THE OHIO STATE UNIVERSITY

The William G. Lowrie Department of Chemical and Biomolecular Engineering Graduate Program

Cordially invites you to **Lowrie Lecture I**

The Circulating Human Antibody Repertoire in Health and Disease

George Georgiou

Dula D. Cockrell Centennial Chair and Professor
Departments of Molecular Biosciences, Chemical Engineering, Biomedical Engineering
University of Texas, Austin

Thursday, March 23rd, 11:30 AM
130 Koffolt Lab, CBEC 151 W Woodruff Ave
Reception at 11:00 AM - CBEC Lobby

Bio

George Georgiou is the Dula D. Cockrell Centennial Chair and Professor at UT Austin, Dep. of Chemical Engineering and Molecular Biosciences. He has authored >280 publications and is co-inventor of >150 issued and pending US patents, comprising 28 distinct technology suites that have been licensed to 32 pharma & biotech companies. Dr. Georgiou is an elected member of the National Academy of Engineering (2005), National Academy of Medicine (2011), National Academy of Inventors (2015) and the American Academy of Arts and Sciences (2015). He was awarded the AICHE Professional Progress award in 2004 and the AICHE William Walker award in 2019. In 2013 Georgiou was selected as one of the top 20 Translational Researchers by Nature Biotechnology.

Dr. Georgiou founded GGMJD in 1999 (acquired by Maxygen in 2000), Aeglea Biotherapeutics in 2013 (NSDQ: AGLE) and Ikena Oncology (NSDQ: IKNA) in 2016 and served on the Board of Directors of both AGLE and IKNA.

Dr. Georgiou's research is focused on: (i) the molecular level understanding of human adaptive immunity in infectious diseases and in autoimmunity; (ii) the discovery/preclinical development of protein therapeutics and (iii) the biology of Fc receptors and the engineering of therapeutic antibodies with improved effector functions.
Notably, he is co-inventor of 5 protein therapeutics approved or in clinical/late-stage preclinical evaluation: olbitoxaximab, pegzilarginase (under EMA review), AGLE-177 (pegtaviliase, phase I/II), IK-412 and cyst(e)inease (AGLE-325).

Abstract

A diverse ensemble of antibodies circulates in all physiological fluids and plays a central role in protection against disease. Detecting and quantifying the concentration of antibodies, for example after SARS-CoV2 infection, is of fundamental significance in medicine. However, more than 100 years since the discovery of antibodies we are still only able to measure the bulk properties (e.g. ELISAs, cell killing assays with serum etc.). Over the last 10 years we invented and optimized an integrated technology workflow for the molecular-level deconvolution of the sequence identities, relative concentrations, temporal dynamics and functions of monoclonal antibodies that comprise the polyclonal response in blood or other biological fluids. This presentation will summarize notable findings from the analysis of the serological repertoire in >250 subjects in the setting of infectious diseases (SARS-CoV2, NoV, HIV-1 and influenza) and in autoimmunity (SLE, RA).

Importantly, analysis of highly abundant serum antibodies from patients have led to the isolation of monoclonal antibodies capable of clearing pathogens very efficiently via unanticipated mechanisms of action.