



## NIH **U**pdates on Women in Science News for Yo**U** to Use!

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*NIH Updates on Women in Science* is brought to you by the [NIH Working Group on Women in Biomedical Careers](#). We encourage you to share this e-newsletter with colleagues.

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### Female Scientists More Likely to Decline Speaking Engagements

Why are women scientists sometimes less visible than their male counterparts? A recent study published in the *Journal of Evolutionary Biology* investigated discrepancies by sex in presentations at the European Society for Evolutionary

Biology Congress 2011. The 1022 presentations at this conference included regular (non-invited) oral presentations, conventional posters, smaller “essence” posters, and 73 invited talks (8 plenary and 65 non-plenary). While women made up 46% of the presenters overall, they gave only 15% of the non-plenary invited talks and 25% of the plenary lectures. The authors considered these data in light of the sex ratio of researchers in the evolutionary biology field, taking career stage into consideration, and found that female researchers gave only half of the expected number of invited talks. Exploring potential reasons for this disparity, they uncovered an interesting finding: While 23% of the invited speakers were women, only 50% of those women who were invited to speak accepted the invitation, compared to 74% of men. Thus, women were twice as likely to turn down the invitation, contributing to their low representation. The authors discussed possible steps to encourage a more equitable sex ratio among invited presenters at scientific meetings, including enhanced childcare options, more travel funding for female scientists, and increased awareness of implicit bias. Increasing the number of women scientists giving invited talks at meetings is important for enhancing visibility for female scientists. Achieving this goal would benefit individual scientists by improving the odds of promotion and tenure, and would benefit the field by providing role models for young female scientists.

[Fewer Invited Talks by Women in Evolutionary Biology Symposia](#)

## **Women of Color Accumulate the Most Debt While Pursuing Ph.D.s**

The Center for STEM Education and Innovation at the American Institutes for Research recently published an issue brief examining student debt among Ph.D. graduates in the sciences. Using data from the National Center for Science and Engineering Statistics Survey of Earned Doctorates, they compared graduate school debt in two fields: Science, technology, engineering, and math (STEM) and the social, behavioral, and economic (SBE) sciences. They found that 28% of STEM Ph.D. graduates accumulated debt during graduate school, with 11% accruing debt over \$30,000. For SBE Ph.D. graduates, the numbers are more dramatic: 58% graduate with some debt, including 38% who accrue debt over \$30,000. Factors associated with increased debt include longer time in graduate school, reliance on external funding, race/ethnicity, and sex/gender. Breaking down the data, the authors found that African Americans in STEM were more than 20% more likely than non-Hispanic White graduates to accumulate debt and more than twice as likely to report owing over \$30,000. Hispanic graduates reported less debt than African Americans, but more than non-Hispanic Whites. For Hispanics and non-Hispanic White graduates, debt accumulation was similar in males and females. This was not the case for African Americans: While African-American males were more likely to accrue any debt in graduate school than their female counterparts, African-American females accrued the highest amounts of debt. In both STEM and SBE fields, African-American women were more likely to accumulate debt in excess of \$30,000. Based on their data, the authors argue that encouraging participation of underrepresented groups is not enough. These efforts must include mechanisms to help finance graduate education and support students from all backgrounds as they develop in their training as doctoral scientists.

[The Price of a Science PhD: Variations in Student Debt Levels across Disciplines and Race/Ethnicity](#)

## **New Tool to Evaluate Research Mentors**

Using NIH funding, the Clinical and Translational Science Awards (CTSA) Mentor Working Group developed a new tool to evaluate the performance of research mentors in the clinical and translational sciences. This assessment tool, called the Mentoring Competency Assessment (MCA), was created and evaluated by a working group of researchers and experts in

both training and evaluation. While a major goal of this project was to develop a tool to measure improvement in mentoring competency after completion of a mentor training course, this study focused on assessment of base-line mentoring skills. Combining their own knowledge with a literature review, members of the working group developed a survey with 26 items designed to assess competency in six areas, ranging from communication to diversity and support for professional development. The preliminary survey was refined after pilot interviews and testing on a small group of mentors and mentees. The group administered their final survey to 283 mentor-mentee dyads at 16 institutions, and found it to be a reliable measurement tool. While mentors often graded themselves more harshly than their mentees graded them, overall ratings in each category were extremely consistent. The authors concluded that the MCA holds great promise as a measure of mentoring competency in the clinical and translational sciences, both as a self-assessment and as a mechanism for mentees to evaluate their mentors.

