

**BIO Broadening Participation Task Team**  
**Division of Molecular and Cellular Biosciences (MCB) Report**

**1. MCB analyses of participation of groups of interest relevant to BP in BIO (see table below).**

In the 11 year period from 2004 to 2014, the number of proposals submitted to MCB was 26.8% (Female) and 7.3% (Minority) of the total number of proposals. These percentages were slightly lower in 2014 - 25% female and 6% minority. Likewise, awards in 2014 were slightly lower than the 11-year average - 4% female and 1% minority.

Year	Total Proposals		Female Proposals		Minority Proposals	
	Submitted	Awarded	Submitted	Awarded	Submitted	Awarded
2014	1,052	158 (15%)	267 (25%)	47 (4%)	65 (6%)	10 (1%)
2013	1,740	202 (12%)	458 (26%)	70 (4%)	115 (7%)	26 (1%)
2012	938	192 (20%)	270 (29%)	64 (7%)	61 (7%)	22 (2%)
2011	1,357	208 (15%)	343 (25%)	63 (5%)	82 (6%)	24 (2%)
2010	1,495	250 (17%)	374 (25%)	72 (5%)	110 (7%)	21 (1%)
2009	1,455	315 (22%)	409 (28%)	104 (7%)	95 (7%)	25 (2%)
2008	1,387	207 (15%)	402 (29%)	68 (5%)	107 (8%)	25 (2%)
2007	1,698	235 (14%)	447 (26%)	73 (4%)	126 (7%)	33 (2%)
2006	1,606	230 (14%)	430 (27%)	79 (5%)	119 (7%)	38 (2%)
2005	1,749	230 (13%)	494 (28%)	83 (5%)	103 (6%)	25 (1%)
2004	1,445	257 (18%)	368 (25%)	81 (6%)	73 (5%)	11 (1%)

**2. MCB amount and types of usage of set-aside funds for BP in each Division in FY 2014**

The MCB Division reserves about 600k/year to support a variety of activities for broadening participation. Examples include:

**“The Broader Impacts Network: A National Infrastructure Model”** A planning grant (MCB-1313197, \$100K) was awarded to Dr. Susan Renoe, Director of the University of Missouri (MU) Broader Impacts Network, for the development of a Broader Impact Network (BIN), the goal of which is to develop national programs to improve scientific engagement through Broader Impact Activities (BIAs). This Network identified four major objectives: 1) create methods and tools for data generation and documentation of BIAs, 2) document campus culture change by measuring the quality, variety, and efficiency of BIAs and share best practices, 3) create a system for coordinated assessment and evaluation of BIAs at multiple levels including measures of resulting, expanded societal engagement, and 4) evaluate the efficacy of the BIN infrastructure approach to determine its feasibility as a national model. This planning grant laid the foundation for Dr. Renoe’s subsequent 2014 Research Collaboration Network (RCN) award (MCB-1408736, \$500K) entitled RCN: Broader Impacts and Outreach Network for Institutional Collaboration (BIONIC). The goal of BIONIC is to create a community of practice that fosters the development of sustainable and scalable institutional capacity and engagement in broader impacts activities. The objectives set forth to accomplish this goal are: 1) identify and curate promising models, practices, and evaluation methods for the BI community, 2) expand engagement in and support the development of high-quality BI activities by educating faculty and researchers on effective BI practices, 3) develop the human resources necessary for sustained growth and increased diversity of the BI community, and 4) promote cross-institutional collaboration on and dissemination of BI programs, practices, models, materials, and resources. BIONIC prioritizes inclusion of non-research-intensive universities, Historically Black Colleges and Universities (HBCUs), and other Minority-Serving Institutions (MSIs) who may not have the resources to support an institutional BI office. MCB expects that a systematic and consistent approach to BI that will lead to better fulfillment of the Broader Impact criterion by researchers, better evaluation of BI activities by reviewers and program officers, and a system for evaluating the effectiveness of BI activities in the aggregate (as mandated by the America Competes Act). An NSF press release stated: NSF is pleased to support this innovative initiative

aimed at creating a national infrastructure to promote and share best practices for meeting NSF's Broader Impacts merit review criterion. The BIONIC collaborative will have far-reaching effects by helping researchers implement plans to demonstrate and communicate the societal benefits of their NSF-supported research.

