

Advancing women scientists: the immunology experience

To the editor:

Immunology is an attractive career for young female scientists. Nonetheless, appropriate representation and advancement is an issue that dogs all female scientists and the administrators who evaluate and promote their careers^{1,2}. Comments by Harvard's president earlier this year downplayed these difficulties, yet his new \$50 million initiative is aimed at assuring recruitment and retention of women scientists.

How to most effectively recognize scientific excellence continues to be a subject of debate. We would suggest that changes in speaker selection policies for scientific meetings is an important aspect of this process. The 12th International Congress of Immunology (ICI), held in conjunction with the Federation of Clinical Immunological Societies (FOCIS), attracted delegates from 86 countries, of whom ~50% were female. The program committee invited speakers and chairs based on criteria of research excellence and publication in high-impact journals during the past three years. After publication searches, 22% of the ~480 invited speakers and chairs were female, clearly an increase from the 11th ICI, where 10% were female³.

For Minisymposium speakers, a blinded abstract review (as to author and institution) was conducted. This resulted in 48% of 976 Minisymposium oral presenters being female (51% of abstract first authors were female). We highly recommend that scientific organizations use recognized criteria of excellence when selecting speakers and chairs and conduct blinded abstract reviews for oral presenters. Such measures do two things: ensure excellence in science and ensure appropriate representation by gender.

Mentoring also advances the careers of women immunologists. The ICI/FOCIS 2004

Scientific Program included a session on "Proactive strategies for advancing women in science" (slides of the presentations can be found on the website of the American Association of Immunologists Committee on the Status of Women, http://www.aai.org/committees/women/aai_wom.html, along with a useful updated list of women actively working in immunology). In her presentation, Paula Kavathas noted the great discrepancy between the percentages of women students as compared to faculty in immunology programs at US universities despite the role of female scientists in making instrumental scientific advancements³. She encouraged women to accept and seek leadership positions and highlighted the importance of women cultivating a national reputation. Networks such as the Women's Faculty Forum at Yale University (www.yale.edu/wff) aim to foster gender equity throughout the university. She challenged other universities to follow Yale's lead in setting up such networks.

In Europe, French and German data show that only 6% of professors or laboratory directors are female. According to Catherine Sautes-Fridman, a professor of immunology at the Université Pierre et Marie Curie and president of the 2006 European Congress of Immunology (ECI-Paris 2006), the European Union is now taking a proactive approach (<http://www.cordis.lu/fp6/whatisfp6.htm>). Efforts should be directed at developing gender mainstreaming strategies: ensuring the availability of equal employment opportunities, creating an EU network of women in science and developing concerted actions between EU members. The ECI-Paris meeting (<http://www.eci-paris2006.com/>) will include a session on "Women in Immunology"

(information about this session can be obtained by contacting mehrra@repertoire.os.biu.ac.il).

Perseverance and self-promotion with well-defined goals are clearly necessary for women to be successful in biotechnology. Carol Nacy, CEO of Sequella Inc., recommended that women cross-train in science and business. Success in industry requires fundraising, and women often lack access to potential funders with deep pockets, emphasizing the importance of networking. For companies receiving venture capital funding, the percentage of female CEOs has remained steady at 5% since 1997 (ref. 4).

Accepting leadership, fostering mentoring, promoting accomplishments and developing communities among women professionals are important initiatives to enhance women's progress as they strive to be leaders and have appropriate visibility in science in the twenty-first century.

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3. Kavathas, P. & Soong, L. *Nat. Immunol.* **2**, 985–987 (2001).
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