

Wednesday, July 24, 2013

**Testimony of Dr. Brian R. Wamhoff, PhD, before the U.S. House of Representatives,
Subcommittee on Research and Technology, in the matter of “Improving Technology
Transfer at Universities, Research Institutes and National Laboratories.”**

Dear Mr. Chairman and distinguished members of this important Committee; as an entrepreneur and scientific executive of a start-up company, I can state categorically that the American economy and its 300+million consumers of health care products and services have benefited profoundly from federal programs that fund early stage research in the medical sciences. Thank you.

I have been invited to address three questions in my testimony today:

1. To explain how proof of concept funding was used to help launch HemoShear as a business;
2. To provide my thoughts on whether it would be beneficial to dedicate a portion of Small Business Technology Transfer program to proof-of-concept and other technology transfer programs at universities, research institutions and national laboratories; and
3. To provide my thoughts and recommendations regarding the draft “Innovative Approaches to Technology Transfer Act of 2013”.

By way of background, I was an Associate Professor at the University of Virginia’s Department of Medicine, Cardiovascular Division, from 2006-2012. Through collaboration with Dr. Brett Blackman, PhD, Department of Biomedical Engineering, we developed a technology at the University of Virginia that became the foundation of a very successful biotechnology research company, HemoShear, LLC, which we co-founded in 2008. I now serve at Vice President of Research & Development and Dr. Blackman serves as Chief Scientific Officer at HemoShear. HemoShear is changing the decades-old global drug discovery and development paradigm. The old methods are inefficient, time-consuming, and costly because more than 92% of drugs that pass pre-clinical animal studies fail in human trials, either due to safety issues or lack of efficacy. The adverse financial impact of these failures, in combination with widely publicized patent expirations, has driven consolidation of the pharmaceutical and biotechnology industries in recent years. HemoShear’s unique laboratory technology enables the pharmaceutical industry to transform its drug discovery paradigm while significantly improving its return on invested capital because HemoShear can measure and predict the response of human biology to new drug candidates. HemoShear is a successful American company that is creating high-value STEM-related jobs in central Virginia, while positioning itself to become a world leader in drug development.

1. *How proof of concept funding was used to help launch HemoShear as a business.*

The development of the technology at the University of Virginia was funded by two “seed” grants, rather than the traditional NIH funding mechanisms, such as the NIH RO1 mechanism. The two funding mechanisms were the University of Virginia Heart Board Partners’ Fund and

the University of Virginia Wallace H. Coulter Foundation RoPE Fund. Without these seed funding mechanisms, it is doubtful that HemoShear would exist as it does today. Equally important to funding critical R&D proof-of-concept studies, we were given exposure to very successful board members of these organizations and endless advice and hands-on help towards translating an “academic” technology to a business model for commercialization. It is important to note, that at the time, this was not common at the University and by example of success, it is becoming a core of the University’s technology transfer ecosystem and philosophy.

At HemoShear, we have also been privileged to secure funding through the NIH Small Business Innovation Research program. The SBIR mechanism has been instrumental in the technological growth of HemoShear, allowing us to further advance our technologies for drug development in cardiovascular disease, diabetes, liver toxicity and cancer. We have proven that the SBIR mechanism provides a great return on investment for the U.S. taxpayer. Thank you for continuing to support the SBIR program.

- 2. Thoughts on whether it would be beneficial to dedicate a portion of Small Business Technology Transfer program to proof-of-concept and other technology transfer programs at universities, research institutions and national laboratories.*

I feel that it would be beneficial to dedicate a portion of the STTR program to proof-of-concept and other technology transfer programs at universities, research institutions and national laboratories. Having run an NIH-funded academic laboratory and co-founded a rapidly growing biotechnology research company, I have lived in both worlds. It is very challenging and the investigator often finds himself/herself in conflict. As I stated in Question 1, if it were not for the exposure to the board members of the Heart Board and the Coulter Foundation, it is highly unlikely that we would have had the foresight or wherewithal to commercialize a very important technology for human health. The failure to commercialize academic research is not for the lack of entrepreneurial faculty wanting to do so, there are many. Rather, it is due in part to the lack of institutional support to assist faculty in these endeavors and sometimes, creating unintended barriers of entry. Filling this gap is perhaps the greatest need in technology transfer for universities. When successful, the return on investment for U.S. taxpayers, who pay for NIH-funded academic research, will be new technologies for saving lives, improving human health, and speeding new drugs to market.

- 3. Thoughts and recommendations regarding the draft “Innovative Approaches to Technology Transfer Act of 2013”.*

I have read the draft and fully support the award criteria, method of program evaluation, data collection and dissemination. As I stated in Question 2 above, establishing mechanisms within universities to engage faculty and remove barriers for translating academic discoveries to commercialization is paramount to commercial success. Additionally, as it relates to this proposed funding mechanism, establishing “hands-on” oversight committees or boards to monitor accountability of the funded institution(s) is imperative. An excellent model for this is the Wallace H. Coulter Foundation and how they monitored initial investments in translational research at U.S. academic institutions that ultimately lead to larger Coulter Partnership Endowments for the successful institutions.

A handwritten signature in black ink, appearing to read 'BRW', with a large, stylized flourish extending from the end of the signature.

Brian R. Wamhoff, PhD
Vice President of Research & Development, HemoShear, LLC
Formerly Associate Professor, Department of Medicine, University of Virginia