

## ADVANCES & INSIGHTS: *The NIH Women in Science Newsletter*

This e-newsletter is brought to you by the NIH Working Group on Women in Biomedical Careers.



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womeninscience.nih.gov

### Recent Research and Perspectives

#### Quality of evidence revealing subtle gender biases in science is in the eye of the beholder





Handley, I. M., Brown, E. R., Moss-Racusin, C. A., & Smith, J. L. (2015). *Proceedings of the National Academy of Sciences*, 112(43), 13201–13206. <http://www.pnas.org/content/112/43/13201>

While evidence appears to document gender bias against women and their research in science, technology, engineering, and mathematics (STEM) fields, it is unclear that the evidence is accepted. The investigators conducted three randomized, double-blind experiments with participants from the general public and scientific community to answer the question. The participants were asked to read a journal article on gender bias in STEM and evaluate whether gender bias did exist. The results found that male participants evaluated the reported research less favorably than female participants did. The results from these experiments demonstrate a significant gender difference in how both the general public and university faculty evaluate the quality of research showing women's disadvantage in STEM fields.

#### Career development among American biomedical postdocs

Gibbs, Jr., K. D., McGready, J., & Griffin, K. (2014). *CBE — Life Sciences Education*, 14, 1–2. <http://www.lifescied.org/content/14/4/ar44.full>

Postdoctoral scientists are essential to the research enterprise, but few peer-reviewed studies have examined postdocs' career development. Gibbs

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Career development among American biomedical postdocs

Now hiring! Empirically testing a three-step intervention to increase faculty gender diversity in STEM

Gendered patterns in international research collaborations in academia

et al. surveyed 1,002 American biomedical postdocs in a national sample. The investigators found that in all groups, across genders and races/ethnicities, the percentage of postdocs with a high interest in faculty careers at research universities declined significantly during training and the percentage reporting interest in careers outside research increased significantly, especially among women of color. Men had more confidence in their research ability than women had in theirs, even after adjusting for research productivity. Furthermore, women with productivity and confidence in their research ability similar to those of their male counterparts were less likely to be interested in a faculty career at a research-intensive institution. These and other results from this survey suggest that many current postdocs are not preparing exclusively for faculty or research careers and point to a need for better career development opportunities over the course of scientific training.

### **Now hiring! Empirically testing a three-step intervention to increase faculty gender diversity in STEM**

Smith, J. L., Handley, I. M., Zale, A. V., Rushing, S., & Potvin, M. A. (2015). *BioScience*, pub. ahead of print.

<http://bioscience.oxfordjournals.org/content/early/2015/10/09/biosci.biv138.full>

Research shows that a diverse workforce encourages creativity, discovery, and talent. However, men make up the majority of university faculty in STEM careers. To help increase diversity, these researchers systematically tested a three-part intervention to enhance the recruitment processes for search committees looking for STEM faculty at Montana State University. Investigators found that the intervention was successful in increasing the number of women candidates and faculty. The investigators note the heavy investments being made in diversifying the scientific workforce and suggest that this intervention can be adapted to other scientific and academic communities.

### **Gendered patterns in international research collaborations in academia**

Uhly, K. M., Visser, L. M., & Zippel, K. S. (2015). *Studies in Higher Education*. <http://www.tandfonline.com/doi/abs/10.1080/03075079.2015.1072151?journalCode=cshe20#.VkJHGrerSM9>

As women attempt to ascend the academic ranks, research has shown notable gendered patterns and gaps in research participation and access to resources. The investigators examine whether families constitute a “glass fence” to women’s participation in international collaborations. They used data from the Changing Academic Profession International Data Set, limiting their analysis to 12,959 respondents from 10 countries. The results suggest a strong gendered pattern in international research collaborations: Women are significantly less likely than men to participate in such research across all marriage and family status groups. However, having children is less influential than partner status for women. Women with academic partners have a greater likelihood of participation in international research than women with full-time working, nonacademic partners, regardless of whether the women have children. These results strongly suggest that partner employment status comprises a glass fence to women’s participation in international research collaborations.

