

A Novel High-Throughput Protein Engineering Platform

**Dr. Thomas M. Baer
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**Venue: Level 1 Auditorium, Technology & Innovation Centre,
99 George Street, Glasgow**

Recombinant protein biologics have replaced small molecules as the major blockbuster drugs in the therapeutic pharmaceutical market, comprising a current world-wide market of over \$140B per year. We have developed a new technology platform which significantly increases the precision and reduces the time and investment required to discover novel therapeutic proteins. This innovation combines fluidic miniaturization, image processing, and rapid, proprietary single cell analysis and isolation; enabling screening of millions of protein-expressing cells in less than an hour, using a device the size of a silver dollar. In addition to antibody discovery, this transformative “million well microtiter plate” allows high-throughput drug screening applications currently not accessible with other technologies, including discovery of protein and peptide modulators that activate or inhibit biochemical pathways, and the development of novel enzyme catalysts. The technology platform also has broad reaching impact for other biotechnology and medical applications where single cell analysis and isolation is critical. I will discuss several examples of applications of this new platform in antibody engineering, the development of new protein fluorophores, and novel enzymes.

Short Biography of Dr. Thomas M. Baer

Dr. Thomas Baer is the Executive Director of the Stanford Photonics Research Center, a consulting professor in the Applied Physics Department, and an Associate Member of the Stem Cell Institute at Stanford University. His current scientific research is focused on developing imaging and biochemical analysis technology for exploring the molecular basis of human developmental biology and regenerative medicine, optogenetics, and developing new technologies for protein engineering. Co-founder of five companies in Silicon Valley, he was named entrepreneur of the year for emerging companies in Silicon Valley in 2000, by the Silicon Valley Business Journal. Dr. Baer holds over 70 patents and his commercial products have received many industry awards for design innovation. He has been elected to the status of Fellow in two international scientific societies, the American Association for the Advancement of Science and The Optical Society of America (OSA) and served as the President of OSA in 2009. In 2012 he received an honorary Doctor of Science degree from Heriot Watt University in Edinburgh, Scotland and was awarded the Robert E. Hopkins Leadership Award by the Optical Society of America. He is currently a Visiting Professor at the University of Strathclyde.

