

Continuous Nanomanufacturing from Bench to Commercialization

Here, we will describe the evolution of one of the first continuous processes for rendering hydrophobic nanoparticles water soluble from the bench to a start-up company. This process was initially developed at The Ohio State University (OSU) in the research labs of Dr. Jessica Winter, and is covered by several provisional and pending patents. Despite the interest of several companies, licensing deals never manifested. Dr. Winter and the student who helped develop this technology were then accepted to the NSF ICorps program, where they partnered with Ms. Melnik as a business mentor. Following this, Core Quantum Technologies (CQT), an OSU technology commercialization company, was formed. CQT has received several accolades and investments, including winning 1st place in the OSU business school competition, successful attainment of state funding support, private investment, and several awards for Dr. Winter. Here, we will discuss the challenges of licensing technology from the academic setting, lessons learned from the ICorps program, circumnavigating the technology "valley of death" between bench and commercialization, and the search for the "right" market and customer.

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Jessica Winter is an Associate Professor in the William G. Lowrie Department of Chemical and Biomolecular Engineering (ChE) and the Department of Biomedical Engineering (BME) at the Ohio State University. She received her PhD in Chemical Engineering from the University of Texas at Austin in 2004, and completed a postdoctoral fellowship at the Center for Innovative Visual Rehabilitation, a collaborative effort between the Boston VA Hospital, Harvard Medical School, and the Massachusetts Institute of Technology in 2006. Her current research interests include the development of biomimetic, polymeric materials for the brain and the development of multifunctional nanoparticles for biological manipulation and imaging. She is the recipient of the 2008 ACS Progress/Dreyfus Rising Star Award, 2012 OSU Early Innovator of the Year Award, and 2012 TechColumbus Inventor of the Year Award. Dr. Winter is also the Chief Technical Officer of Core Quantum Technologies, an OSU Tech Commercialization Start-up Company, that is developing next generation of clinical diagnostic tests using fluorescent nanoparticles.