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# Spotlights

## Scientist Spotlights



### **Belinda Seto, Ph.D.**

Dr. Belinda Seto is a lifelong advocate for women in biomedicine and in the STEM fields (science, technology, engineering, and mathematics). Dr. Seto joined the National Eye Institute (NEI) as its deputy director in April 2014. She came to the NEI from the National Institute of Biomedical Imaging and Bioengineering (NIBIB), where she served as deputy director for 11 years... ([read more](#))



### **Barbara Corkey, M.D.**

Dr. Barbara Corkey is an award-winning scientist who is internationally recognized for her work in lipid metabolism, insulin secretion, and pancreatic beta cell function. Her current research focuses on metabolism—how specific cells involved in diabetes and obesity communicate. She is also studying possible influences of environmental toxins and food additives on the development of diabetes... ([read more](#))



### **Linda Birnbaum, Ph.D.**

For Dr. Linda Birnbaum, every day offers joy in discovery. As a toxicologist, Dr. Birnbaum studies how the environment impacts our health. Since 2009 she has transformed her groundbreaking research into a groundbreaking role. Dr. Birnbaum is the first toxicologist and the first woman to lead the National Institute of Environmental Health Sciences (NIEHS) and the National Toxicology Program... ([read more](#))



### **Amparo Villablanca, M.D.**

Dr. Amparo Villablanca, a professor of cardiovascular medicine at the University of California, Davis School of Medicine, is a pioneer physician-scientist in the field of women and heart disease. In 1994, she founded and became director of UC Davis' Women's Cardiovascular Medicine Program, the first women's heart program in the nation... ([read more](#))



### **Nora Volkow, M.D.**

Dr. Nora Volkow is internationally recognized for her achievements in bringing the power of science to bear on the enormous problem of human addiction and other brain diseases. She became director of the National Institute on Drug Abuse (NIDA) at the National Institutes of Health in May 2003... ([read more](#))

## Institutional Spotlight: Indiana University-Purdue University Indianapolis

Viewed as Indiana's premier urban public research university, Indiana University-Purdue University Indianapolis (IUPUI) has employed various strategies to encourage the recruitment, retention, and advancement of women and underrepresented groups in biomedical sciences. Two women at the forefront of these efforts — Etta Ward, Executive Director of Research Development in the IUPUI Office of the Vice Chancellor for Research; and Kathleen Grove, Director of the IUPUI Office for Women — have long recognized the importance of inclusion across the educational pipeline and have worked diligently to implement campus and system-wide programs that foster change. Grove says, "The creation of a diverse faculty has been demonstrated to provide many benefits to the academic life of an institution and the success of students. In addition to this, efforts to achieve gender equity in faculty and staff appointments widen the opportunity to gather the best talent available for the campus. Universities need to prioritize these efforts and provide the resources to sustain them." IUPUI has responded to this charge and has emerged as a programmatic leader for gender and racial/ethnic equity among faculty and students.

In 2011, the Office of the Vice Chancellor for Research and the Office for Women at IUPUI co-founded the Enhanced Mentoring Program with Opportunities for Ways to Excel in Research (EMPOWER), which acts as a recruitment and retention tool for talented young investigators. EMPOWER is a grant-based mentoring program targeting underrepresented individuals and groups historically excluded from higher education. The program pairs junior faculty members with senior professors on IUPUI's campus. The mentees can seek out mentors of interest within or outside their respective disciplines or be paired by the sponsors. This programmatic flexibility has resulted in a rich portfolio of work from the program alumni. Since the inception of EMPOWER, a total of 62 mentees — 52 women and 10 men — have completed the program. According to Ward, EMPOWER "has galvanized a shift in our efforts to build a culture of mentorship across the campus." Participating faculty have benefitted from the EMPOWER program both financially and professionally. Each junior faculty mentee is incrementally awarded a maximum of \$5,000 for fulfilling specific outcome requirements throughout the mentoring experience. Each mentor also receives \$1,000 for their professional development needs. Additionally, many of these mentees and mentors continue to work together after their time in the program is completed, demonstrating the limitless potential of this program. Overall, the EMPOWER leadership team is very pleased with the initial success. Since the start of the program, EMPOWER investigators have received more than \$2.5 million of external funding in grants and awards.

In its efforts to retain a diverse community of scholars in the biomedical sciences, IUPUI also sponsors programs that address the unique needs of women and individuals from multiple racial/ethnic backgrounds. One such program is the Indiana University Regional Chapter of the Women of Color Research Network (IU WoCRn), supported by IU's research leadership team. IU WoCRn provides women of diverse racial/ethnic backgrounds with a platform to share resources, make connections, and obtain pertinent information. The IU WoCRn listserv was launched at the beginning of November 2015 and has since accrued more than 300 members. This listserv creates a forum for open dialogue, networking, and information sharing among IU members. The members also connect with one another through organized in-person meetings. The first event featured a lunch forum with Dr. Jennifer Plank-Bazinet and Dr. Reiko Toyama; two NIH representatives that spoke with the group about NIH programs that benefit women in science and general grant information. The next sponsored event will take place on April 20, 2016, and will feature a keynote presentation from Dr. Shirley Malcom, the head of Education and Human Resources Programs at the American Association for the Advancement of Science. Ward reports, "Strategic cross-unit collaboration and adaptable programming efforts have allowed the IUPUI campus to reach and support many women faculty of color in their research, creative, and scholarly endeavors."

