Friday, April 24th to Aylin Sertkaya (aylin.sertkaya@erg.com).
Space is limited, so reserve your seat today. For more information on SRA-NE, please go to:
www.sra.org/sra-ne.

This event is being co-sponsored by the NIEHS-funded Boston University Superfund Research Program (www.busrp.org)

Boston University
Superfund Research Program

Using Small Fish Models to study the Mechanisms and Effects of PCBs

Animal models have long been used to identify and understand how chemicals contribute to disease processes. Over the past 15 years, efforts involving small fish models have focused most on the zebrafish, but there is renewed interest in other species including the estuarine killifish *Fundulus heteroclitis*. Fish models are helping to decipher the molecular mechanisms by which dioxins and dioxin-like chemicals including non-*ortho* polychlorinated biphenyls (PCBs) cause toxicity, especially during development, and to uncover mechanisms of resistance to that toxicity. But what about the non-dioxin-like (NDL) *ortho*-PCBs? Our understanding of the toxicity and the mechanisms by which these chemicals are toxic is still fragmentary. Do *ortho*-PCBs have similar effects in mammals and fish? Can small fish provide insights into such mechanisms, as they have for the dioxin-like compounds? Our gene expression studies with *ortho*-PCBs in zebrafish are highlighting pathways of response to the NDL PCBs, including induction of P450s via the pregnane X receptor (PXR), as yet a poorly understood participant in NDL-chemical effects in fish. Our studies also point to novel molecular targets that may participate in causing the neurobehavioral effects of NDL PCBs. In the killifish, our results suggest that multigenerational exposure to very high levels of NDL PCBs causes adaptation by altering the function of calcium channels. This raises questions about whether structurally similar persistent environmental chemicals may cause similar effects. We should soon better understand the similarities and differences involved in different species' responses to NDL compounds.

About the Presenter

John Stegeman received a PhD in biochemistry from Northwestern University, and was awarded a Doctorate (*honoris causa*) from Gothenburg University in Sweden. He has been studying hydrocarbon and other pollutant chemical metabolism and effects, primarily in aquatic species for more than 30 years focusing on structure, function, regulation and evolution of the cytochrome P450 (CYP) genes and enzymes involved in metabolism of chemicals and hormones. Dr. Stegeman has authored or co-authored over 200 publications, including studies of molecular biomarkers of chemical exposure in fish, birds, whales and humans, and the mechanisms involved in chemical effects including carcinogenesis, cardiovascular defects and neurobehavioral disorders. He has served as journal editor and on several editorial boards, on NIH review groups, and on Advisory Boards of several NIH Centers. Dr. Stegeman chaired the Science Advisory Board of the National Toxicology Program, and served on and chaired committees for the National Research Council and the Institute of Medicine. He is a Lifetime National Associate of the National Academies. Dr. Stegeman was Chair of the Biology Department at Woods Hole Oceanographic Institution and is Director of the NSF/NIEHS Woods Hole Center for Oceans and Human Health.

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GETTING TO THE EVENT

Directions to BUMC Instructional Building, located at 72 E. Concord Street:

The BU Medical Campus is located in the South End neighborhood of Boston. The BUMC Instructional Building is located at 72 E. Concord Street, near Albany Street. The seminar is being held in room L-301 of the Instructional Building. To get to the room, enter through the main entrance of 72 E. Concord St., which faces the courtyard across from BUSPH, proceed straight through the lobby; take the elevator to the third floor. See online map at: http://www.bumc.bu.edu/about/map-directions/

By Public Transportation:

The Orange Line (Mass Ave and Back Bay stations) and the Red Line (Broadway and Andrew stations) are each within a 10 - 15 minute walk from campus. The BU Medical Campus is also easily accessible by the following MBTA buses: 1, 10, 171, 276, 47, 8, CT1, CT3, SL4, and SL5.

Driving Directions:

From the East (Logan Airport): Go through the Sumner Tunnel (Route 1A South) to Expressway South. Take Exit 18 (Massachusetts Avenue). At traffic light, take right onto access road; stay in right lane. At end of access road, turn right onto Massachusetts Avenue. From Massachusetts Avenue, take the first right onto Albany Street. The BUMC is located to your left, between E. Concord and E. Newton Streets.

From the North: Follow Route 1 (via Mystic/Tobin Bridge) to Route 93 South. Take exit 18 (Massachusetts Avenue). Follow directions above.

From the South: Take Expressway North (Route 93). Take exit 18 (Massachusetts Avenue). Watch for signs. At the second traffic light, turn left onto access road; stay in right lane. At end of access road, turn right onto Massachusetts Avenue. Follow directions above.

From the West: Take the Massachusetts Turnpike (Interstate 90) East to end. Take Expressway South (Route 93). Take exit 18 (Massachusetts Avenue). Follow directions above.

Parking

Paid parking is available at a garage at 710 Albany St., just across from the campus. There are also metered spots throughout the neighborhood.