**“ASM-NSF Leaders Inspiring Networks and Knowledge (LINK): a Program to Build Bridges, Communities, and Career Competencies”** (MCB award 1241970, \$1 million). MCB and the American Society for Microbiology (ASM) are cooperating to establish the ASM-NSF Leaders Inspiring Networks and Knowledge (LINK) program. This program is a structured mentoring effort to build “links” among established research investigators, early career scientists, undergraduate faculty, and students and postdoctoral fellows. The objectives of LINK are to: 1) increase understanding about NSF opportunities in emerging areas of the molecular, cellular, and microbial biosciences, 2) develop mentee skills to compete successfully for resources and expertise in emerging and interdisciplinary areas of the molecular, cellular, and microbial biosciences, and 3) develop a robust community of scientists actively engaged in sustained mentoring, networking, and collaborating. The mentees include early-career scientists, postdoctoral fellows, post baccalaureates, and higher education students. The LINK program highlights NSF-sponsored research and promotes interactions at three ASM venues: the ASM Conference for Undergraduate Educators (ASMCUE), the ASM General Meeting, and the Annual Biomedical Research Conference for Minority Students (ABRCMS). Through these venues and through its award programs, LINK offers travel and mentoring awards and meetings activities to its NSF investigator-mentors and mentees. LINK also creates and facilitates opportunities for increased exposure to and success in emerging and interdisciplinary areas of the molecular, cellular, and microbial biosciences.

**“STEM Outreach: Fostering Partnerships between Colleges/Universities and Jr. High Schools - Workshop held April 9, 2011 in Washington, DC”** [MCB 1121033 awarded to the American Society for Biochemistry and Molecular Biology (ASBMB)]. The outcome of this workshop was the promotion and facilitation of outreach partnerships between Washington D.C area colleges and universities with STEM teachers from local schools.

**“Workshop: STEM Outreach, Fostering Interactions between Educators from Local Colleges/Universities and K-12 Schools in San Diego and Boston, April 21, 2012 and April 20, 2013”** (MCB 1217007 awarded to ASBMB) created Hands-on Outreach to Promote Engagement in Science (HOPES), a program to facilitate the establishment of partnerships between biochemistry and molecular biology faculty and science teachers from K-12 schools. The overall goal of this continuing project is to foster outreach, service learning, and other educational partnerships between biochemistry and molecular biology faculty with K-12 schools in their communities. These workshops have enabled science learning for hundreds of students often denied access to quality instruction and experiences in science, technology, engineering and mathematics (STEM) fields.

**“Supporting the Research of PUI Faculty and Undergraduates at the American Society for Biochemistry and Molecular Biology National Meetings”** (MCB 1130367 awarded to ASBMB) The goal of this award is to increase the visibility of high quality, outcome-oriented undergraduate research in the fields of biochemistry and molecular biology by six selected PUI faculty members and three selected undergraduates per year, who present their research in platform sessions at the annual national ASBMB meeting.

**“American Society for Cell Biology (ASCB) Meeting (December 2010) in Philadelphia, PA: Cell Biology Education: An Integrated Approach”** (MCB 1102920 awarded to ASCB) focused on (1) guiding and supporting researcher-educators in implementing education reform at multiple levels, (2) growing a community of innovative science-educators, and (3) providing actionable tools for educators. The 2010 ASCB Annual Meeting, the largest gathering of cell biologists in the world, provided guidance to its 10,000 attendees on implementing biology education reform.

**“iBioSeminars: A Web-Based Educational Resource for Biologists”** (MCB 1052331 awarded to ASCB). The goals are to produce and make available on the Web educational videos of lectures on important biological topics given by internationally recognized scientists, and to establish Undergraduate Research and Mentoring in the Biological Sciences advisory committee to address minority outreach, to recruit minority contributors, and to interface with Under-Represented Minority committees of professional societies.

SACNAS: MCB 1136444 (\$150K) and Supplement OIA 1250561 (\$50K).

#### **4. MCB proposed activities for FY 2015**

The MCB Division plans to continue to reserve upwards of \$600K per year to support a variety of workshops and activities for broadening participation. For example, the Biophysical Society expects to submit proposals to support a meeting of the MAC committees of 4-5 biological societies to plan a better integration of their common goals, and an undergraduate summer course in biophysics for underrepresented minority students, especially native Americans.