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**SUNDAY, JULY 30, 2017**

**CRISPR Biology, Technology & Ethics: The Future of Genome Engineering**

Jennifer Doudna, PhD  
Professor of Chemistry and of Molecular and Cell Biology  
Department of Chemistry and Chemical Engineering  
University of California, Berkeley

Facile genome manipulation using precision DNA and RNA recognition is transforming biology. This presentation will describe how the bacterial CRISPR adaptive immune system continues to inspire development of powerful genome engineering tools, enabling advances in both fundamental biology and applications to the mammalian brain.

**MONDAY, JULY 31, 2017**

**Oncofertility: From Bench to Bedside to Babies**

Teresa K. Woodruff, PhD, DSc  
Thomas J. Watkins Professor of Obstetrics and Gynecology  
Vice Chair of Research, Department of Obstetrics and Gynecology  
Director, Oncofertility Consortium  
Professor of Molecular Biosciences  
Feinberg School of Medicine, Northwestern University

Life preserving cancer treatments can threaten fertility. More than 1.4 million people are diagnosed in the U.S. with cancer annually; 10% of these individuals are in their reproductive years (up to 45 years old). As the survival rate for adolescents and children continues to rise, late effects of treatment are taking on new urgency for survivors of this disease. Oncofertility is a new term that describes the effort to preserve fertility for young people with cancer and includes basic reproductive biology, clinical science, ethics, law, economics, pediatric surgery, and education sciences.

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**TUESDAY, AUGUST 1, 2017**

**Beyond Sequencing: New Frontiers in Genomics**  
Jay Shendure, MD, PhD  
Professor of Genome Sciences  
University of Washington

Over the past decade, massively parallel or next-generation DNA sequencing has emerged as a broadly enabling 21st century “microscope” for the measurement of diverse biological phenomena. In the clinic, the utility of sequence data is being intensively evaluated in diverse contexts, including reproductive medicine, oncology, and infectious disease, and sequencing is increasingly being used in unanticipated ways that reach beyond conventional human genetics. This presentation will focus on efforts to develop new applications for DNA sequencing in clinical medicine, including for non-invasive diagnostics and for decomposing complex cell populations.

**WEDNESDAY, AUGUST 2, 2017**

**Antibiotic Resistance: A Public Health Crisis**  
Victoria Fraser, MD  
Adolphus Busch Professor of Medicine and Chairman  
Department of Medicine  
Washington University School of Medicine

The major challenges in antimicrobial resistance nationwide as well as the evolving diagnostic tools and strategies for prevention and control of antimicrobial resistance in hospitals will be discussed. In addition, the important role of the clinical pathology laboratory in infection prevention and antimicrobial stewardship will be reviewed.

**THURSDAY, AUGUST 3, 2017**

**Modern, Effective Care for Substance Use Disorders: Findings from the 2016 Surgeon General’s Facing Addiction Report**  
A. Thomas McLellan, PhD  
Chairman  
Treatment Research Institute

Over 22 million Americans meet medical diagnostic criteria for addiction to alcohol and/or other drugs. Sadly, overall prevalence rates and costs have not declined over the decades leading to the view that substance misuse and addiction may simply be an intractable part of our culture. But there is one exception—cigarette use. The prevalence, health harms, and costs associated with cigarette use have been dramatically reduced over the past four decades as a direct result of broadly applied science-based public health policies and clinical practices. Using the three decades of research overviewed and synthesized in the recent Surgeon General’s Report entitled “Facing Addiction in the United States,” this presentation argues that a similar science-based strategy would be possible, practical, and cost effective to implement, with expectable public benefits comparable to those seen with cigarettes.
An Expert’s Quick Guide to Diabetes Mellitus includes the basics of what laboratorians need to know about the pathophysiology, etiology, epidemiology, diagnosis, and clinical management of diabetes. Topics also include measuring glucose, managing diabetic crises, and the laboratory evaluation of the person with diabetes. This Guide complements the Quick Guide to Endocrinology that addressed the clinical presentation, pathophysiology, and laboratory testing of common endocrinologic problems.
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Thomas M. Annesley
With contributions from Pamela Derish

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An Expert’s Quick Guide to Diabetes Mellitus
by William E. Winter

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