IUPUI also has several mentoring programs geared toward students at the undergraduate, graduate, and postdoctoral levels. One of its more recent initiatives, founded in 2011, is the Advancing Women Mentoring Program. It is co-sponsored by the IUPUI Office for Women and the IUPUI Office of Student Involvement to help students achieve academic and professional success by connecting them to dedicated IUPUI faculty and staff members. These mentors provide field expertise, career advice, and scholarly resources throughout the academic year. In addition to the mentoring partnerships, the program provides



*Top: Etta Marie Ward, M.A.  
Bottom: Kathleen Surina  
Grove, M.A., J.D.*

workshops about the career status of women and training to enhance student professional development. The latest workshop, presented by two professors in the Department of Psychology, was called “Unconscious Gender Bias and How It Impacts the Careers of Women.” This workshop outlined some of the major challenges women currently face in the workforce and ways to address these issues. The program also publishes a self-titled newsletter that highlights several topics relevant to the professional and academic advancement of women. The Advancing Women Mentoring Program is currently hosting its fifth cohort and has supported approximately 25 to 30 mentee/mentor pairs each year.



*The IUPUI Advancing Women Mentoring Program*

The IUPUI Campus is committed to creating a transformative environment where investigators from diverse backgrounds can come together to produce cutting-edge research that will speak to the unique needs of the community. These efforts are evident through the strategic approaches to support diverse, underserved, and disadvantaged groups. “As we continue to foster a climate of research excellence through innovative programming, we will continue to realize tangible and positive results,” Ward says.

### **Did you know?**

Career development awardees may request adjustments to their appointment status or percent effort for personal or family situations such as parental leave, child care, elder care, medical conditions, or a disability.

To learn more, visit <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-09-036.html>.

## **Current News and Reports**

### **UNESCO Science Report: Towards 2030**

Directed by Flavia Schlegel and edited by Susan Schneegans for UNESCO

The United Nations General Assembly adopted the *2030 Agenda for Sustainable Development* earlier in 2015. For the first time, the role of science, technology, and innovation was explicitly recognized. This new edition of the *UNESCO Science Report*, with contributions by more than 50 experts, provides a clear picture of the world scientific landscape — and points a way toward a sustainable growth strategy. The report describes trends and developments in science and technology from 2009 to mid-2015. It offers important baseline information and a wealth of country-specific data, including a breakdown of women representation in STEM careers from more than 75 countries. The analysis offers nine steps to help increase diversity within the international scientific workforce.

### **How to Network Effectively**

Written by Elisabeth Pain for *Science Careers* on October 27, 2015

Networking is essential in today's scientific environment. Meeting, greeting, and discussing areas of mutual interest may be the most effective way to develop collaboration, mentorships, and pathways to forward your career. But you may be asking, “How do I do it? Where do I meet the right people, and what do I say?” The author offers a collection of links to articles previously published in *Science Careers* on exactly these questions. The topics covered include (1) networking venues, (2) creating your own networking opportunities, (3) how to do it, and (4) what to say and how. Whatever the networking hang-up, it's covered here.

### **The Power of Mentoring**

Written by Carol Lynn Curchoe for *Science Magazine* on October 23, 2015

Dr. Curchoe says that she was born a scientist, but hard work and encouragement from teachers, mentors, and advisors is what helped her become one professionally. Here she describes her journey as a young student learning math, to a Ph.D. candidate, to her present-day work. Today, she is a scientific entrepreneur, with two companies of her own, one focused on making STEM education accessible to everyone. And she has found many ways to give back, including acting as a mentor for girls and women in STEM and passing on the advice that has worked so well for her.

## Implicit Bias

Written by Jo Handelsman and Natasha Sakraney for the [White House Office of Science and Technology Policy](#) on September 14, 2015

In this article, Dr. Handelsman and Ms. Sakraney describe the impact of implicit bias within the institutional workforce. The authors begin their analysis with an explanation of implicit versus explicit bias. Explicit bias is consciously held and accessible and is often deliberate. Implicit bias is usually unintentional and functions “outside of a person’s conscious awareness.” An example of implicit bias might include scheduling staff meetings at times that make it difficult for members with young children to attend — an unconscious holdover from a time when most faculty were men with stay-at-home wives. The authors also describe tests and experiments used to measure implicit bias. One example looks at how implicit bias can influence who gets hired and for what position. In this test, the evaluators see the same résumé, but it randomly has a man’s or woman’s name. Preference for the “male” candidate is evidence of implicit bias. The authors list four ways to mitigate and reduce implicit bias at both the personal and institutional levels.