U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY

Improving Technology Transfer at Universities, Research Institutes and National Laboratories

Wednesday, July 24, 2013
2:00 p.m. – 4:00 p.m.
2318 Rayburn House Office Building

Purpose

On Wednesday, July 24, the Subcommittee on Research and Technology will hold a legislative hearing on innovative approaches to technology transfer at universities, research institutes, and national laboratories, and on potential improvements to the Small Business Technology Transfer (STTR) program. The hearing will focus specifically on a discussion draft of legislation, titled the "Innovative Approaches to Technology Transfer Act of 2013." The legislation would dedicate a portion of STTR funding to establish a program that awards grants for innovative technology transfer programs at universities, research institutes, and national laboratories with the goal of improving technology transfer.

Witnesses

- **Dr. Brian Wamhoff**, Vice President of Research & Development and Co-founder, HemoShear, LLC
- **Dr. Elizabeth Hart-Wells**, Assistant Vice President for Research and Associate Director of the Burton D. Morgan Center for Entrepreneurship, Purdue University
- **Dr. Erik Lium**, Assistant Vice Chancellor, Office of Innovation, Technology & Alliances, University of California, San Francisco

Background

In fiscal year 2012, the Federal Government funded more than $131 billion in research and development (R&D) activities. Colleges and universities conduct the majority of basic research in the United States, and cumulatively receive more than half of their total research funding from federal agencies.[1] Because of the large amount of funding expended by the Federal Government on basic research by nonprofit institutions like universities, research institutes, and national laboratories, efforts to improve the transfer of federally-funded research are of interest to both the Federal Government and stakeholders across the nation.

Several researchers at policy think tanks, including the Brookings Institution, Heritage Foundation, Center for American Progress, and the Information Technology and Innovation Foundation, have called for improvements to technology transfer and return on investment of

[1] Christine M. Matthews, *Federal Support for Academic Research*, Congressional Research Service, October 18, 2012, http://www.crs.gov/pages/Reports.aspx?PRODCODE=R41895&Source=search

federally funded R&D at research universities, nonprofit research institutes, and national laboratories[2].

Bayh-Dole Act

The Amendments to the Patent and Trademark Act of 1980 (P.L. 96-517), commonly known as the *Bayh-Dole Act*, were designed to improve collaboration between commercial concerns and nonprofit organizations, including universities, in addition to promoting the utilization of inventions arising from federally supported research and development. In order to encourage the two sectors to work together to generate new technologies for the marketplace, the Act gave U.S. universities, small businesses, and nonprofits intellectual property control of their inventions and other intellectual property that resulted from such funding. Bayh-Dole changed the incentive structure for nonprofits and small businesses to patents and licenses of inventions. In 1980, 390 patents were awarded to universities;[3] by 2009, the number increased to 3,088.[4]

Small Business Technology Transfer Program

The Small Business Technology Transfer Program (STTR), created by P.L. 102-564 and most recently reauthorized in the National Defense Authorization Act for Fiscal Year 2012 (P.L. 112-81), is a small business program that provides federal research and development funding for proposals that are developed and executed cooperatively between a small firm and a researcher in a nonprofit research organization.

Federal agencies and departments with annual extramural research budgets of more than $1 billion are required to operate STTR programs. The Departments of Energy, Defense, and Health and Human Services, the National Aeronautics and Space Administration, and the National Science Foundation participate in the STTR program. Under the National Defense Authorization Act for Fiscal Year 2012, the formula funding for STTR is 0.35 percent of all extramural research for Fiscal Years 2012 and 2013, will increase to 0.4 percent for Fiscal Years 2014 and 2015, and will increase again to 0.45 percent for Fiscal Years 2016 and 2017.

Under the reauthorization, up to $150,000 in Phase I funding may be awarded to partnerships between small businesses and researchers to evaluate a concept's scientific or technical merit and feasibility; Phase II awards of up to $1,000,000 may be awarded for the performance of the principal R&D. The reauthorization provides a degree of flexibility on award amounts for participating agencies. In fiscal year 2012, federal agencies and departments participating in the STTR program provided 635 awards totaling more than $215 million.

[2] S. Ezell and R. Atkinson, *25 Recommendations for the 2013 America COMPETES Act Reauthorization*, ITIF, April 2013; D. West, *Improving University Technology Transfer and Commercialization*, Brookings Institution, December 2012; M. Stepp, S. Pool, J. Spencer, and N. Loris, *Turning the Page: Reimagining the National Labs in the 21st Century Innovation Economy*, ITIF, Center for American Progress, Heritage Foundation, June 2013.
[3] National Science Board, Science and Engineering Indicators—1993 (Washington, National Science Foundation, 1993), 430.
[4] National Science Board, Science and Engineering Indicators, 2012 (Washington, National Science Foundation, 2010), Appendix table 5-48, available at http://www.nsf.gov/statistics/seind12/append/c5/at05-48.pdf.

Hearings and Legislation

In March, 2011, the Committee held a hearing on reauthorization of the Small Business Innovation Research (SBIR) and STTR programs. Mr. Mark Crowell, Executive Director and Associate Vice President for Innovation Partnerships and Commercialization at the University of Virginia, recommended dedicating a portion of STTR funds for early stage proof of concept work at research institutions, after an evaluation by panels of experts in translational and proof of concept research.[5]

The Committee approved H.R. 1425, the *Creating Jobs Through Small Business Innovation Act of 2011* to reauthorize the SBIR and STTR programs on May 4, 2011. As part of the markup of H.R. 1425, the Committee agreed to an amendment offered by Rep. Dan Lipinski (IL) to pilot a proof-of-concept grant program through the National Institutes of Health (NIH). Several key portions of H.R. 1425, including the proof-of-concept grant program, were incorporated into P.L. 112-81.

Discussion Draft of *Innovative Approaches to Technology Transfer Act of 2013*

The discussion draft of legislation provided to the witnesses would direct federal agencies and departments that participate in the STTR program to establish a grant program to fund proposals, through a competitive, merit-based process, that help facilitate and accelerate the transfer of federally funded research and technology into the marketplace.

In determining which proposals are awarded grants, participating federal agencies and departments shall consider whether the proposals demonstrate proven strategies that could achieve greater impact with grant funding, or whether the proposals outline new approaches that have the potential to increase or accelerate technology transfer outcomes and can be adopted by other qualifying institutions.

The draft legislation authorizes each participating federal agency and department to expend up to 0.05 percent of its extramural research budget on the STTR program in fiscal years 2014 and 2015, and up to 0.1 percent of its extramural research budget on the program in fiscal years 2016 and 2017.

The draft legislation also requires participating federal agencies and departments to develop a plan for program evaluation and appropriate data collection to assess the effectiveness of the program. In addition, the legislation requires the Small Business Administrator to include, on a publicly-available database required under the Small Business Act, information on the evaluation plan, recipients of program funding, and information on the use of program funding by recipients.

[5] W.M. Crowell, Testimony before the House Science, Space, and Technology Subcommittee on Technology and Innovation hearing on "The Role of Small Business in Innovation and Job Creation: The SBIR and STTR Programs," March 31, 2011.

Issues for Examination

Witnesses have been asked to provide comments and recommendations on the discussion draft of the *Innovative Approaches to Technology Transfer Act of 2013* in their testimony. In addition, Dr. Wamhoff has been asked to describe how proof of concept funding helped to launch his business. University witnesses have been asked to describe innovative approaches to technology transfer at their respective universities.

The hearing will examine whether the proposed legislation can improve the STTR program and general technology transfer outcomes at research institutions.