The University at Buffalo Department of Chemical and Biological Engineering presents:

Douglas A. Lauffenburger
Massachusetts Institute of Technology
Department of Biological Engineering

Friday, October 12, 2018
Center for the Arts, UB Amherst Campus
Doors 12:30 p.m., Lectures 1:00 p.m., Screening Room
Poster Contest and Reception 3:00 p.m., Atrium
(RSVP cbe-chair@buffalo.edu)
Over the years the UB CBE Graduate Student Research Symposium has evolved into an exciting, comprehensive event that showcases the high quality, multidisciplinary research that is conducted in our department, and spans diverse areas such as molecular engineering of novel materials, nanotechnology, bioengineering, and molecular modeling. Every year our faculty and graduate students welcome the opportunity to present their work to their peers from CBE, other UB departments, our alumni, and representatives from local business. The Symposium has grown in ambition and scale, featuring over 60 posters, a graduate student lecture, and a keynote lecture from an accomplished colleague. This year we are particularly pleased to welcome Douglas A. Lauffenburger, Ford Professor of Bioengineering and Head of the Department of Biological Engineering at Massachusetts Institute of Technology (MIT). Our Symposium will include a wine, beer, and hors d’oeuvres reception to honor our alumni and guests.
The therapeutics discovery/development pipeline involves multiple stages for progress from idea to approved treatment, and has become highly expensive over the past decades mainly due to the large proportion of potential drugs that fail in costly clinical trial stages.

A chief reason for failure in clinical trials following promising findings in preclinical studies is that results in preclinical animal model studies do not generally translate strongly to similar results in human patients due to the incomplete correspondence of animal biology, physiology, and pathology in comparison to that in humans. Alongside this scientific issue, there exists a level of societal concern about the most appropriate use of animal experimentation.

The therapeutics discovery/development field has been attempting to address the challenge of ‘humanizing’ the pipeline along multiple avenues of research endeavor – prominently including efforts to construct human tissue and organ surrogates outside the body, using stem cell and ‘organ-on-chip’ platform technologies, and machine learning computational modeling approaches to bridge the preclinical-to-clinical divide either with human genomic data or with modeling of animal experiment data.

In this presentation I will outline various approaches to addressing this therapeutics discovery/development challenge, and their current stage of prospect.
About Douglas A. Lauffenburger

Douglas A. Lauffenburger is Ford Professor of Bioengineering and (founding) Head of the Department of Biological Engineering at MIT. His major research interests are in cell engineering: the fusion of engineering with molecular cell biology, with central focus on systems biology approaches to complex pathophysiology in application to drug discovery and development. Lauffenburger has co-authored a monograph entitled Receptors: Models for Binding, Trafficking & Signaling, published by Oxford University Press in 1993; he also co-edited the book entitled Systems Biomedicine: Concepts and Perspectives, published by Elsevier in 2010.

More than 100 doctoral students and postdoctoral associates have undertaken research education under his supervision.

Prof. Lauffenburger has served as a consultant or scientific advisory board member for numerous biotechnology and pharmaceutical companies, and his awards include the Galletti Award from AIMBE, the Coburn Award and Walker Award from AIChE, and the Distinguished Lecture Award and Shu Chien Career Achievement Award from BMES. He is a member of the National Academy of Engineering and the American Academy of Arts & Sciences, and has served as President of the Biomedical Engineering Society, Chair of the College of Fellows of American Institute for Medical & Biological Engineering, on the Advisory Council for NIGMS, and as a co-author of the 2009 NRC report on A New Biology for the 21st Century.

The UB Department of Chemical and Biological Engineering

This Symposium is a collaborative effort supported in part by the CBE Graduate Student Association, the UB CBE Advisory Board, our graduate student speakers, CBE faculty, and various colleagues in and around UB who serve as judges for the all-important student poster competition. Many thanks to all our graduate students who work so hard on their research, and for their excellent poster and oral presentations during the Symposium. Ultimately, this Symposium is a showcase for the excellence that we strive for in our scholarship and graduate education. We look forward to many more years of this celebration of our research accomplishments.
CBE is proud to present our 2018 PhD candidate speakers:

- Andrew Kroetsch: “A Platform Engineering Approach for the Design of Recycling Therapeutic Antibodies”

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*CBE STUDENT/ALUMNI RECEPTION*
3:00–5:30pm Center for the Arts Atrium

• Meet Douglas A. Lauffenburger • Learn what’s new •
  • Connect with your colleagues •
  • Wine • Beer • Soft drinks • Hors d’oeuvres •

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