MASS AWIS: Supporting women in science for over a decade

Tooba Cheema & Joanne Kamens

An advocacy group provides a unique opportunity for professional development that is making a difference for women in scientific and technical careers.

Women and members of other underrepresented groups continue to encounter major hurdles in pursuing a career in science, technology, engineering and math (STEM). Currently, women make up 47% of the overall workforce but constitute only 27% of the science and engineering workforce[1]. Many women are not only denied career advancement when faced with unconscious bias[2], overt discrimination[3] or outright sexual harassment[4], but often simply 'leak out of the pipeline', leaving their STEM careers for good. This represents a remarkable waste of scientific training, talent and experience.

The National Association for Women in Science (AWIS) is a nonprofit advocacy organization founded in 1971 to drive excellence in STEM by achieving equity and full participation of women in all disciplines and across all employment sectors. The Massachusetts chapter (MASS AWIS; http://www.massawis.org/) is now the largest of the 39 chapters of National AWIS, with over 300 members supporting the needs of women scientists for over a decade. The chapter membership is diverse, spanning all levels of career progression from graduate school to senior scientists, including participants from all areas of academia and industry (**Fig. 1**).

The first Boston AWIS chapter folded in the early 1980s because all involved believed that anti-harassment and employment laws were in place to ensure that equity for women in the science work place was achieved. Unfortunately, there is still a lot of work to be done as the pipeline continues to leak. Neither salary nor advancement parity exists for women in the workplace. The current MASS AWIS chapter was established in 2004 and now provides a full calendar of career development events and workshops that are well attended by both members and nonmembers. Some examples of past workshops include "Influence Without Authority," "Speed Networking," "Leveraging Social Media for your Career and Job Search" and "Salary Negotiation." These events are held in the academic and biotech hubs in Cambridge and Boston, but some events extend beyond to the Worcester area.

Given the richness of STEM education and career opportunities in Massachusetts and the many varied challenges facing women in science, the demand for this all-volunteer organization is not surprising. The MASS AWIS board of directors and committee volunteers dedicate their time outside of their regular professions to support women like themselves in the STEM field. They are passionate about working as a team to seek out collaborations, organize events and initiate ideas in order to give back to the STEM community. Volunteering opportunities provided by MASS AWIS allow these women scientists not only to expand their network, but also to build their leadership and management skills.

Most graduate students believe that if they just perform good scientific research, they will end up working as scientists after their training time is completed. Although strong scientific skills will always be important, technical prowess is certainly not enough to ensure a successful transition to any scientific career. Transferable skills such as the ability to work in teams, to communicate confidently, and to manage people and expectations are critical for long-term career success in both academic and nonacademic professions. MASS AWIS is making a difference in the careers of women scientists by providing them with essential tools that are often lacking in formal academic training. The women who participate in MASS AWIS programs have taken their career development needs into their own hands. As a result, they have created an environment encouraging accomplishments, even if their school and work organizations are not providing what is needed to succeed.

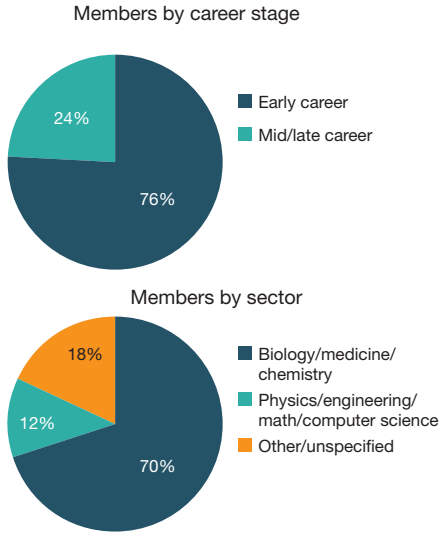

Figure 1 MASS AWIS provides resources for women in various scientific fields in Massachusetts.

Celebrating a milestone

Last autumn, MASS AWIS marked its ten-year anniversary[5] with a gala to celebrate the chapter's success. Over 130 participants attended, including current and past members, mentors, colleagues from local academic institutions and local companies in the Massachusetts area. Fifteen companies that support the mission of

Tooba Cheema is at Unum Therapeutics, Cambridge, Massachusetts, USA, and Joanne Kamens is at Addgene, Cambridge, Massachusetts, USA.
e-mail: joanne.kamens@addgene.org