[The Mentoring Competency Assessment: Validation of a New Instrument to Evaluate Skills of Research Mentors](#)

## **NIH Investigator Elected to the National Academies**

Of the 84 new members elected to the National Academy of Sciences in 2013, approximately 25% were female. This impressive list includes Dr. Wei Yang, a molecular biologist in the Intramural Research Program of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at NIH. Dr. Yang's research team uses molecular and structural approaches to study the processes of DNA repair, translesion DNA synthesis, and V(D)J recombination. Dr. Yang majored in biochemistry at Fudan University in Shanghai, China, and then received a Bachelor of Arts degree in biochemistry from the State University of New York at Stony Brook. After graduation, she received her doctorate in biochemistry and molecular biophysics from Columbia University, and did postdoctoral research at both Columbia University and Yale University. Dr. Yang joined NIDDK in 1995 and received tenure in 2000. She has won multiple awards and honors for her exceptional scientific contributions. In a [recent interview](#) on the Women of Color Research network, Dr. Yang described what she likes best about her job as a molecular biologist: "My job is to find out how things actually work in biology and to enhance the living quality of mankind. Whether it is about basic molecular mechanisms, cancer diagnosis, or anti-viral treatments, nature teaches us to be honest, objective and humble. . . . I like every aspect of my job, but I most enjoy the process of finding things out and solving puzzles."

[Yang Lab](#)

## **NIH Hosts Discussion on Japanese Women Scientists**

On July 11, 2013, the Women of Color in Biomedical Careers Committee of the NIH Working Group on Women in Biomedical Careers hosted Dr. Sanae M.M. Iguchi-Arigo of Hokkaido University, Japan. Dr. Iguchi-Arigo is a professor in the Faculty of Agriculture at Hokkaido University, where she leads a support office for female scientists. She gave a talk at NIH, entitled "Promoting the Participation of Women in Japanese Science: Practice and Perspectives at Hokkaido University," followed by a discussion about Japanese women scientists. As of 2010, women made up only 13.6% of Japanese researchers overall and only 8% of the faculty at Hokkaido University. Dr. Iguchi-Arigo described the challenges in recruiting female faculty, including cultural issues, family responsibilities, and bias against female researchers. In 2006, the Japanese government took action with a plan to expand recruitment of female researchers nationwide. This multi-faceted plan included funding for institutions to create model programs, reentry support for women returning to research after taking family leave, and outreach programs to draw high school girls into the sciences. With the help of

these programs, Hokkaido University has set its goal of reaching 20% overall female faculty by 2020. Within Hokkaido University, this effort is managed by FResHU (Female Researchers at Hokkaido University), the support office run by Dr. Iguchi-Arigo. Their goals are to support female scientists at Hokkaido University, improve recruitment efforts, and enhance the institutional climate. Over the past few years, they have successfully recruited more female faculty members, provided training and mentoring opportunities, and instituted work-life balance programs to support for their faculty. Dr. Iguchi-Arigo concluded her remarks by saying “The limit . . . should be the blue sky or the universe, never the glass ceiling.”

[FResHU Support Office for Female Researchers at Hokkaido University](#)

## **Mystery Animations Offer a New Role Model for Diverse Young Scientists**

Lissa Moses Johnson is a former science teacher and a STEM enthusiast. Disappointed at the dearth of web-based resources available to draw girls and underrepresented minority students into science, she decided to create her own. Her company develops short mystery animations designed to grab students’ attention and draw them in to help solve the case. These 7-minute videos feature Mosa, a spunky and smart girl scientist, who leads both her team and her audience through the mystery, teaching problem-solving skills along the way. Ms. Moses Johnson’s goals are to make science fun and exciting to a broad audience, provide role models for girls and children of color, and to make sure that kids from all backgrounds can see themselves as scientists. These animations are aligned with science education standards, tested by teachers, and come with teaching materials. Watch for the first episode, *Growling Hunger*, which will launch in the near future.

[Mosa Mack: Science Detective](#)

## **Best Practices— STEM Family-Friendly Writing Retreat at the University of Nebraska, Lincoln**

The University of Nebraska-Lincoln has found a new way to support faculty in Science, Math, Engineering, and Technology (STEM) fields. They used funding from the Elsevier Foundation’s New Scholars program to hold a STEM Family-Friendly Writing Retreat. While writing is a vital part of any academic career, and writing retreats are common in the arts and humanities, there had never been a multi-disciplinary, multi-institution retreat for STEM scholars of all career stages. This six day retreat coupled large blocks of unstructured writing time with additional activities, such as professional writing coaching, feedback from peers, and networking opportunities. While their main goal was to boost productivity by providing dedicated writing time for scholars, organizers also wanted to fight the stereotype that a successful academic career conflicts with the demands of parenthood. Participating scholars were encouraged to bring families, and child care was available for children of all ages. School-age children were invited to attend a science-focused day camp, organized by the Lincoln Children’s Museum, while younger children were accommodated individually. Twenty-one scholars from diverse STEM fields attended the first retreat, including 12 who brought their children. The organizers are keeping track of the manuscripts, book chapters, and grants that result from the retreat in order to measure productivity. They plan to offer the retreat again in the future, and are also hoping to publish their guidelines to order to encourage other universities to follow their lead.

[STEM Family-Friendly Writing Retreat Aims To Boost Productivity](#)

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