NIEHS scientists consider the future of mammalian reproduction

By Shannon Whirledge

Twelve NIEHS scientists set out for Colby Sawyer College in New London, New Hampshire, Aug. 10-15 for the inaugural Gordon Research Conference on Mammalian Reproduction. The organizing committee acknowledged the outstanding work of NIEHS scientists, through invited talks and travel awards (see sidebar). The meeting embraced the heritage of the Gordon conferences, by featuring unpublished, up-to-the-minute findings and presentations by young researchers, including three NIEHS trainees.

If exciting new data is a commodity, then the Gordon Research Conferences have cornered the market. With an emphasis on novel work, this year's Mammalian Reproduction conference filled five days with seminars, short talks, and poster sessions, and plenty of time for interacting with colleagues. The conferences have a long-standing history of hosting high-quality meetings that bring young scientists together to discuss current research.

NIEHS trainees recognize this as an advantage to attending the Gordon conferences. "These conferences are great for trainees to interact with senior scientists in the field," said Wipawee (Joy) Winuthayanon, Ph.D., a research fellow in the Receptor Biology Group. "The Mammalian Reproduction conference is small and interactive, with a lot of opportunities for social interactions with senior researchers," said Erica Ungewitter, Ph.D., Intramural Research Training Award fellow in the Reproductive Developmental Biology Group.

Sylvia Hewitt, senior biologist in the Receptor Biology Group, spoke of the unparalleled access to preeminent scientists. "It allows us to get input on projects that are under development from experts in the field, including learning techniques that will advance our research," she said.

Clinical applications of NIEHS discoveries

The theme of this year's conference was "Translating Basic Science Into Clinical Applications." Sessions focused on innovative basic research findings that have implications for new clinical applications. The various mechanisms by which environmental compounds can disrupt normal reproductive functions are of considerable interest to NIEHS researchers and the entire field of reproductive biology.

Humphrey Yao, Ph.D., lead researcher of the Reproductive Developmental Biology Group, was featured during the opening session. His talk focused on understanding the early events that lead to sex determination. Yao described data from a project he called his pet project, which uses genetic approaches to identify novel factors controlling development. Such insights can lead to a better understanding of the origins of infertility, according to Yao.

Carmen Williams, M.D., Ph.D., lead researcher of the Reproductive Medicine Group, spoke on "Environmental Effects on Reproductive Functions." She described how timing and the type of early-life exposure to endocrine disruptors can alter the development of disease in adults. The effects of diethylstilbestrol have persisted across generations and have resulted in infertility. Williams illustrated gene-specific epigenetic reprogramming that may be responsible for the transgenerational inheritance.

(Shannon Whirledge, Ph.D., is a research fellow in the NIEHS Laboratory of Signal Transduction.)

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Williams and Liu appreciated the time to discuss science during one of the poster sessions. Liu felt he benefitted from the conference. "It allowed intimate interaction with big names in the field," he said. (Photo courtesy of Sylvia Hewitt)

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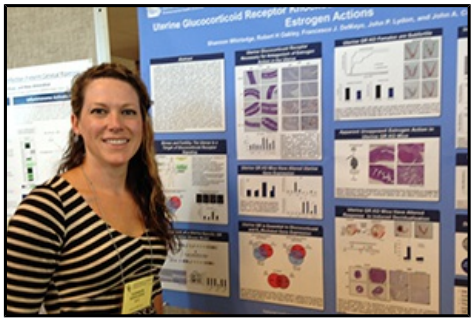
During a coffee break, Donna Baird, Ph.D., left, lead researcher in the Women's Health Group, Ungewitter, center, and Winuthayanon reflected on the previous session. (Photo courtesy of Sylvia Hewitt)

- 

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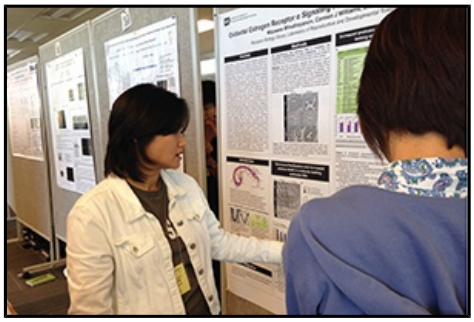
In addition to presenting an invited talk, Whirledge presented a poster, allowing the opportunity to receive substantial feedback and helpful insights for ongoing projects. (Photo courtesy of Sylvia Hewitt)

- 

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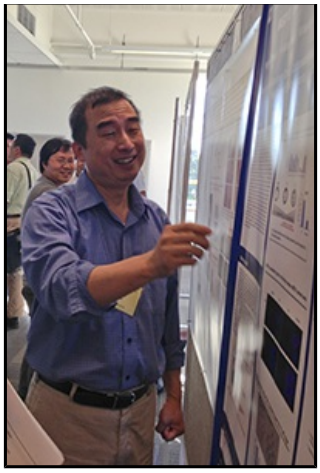
Winuthayanon, left, remarked that informal discussions during the sessions allowed her to set up possible future collaborations with other trainees. (Photo courtesy of Sylvia Hewitt)

- 

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Yingpei Zhang, Ph.D., right, a biologist in the Reproductive Medicine Group, explained his work to interested conference attendees during his poster session. (Photo courtesy of Sylvia Hewitt)

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Yao took in the beautiful New England surroundings. The conference schedule included an afternoon hike up Mt. Kearsarge, elevation 2,936 ft. (Photo courtesy of Sylvia Hewitt)

Sessions by NIEHS researchers

• **Humphrey Yao, Ph.D.** — "Plasticity of the Somatic Cells in the Testis"

• **Carmen Williams, M.D., Ph.D.** — "Neonatal Estrogens Reprogram Female Reproductive Tract Function: Genome-Wide Approaches to Determine Underlying Mechanisms"

Sessions by NIEHS trainees

• **Erica Ungewitter, Ph.D.** — "GLI-Similar 3 Is a Master Regulator of Retrotransposon Silencing in Male Fetal Germ Cells"

• **Shannon Whirledge, Ph.D. —** "Uterine Glucocorticoid Receptor Knockout Mice Are Subfertile and Have Aberrant Estrogen Actions"

• **Miranda Bernhardt, Ph.D.**, Intramural Research Training Award fellow in the Reproductive Medicine Group — "Ca2plus Store Accumulation in Mouse Eggs Is Impaired by T-type Channel Inhibition Not by Loss of STIM1"

*The three trainees above, as well as Alisa Suen, predoctoral fellow in the Reproductive Medicine Group, and Chang Liu, predoctoral fellow in the Reproductive Developmental Biology Group, received travel awards to to attend the conference.

Shown from left, Liu, Baird, Suen, Bernhardt, Yao, Hewitt, Whirledge, Winuthayanon, Ungewitter, Barbara Nicol, Ph.D., a visiting fellow in the NIEHS Reproductive Developmental Biology Group, Zhang, and Williams savored the famous Gordon conference Thursday night lobster dinner. (Photo courtesy of Sylvia Hewitt)

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