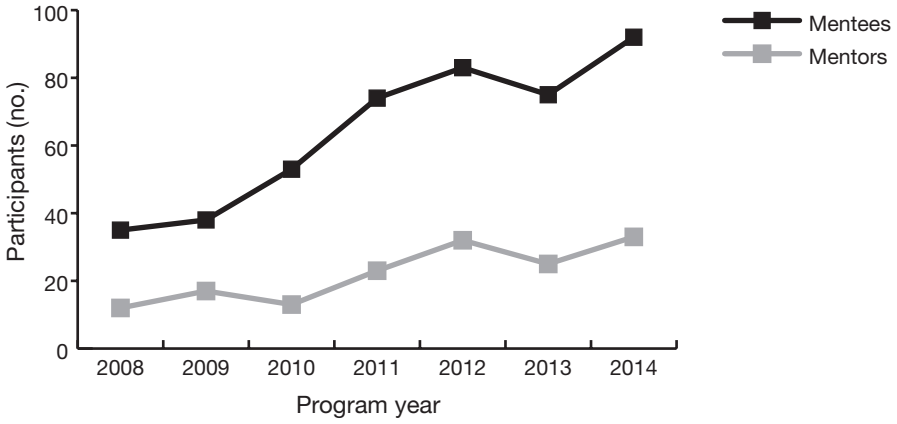

Figure 2 The growth of the MASS AWIS mentoring circles program over the past 8 years.

MASS AWIS sponsored the event, and the proceeds from this event led to the establishment of a MASS AWIS membership scholarship[4]. These scholarships are being made available to women who are underemployed or unemployed so they can join the chapter and continue to propel their career forward by taking advantage of workshops, networking and participating in the mentoring program.

The anniversary gala celebrated one of the milestones in the history of the chapter, the establishment of the MASS AWIS Mentoring Circle Program in 2007 (ref. 6) and the impact it has played in the career success for so many women. US Senator Elizabeth Warren provided a video address to start off the event[7]. "Only a quarter of the women who receive a bachelor's degree in STEM fields remain in the field ten years later," she said. "It is clear from those numbers that there is more work that needs to be done to support women who are interested in pursuing scientific careers."

The keynote speaker was Ellen Daniell, author of the book *Every Other Thursday—Stories and Strategies from Successful Women Scientists*, an inspiration for the founding of the MASS AWIS Mentoring Circle program. Daniell talked about the logistics of her own long-standing mentoring group in California. She encouraged the audience to be authentic in pursuing personal goals and to seek out supportive relationships to advance these goals. Finally, she urged the members of the audience to have the courage to go in a new direction to seek out meaningful and positive career experiences.

The MASS AWIS Mentoring Circle program follows a small group-mentoring format (1–2 mentors paired with 3–5 mentees). Now in its eighth year, the mentoring program has provided more than 450 scientists with the opportunity to realize the benefits of the group mentoring (**Fig. 2**). Each year the mentoring committee uses survey data and participant feedback to improve the program. In 2015, 88% of respondents said that the program met or exceeded their expectations. When surveyed on topics that were covered in mentoring sessions, 91% of participants said that their group worked on networking skills, which is not surprising given the importance of relationship building for a successful career transition. Other topics included how to navigate academic careers, nonacademic careers, work/life balance, interviewing, networking and workplace challenges. The topic of nonacademic careers in STEM is becoming more important as academic funding has been on a decline. However, more scientists are finally realizing the ability to apply their skill sets across multiple different fields such as policy, business and technology transfer.

Formalized mentoring programs help mentees to advance personal growth in diverse ways and share experiences in a supportive environment. However, one of the most important outcomes is that after participation in such a program, mentees are more likely to seek out mentors and are enabled to utilize their mentoring relationships more effectively. An organized group-mentoring program brings structure and accountability to the experience so that it can serve as a mentoring 'boot camp' for the future[8]. The chapter provides an opportunity for professional development that is making a difference for women in STEM.

COMPETING FINANCIAL INTERESTS
The authors declare competing financial interests: details are available in the online version of the paper (doi:10.1038/nbt.3347).

1. National Girls Collaborative Project. *The State of Girls and Women in STEM*. http://www.ngcproject.org/sites/default/files/documents/ngcpstemstats_web.pdf (June 2013).
2. Savonick, D. & Davidson, C.N. *HASTAC blog* http://www.hastac.org/blogs/superadmin/2015/01/26/gender-bias-academe-annotated-bibliography-important-recent-studies (26 January 2015).
3. Beck, J. *The Atlantic* http://www.theatlantic.com/health/archive/2015/06/tim-hunt-resignation-science-sexism/395642/ (11 June 2015).
4. Jaschik, S. *Inside Higher Ed*. https://www.insidehighered.com/news/2012/10/19/furor-over-male-scientists-facebook-post-about-female-scientists (19 October 2012).
5. http://mass-awis.org/mass-awis-10th-anniversary-celebration-recap/
6. Fridkis-Hareli, M. *Nat. Biotechnol.* **29**, 287–288 (2011).
7. Video address by Senator Elizabeth Warren to MASS AWIS. https://www.youtube.com/watch?v=c3XNXkO6IIY (9 February 2015).
8. Kamens, J. *Addgene Blog: A Better Way to Share Science* http://blog.addgene.org/form-your-own-peer-mentoring-circle-a-how-to-guide-for-scientists (18 February 2014).