

This is input on how best to develop the National Bioeconomy Blueprint from the Bio-Link National Center based at City College of San Francisco.

The Bio-Link Next Generation National Advanced Technological Education (ATE) Center for Biotechnology and Life Sciences builds on the success of the original Bio-Link National Center for Biotechnology that was first funded by the National Science Foundation (NSF) in 1998. Bio-Link's mission is to 1) increase the number and diversity of well-trained technicians in the workforce; 2) meet the growing needs of industry for appropriately trained technicians; and 3) institutionalize community college educational practices that make high-quality education and training in the concepts, tool, skills, processes, regulatory structure, and ethics of biotechnology available to all students. Currently there are about 100 community and technical college biotechnology programs in the Bio-Link network. This network extends across the country. The website, www.bio-link.org provides an overview of the work of the Bio-Link network.

The following comments address item #10 in the RFI.

What can community colleges do to promote the Biotech workforce for the Bioeconomy?

1. Community College Biotech programs across the country receive valuable technical assistance and support from Bio-Link to create, build and extend their biotech education programs. In order for community college biotech programs to supply enough skilled technicians for the Bioeconomy, it is important for the White House to continue to invest in the 2 NSF ATE Centers focused on Biotechnology: Bio-Link the National Center and NBC2 the Regional Center for Biomanufacturing and to continue support of other related life science ATE projects and centers.
2. To deepen this investment and provide a more robust level of support to community college biotech education programs across the country, the White House could support the funding of 10 regional Biotech Centers (\$5 million per Center X 10 Centers X 5 years = \$250 million) that would be mentored by Bio-Link and whose activities and efforts would be coordinated through the National Bio-Link ATE Center. This would allow greater levels of activity and development in each of these regions in the areas of biotech program development, industry partnerships, labor market research and career education of prospective students.
3. Community colleges, with the proper resources and technical assistance from Bio-Link, could replicate the most promising biotech experiential learning approaches that have been developed around the country. These include student internship models, faculty externship programs, Contract Research Organizations (CROs) and Biotech incubators. The White House could support these activities by providing incentives for federal labs and research organizations to create these experiential learning opportunities that are critical to the educational development and employability of biotech students at community colleges. The White House could also create incentives for Biotech firms to create these same experiential learning opportunities as a critical part of ultimately building the Bioeconomy.
4. Community colleges can expand their existing efforts to assist workers in career transition to learn about Biotech careers and enter Biotech training

programs to meet labor market demand. The White House can support these efforts with continued support of TAA and DOL funding initiatives for Biotechnology training towards this goal.

5. Community colleges, with support from the White House, could create a national tracking system for employment outcomes of biotech students. We need better data on the success of biotech graduates in the labor market to answer the question: "What is the value of a community college certificate or degree in the labor market?" This data would allow colleges to make the case - we believe - with survey data that their students are employed in the biotech field and that their certificate or degree led to employment at a living wage, with career advancement opportunities. This is key to making the case to new students that the bioeconomy is thriving and a good place to look for employment. This will drive new enrollments in biotech education programs and provide these programs with important data to inform their future development.

6. The White House could support Biotech and Life Science credentialing efforts and stackable certificate efforts that are currently in practice for manufacturing technicians.

Contact Information
Elaine A Johnson, PhD
Bio-Link Executive Director