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Science Review Management Board
Pre-college Engagement in Biomedical Sciences (PEBS) Committee
National Institutes of Health
9000 Rockville Pike
Bethesda, MD 20892

Colleagues:

I commend the Working Group on Pre-college Engagement in Biomedical Science for their insightful analysis of the roles NIH can play in the realms of K-12 and public science education to bring about increases in science and health literacy among all US citizens.

As you consider how to move forward, please recognize that a high level, institutional change will be needed within the NIH to reinvigorate its science education efforts after the abrupt shutdown of programs and the Office of Science Education in 2013 and 2014.

Reinstating the Office of Science Education to oversee the Science Education Partnership Award program, the Science Education Drug Abuse Partnership Award program, and other R25 programs like there at other Institutes will be a signal that the NIH hierarchy takes seriously the job of promoting high quality, effective science education activities that bring scientists and real scientific experiences to K12 and public audiences. The quality control measures that your committee is charged with identifying will be best managed under the egis of this central office. Moreover, the Office of Science Education should resume its prior role as the “Go-To” resource for programmatic leadership in what constitutes best policies, practices and programs for educational engagement, workforce development and pipeline issues.

In our NIH funded Science Education Partnership Award (SEPA), BrainU, we provide high quality professional development to K12 science teachers combining neuroscience and investigative pedagogy. I consider this a wholesale process, rather than a retail process wherein I, as a PI, might directly engage K12 students in my own laboratory’s science endeavors. Over the past 15 year, the BrainU program has reached over 200 teachers and over 150,000 K12 learners. And yes, we have published multiple, documented measures of efficacy. These learners go on into diverse pursuits and professions; only a few become elite professional scientists. Therefore we are contributing to workforce development in the broadest sense. If I were to only bring top students into laboratories, the audience would be limited to a handful of students a year. Thus the design and reach of an educational program will determine how broad an impact might be expected. As you evaluate the programs that NIH promotes as satisfying its mission to build the scientific pipeline, consider how broad the programmatic reach truly is. Are these programs building scientifically literate citizenry, or just developing a special group of highly trained young investigators?

Moreover, please do not forget that education is a local, social, human, endeavor. Face to face interactions characterize the best educational experiences. Mentorship in mastering a body of knowledge or a professional set of skills is critical for success at all levels; K12, collegiate, professional and beyond into the workforce. Cost effectiveness and ability to scale up a program may not produce the same quality training and effective communication of scientific practices and reasoning as multiple, diverse, smaller programs spread throughout the country. Scaling up a program often requires diluting the content and spending lots of energy on administration and infrastructure. To this end, more locally tailored programs like those funded by SEPA, are needed, not a few big programs.

As scientists whose livelihoods are funded by tax dollars, we are obligated to both create new knowledge for the betterment of society and to communicate that new knowledge to the public that supports us. Ceding that responsibility to educational professionals who lack the scientific background isolates scientists, promotes misrepresentation as the science becomes oversimplified, and does not provide audiences with authentic scientific experiences. For NIH to demonstrate that it truly values the translation of new scientific knowledge to K12 and public audiences, SEPA, SEDAPA and related R25 programs should continue as ongoing, integral components of the NIH portfolio of programs.

Respectfully,

A handwritten signature in black ink, reading "Janet M. Dubinsky". The signature is fluid and cursive, with a large loop at the beginning and a long, sweeping tail.

Janet M. Dubinsky, Ph.D.

Professor

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2009 Science Educator Award, Society for Neuroscience

2011 Postbaccalaureate and Professional Development Award, UMN

Academy of Distinguished Professors, UMN