



2018 Fall Seminar

Location: Interdisciplinary Sciences Building (ISA) 1061

Date: Friday, October 12, 2018, 9:30 am – 10:30 am

**DEPARTMENT OF CELL BIOLOGY, MICROBIOLOGY AND MOLECULAR BIOLOGY (CMMB)
PRESENTS**

TRACY L. JOHNSON, Ph.D.

HHMI Professor and Maria Rowena Ross Chair in Cell Biology and Biochemistry
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University of California, Los Angeles (UCLA)

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Title:

**“THE SPLICE OF LIFE: RNA, CHROMATIN, AND THE REGULATION OF EUKARYOTIC
GENE EXPRESSION”**



Abstract: Pre-messenger RNA splicing is carried out by the spliceosome, a dynamic ribonucleoprotein complex that is functionally conserved across eukaryotes. The spliceosome assembles onto pre-mRNA co-transcriptionally, raising important questions about how the process of transcription through a chromatin template influences spliceosome assembly and splicing outcomes. Moreover, regulation of splicing provides an elegant mechanism for controlling gene expression. Understanding how these mechanisms are regulated in response to changes in the cell's environment remains an important challenge.

Recent studies from my lab using *Saccharomyces cerevisiae* address both of these questions. Here we describe new insights into the mechanisms by which chromatin modification influences co-transcriptional spliceosome assembly. Additionally, using the yeast *Saccharomyces cerevisiae*, we show how splicing regulation allows cells to exert systems level control of gene expression in response to nutrient availability.

Biography: Dr. Tracy L. Johnson is the Maria Rowena Ross Chair of Cell Biology and Biochemistry at the University of California, Los Angeles (UCLA). Dr. Johnson moved from UC San Diego to UCLA in 2013 to join the faculty in Molecular, Cell, and Developmental Biology. She earned her B.A. in Biochemistry and Cell Biology from UCSD, her Ph.D. in Biochemistry and Molecular Biology from UC Berkeley, and was a Jane Coffin Childs postdoctoral fellow at the California Institute of Technology (Caltech) where she studied the mechanisms of RNA splicing with John Abelson. Dr. Johnson's research is focused on the mechanisms of eukaryotic RNA processing, particularly pre-messenger RNA splicing. Her lab has most recently been interested in the coordination of these reactions with RNA synthesis and chromatin modification.

Dr. Johnson has a particularly strong record of training undergraduates from underrepresented groups. For her achievements in integrating high-level research with excellence in undergraduate education, she was awarded a National Science Foundation CAREER award and a Presidential Early Career Award (PECASE). She serves on a number of scientific boards and federal Grant Review panels. In 2013, she received the UCSD Chancellor's Associates Award for Excellence in Undergraduate Teaching and in 2013 was selected as one of the Top 20 Women Professors in California. In 2014, Dr. Johnson was named a Howard Hughes Medical Institute Professor. As one of 15 leading scientist-educators, the distinction recognizes national leadership in research and education, and provides \$1 million over five years to create innovative activities that integrate research with undergraduate education.

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