



2nd Annual BTP Fall Symposium:

Synthetic Biology Advancing Biotechnology

Life Sciences Laboratory S330

University of Massachusetts Amherst

Friday, November 9th, 2018

8:30 am	Registration
9:00 am	Welcome , Jeanne Hardy, UMass Amherst
9:10 am	Prof. Pamela Silver , Harvard Medical School <i>"Designing Biology for Health and Sustainability"</i>
9:50 am	Dr. Edmund Graziani , Pfizer <i>"Towards a Rational Design and Directed Evolution Platform for Biosynthetic Small Molecules"</i>
10:10 am	Dr. Alex Tucker , Ginkgo Bioworks <i>"Making Biology Easier to Engineer - High Throughput Organism Engineering"</i>
10:30 am	Coffee Break
11:00 am	Dr. Maulik Thaker , Novartis <i>"Revival of Natural Products Discovery in the SynBio Era"</i>
11:20 am	Dr. Christine Santos , Manus Bio <i>"Reinventing Chemical Manufacturing Using Biotechnology: Manus Bio Approach"</i>
11:40 am	Prof. Ron Weiss , Massachusetts Institute of Technology <i>"Mammalian Synthetic Biology: Foundations and Application to Cell Line Engineering"</i>
12:20 pm	Lunch : Three-Course Rotational Connections (Campus Center) Each speaker will be at a table with a different group of students during each course
	<u>Biotech Battles</u>
1:50 pm	Mission Overview and Team Assembly
2:00 pm	Competition Interdisciplinary teams will work together to propose a solution to the challenge problem
4:30 pm	Team Presentations (6-8 min each team)
5:30 pm	Sound Bites Happy Hour Mixer and Award Ceremony
5:45 pm	Closing Remarks
6:00 pm	Departure

Thank you to our sponsors!

UMassAmherst





2nd Annual BTP Fall Symposium: *Synthetic Biology Advancing Biotechnology*

SPEAKER BIOS:

Prof. Pamela Silver, Harvard Medical School (Keynote)

Pamela Silver is the Adams Professor of Biochemistry and Systems Biology at Harvard Medical School and the Wyss Institute for Biologically Inspired Engineering. She received her BS in Chemistry and PhD in Biochemistry from the University of California. She was a Postdoctoral Fellow at Harvard University where she was an American Cancer Society Fellow. Her work has been recognized by an Established Investigator of the American Heart Association, a Research Scholar of the March of Dimes, an NSF Presidential Young Investigator Award, Claudia Adams Barr Investigator, an NIH MERIT award, the Philosophical Society Lecture, a Fellow of the Radcliffe Institute, and election to the American Academy of Arts and Sciences. She is among the top global influencers in Synthetic Biology and her work was named one of the top 10 breakthroughs by the World Economic Forum. She serves on the board of the Internationally Genetics Engineering Machines (iGEM) Competition.



Prof. Ron Weiss, Massachusetts Institute of Technology (Keynote)

Ron Weiss is Professor in the Department of Biological Engineering and in the Department of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology, and is the Director of the Synthetic Biology Center at MIT. He is also the Principal Investigator of the MIT Center for Integrative Synthetic Biology established and funded in September of 2013 as part of the NIH-NIGMS national centers for systems biology (cisb.mit.edu). He received his PhD from MIT in 2001 and held a faculty appointment at Princeton University between 2001 and 2009. His research focuses primarily on synthetic biology, where he programs cell behavior by constructing and modeling biochemical and cellular computing systems. A major thrust of his work is the synthesis of gene networks that are engineered to perform in vivo analog and digital logic computation. He is also interested in programming cell aggregates to perform coordinated tasks using cell-cell communication with chemical diffusion mechanisms such as quorum sensing. He has constructed and tested several novel in vivo biochemical logic circuits and intercellular communication systems. Weiss is engaged in both hands-on experimental work and in implementing software infrastructures for simulation and design work. <http://groups.csail.mit.edu/synbio/>



Dr. Edmund Graziani, Pfizer

Edmund Graziani is currently Research Fellow and Head of Synthetic Biology and Natural Products at Pfizer Worldwide R&D. He joined the Chemical Sciences department at Wyeth Research in 1999 where he worked on drug discovery projects in oncology, inflammation, and neuroscience. While at Wyeth he led a team that advanced a novel non-immunosuppressive immunophilin ligand, ILS-920, for treating neurological deficits following an ischemic stroke. In 2010, he joined Pfizer's antibody drug conjugate (ADC) effort, and led a group conjugating novel payloads and linkers with the aim of advancing improved ADCs into clinical trials. Key contributions include developing a proprietary platform to enable site-specific conjugation of ADCs and the exploration of novel mechanisms of action for natural product payloads such as inhibition of the eukaryotic spliceosome. Current areas of interest include the discovery of novel natural products from the unique and extensive strain collection at Pfizer in order to modulate hard-to-drug targets in human disease with unmet medical need.





2nd Annual BTP Fall Symposium: *Synthetic Biology Advancing Biotechnology*

SPEAKER BIOS (CONTINUED):

Dr. Christine Santos, Manus Bio

Christine Santos is the Chief Technology Officer of Manus Bio, a company that specializes in the production of complex natural ingredients through advanced fermentation. She has more than fifteen years of industrial experience in biotechnology, metabolic engineering, and synthetic biology, is an inventor on 15 issued and pending patents, and has published her work in several elite journals, including Science, Nature, and PNAS. Prior to joining Manus Bio, Christine served as an early Senior Scientist at Bio Architecture Lab where she led efforts in developing both bacterial and yeast platforms for macroalgae utilization and renewable chemical production. Christine obtained her BS and MS in Chemical Engineering from Stanford and her PhD in Chemical Engineering from MIT.



Dr. Maulik Thaker, Novartis

Maulik Thaker pursued his Master's degree in Plant Sciences and MBA in Healthcare Services in India. For his PhD in Biochemistry, he worked on biosynthesis of an anticancer antibiotic from a soil bacterium. He went on to pursue his postdoc studies in Dr. Gerry Wright's lab at McMaster University in Canada. During his tenure as postdoc, he employed disruptive approaches towards natural products discovery leading to over dozen publications. Maulik has more than 15 years of experience studying natural products biosynthesis, including the past 8 years in applying synthetic biology approaches to this effort. In 2014, Maulik joined the freshly built synthetic biology group at Novartis Institutes for Biomedical Research, where he leads a team of scientists on portfolio projects as well as manages academic collaborations.



Dr. Alex Tucker, Ginkgo Bioworks

Alex Tucker is a microbiologist and synthetic biologist interested in efficiently domesticating and manipulating microbial systems. He leads a microbial engineering team focused on enzyme production at Ginkgo Bioworks, a Boston-based synthetic biology company that uses a foundry model to engineer biology at scale. Ginkgo is currently developing more than 40 organisms via commercial partnerships for the production of small molecules, enzymes, and optimized microbes. Prior to Ginkgo, Alex developed gut microbiome engineering technologies as a postdoctoral associate at MIT and subsequently engineered probiotic therapies to treat metabolic disorders at Synlogic. He earned a PhD in microbiology at the University of Georgia and the University of Wisconsin-Madison.

