a place of mind
UBC
Life Sciences Institute

Department of Biochemistry and Molecular Biology

presents a special seminar by

Dr. Robert Walters, Ph.D.

Postdoctoral Fellow
University of Colorado

10:00 AM Thursday
May 11th, 2017
Location: LSC 3
Host: Dr. Leonard Foster

"Control of gene expression by novel RNA modifications and cytoplasmic sequestration"

An unresolved question in gene expression control is how the summation of individual mRNA properties specifies their fate. mRNAs have distinct structures in *cis* and *trans* binding proteins that influence whether they are to be translated, degraded, or stored (collectively referred to as 'mRNA fate').A crucial *cis* determinant that affects mRNA fate is a 5' m^7G 'cap'. The 5' m^7G cap is essential for almost every step of mRNA metabolism: translation, mRNA splicing, export, and determining decay rate. Recently, I have identified a novel class of mRNAs in the eukaryote *S. cerevisiae* that contain a 5' NAD^+ moiety instead of the canonical m^7G cap. This and similar works in mammalians have opened a new field of study, expanding 40 years of research that has focused on m^7G capped mRNAs. Post-transcriptional mRNA regulation takes place in non-membranous organelles termed stress granules. I have demonstrated a role for the HSP70/40 chaperone system in stress granule disassembly. Stress granule disassembly is reduced in a variety of degenerative pathologies, including Amyotrophic Lateral Sclerosis. Patients with a subtype of Limb Girdle Muscular Dystrophy harbor a mutation in one of these chaperones, thus stress granule dynamics may play a role in this disease.

***Dr. Walters is a candidate for a faculty position in the Department of Biochemistry & Molecular Biology.**