



MMI 291 Seminar Series

Current Theme: Interdisciplinary Research
Spring Quarter 2022 – CRN 51421

Friday Seminar – 12:10-1 p.m.

“Long Immunogenic Introns in Human Cells: From Biogenesis to Clearance and Innate Immune Sensing”

Research / Bio

Why do mammalian cells have viral-like double-stranded RNAs? How they arise? Where do they go? How does antiviral immunity respond to them? We seek answers to these key questions by using structural biology (X-ray and cryo EM), classical biochemistry, cell biology, and genomics.

Dr. Alexei Korennykh is an Associate Professor of Molecular Biology at Princeton University. He is interested in structural and cell biology of pathways mediated by dsRNA and by RNA-processing receptors that mediate innate immunity to viruses and bacteria, cell proliferation, tumor progression, obesity and response to stress caused by imbalance of protein folding. Dr. Korennykh received his BS degree in Chemistry at Moscow State University (Russia). During his PhD work with Joe Piccirilli at the University of Chicago (1999-2005), he focused on recognition of RNA and eukaryotic ribosomes by enzymes that stop translation via structure-specific modification of large ribosomal RNA. For his postdoctoral work (2006-2011), he joined the laboratory of Peter Walter at University of California, San Francisco (UCSF). At UCSF he worked on a signaling mechanism by which cells deal with protein misfolding.

Publications

Korennykh A. *Introns encode dsRNAs undetected by RIG-I/MDA5/interferons and sensed via RNase L.* Proc Natl Acad Sci U S A. 2021 Nov 16;118(46):e2102134118. doi: 10.1073/pnas.2102134118. PMID: 34772806; PMCID: PMC8609619.

Korennykh A. *The metabolites NADP⁺ and NADPH are the targets of the circadian protein Nocturnin (Curlin).* Nat Commun. 2019 May 30;10(1):2367. doi: 10.1038/s41467-019-10125-z. PMID: 31147539; PMCID: PMC6542800.

Korennykh A. *Structure of human RNase L reveals the basis for regulated RNA decay in the IFN response.* Science. 2014 Mar 14;343(6176):1244-8. doi: 10.1126/science.1249845. Epub 2014 Feb 27. PMID: 24578532; PMCID: PMC4731867.

May
6



Alexei Korennykh, Ph.D.
Associate Professor
Molecular Biology
Princeton University

**May 6, 2022
12:10 – 1 p.m.
ZOOM Meeting**

Medical Microbiology
& Immunology
School of Medicine

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We hope to see you there!