



# Genome Sciences Seminar

Wednesday, 11.14.18 | 3:30 | Foege Auditorium

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## Dr. David Shechner

Assistant Professor of Pharmacology  
University of Washington

## “New tools for mapping the subcellular localization of RNAs (and their protein partners)”

### The Shechner Lab:

#### *Noncoding RNAs and the molecular basis of mammalian nuclear architecture*

Mammalian genomes are astonishingly intricate machines that require finely tuned regulation at multiple levels. Much of this regulation is achieved through the formation of three-dimensional structures, ranging in complexity from simple DNA loops, to discrete organelle-like bodies, to the global organization of chromatin within the nucleus. Since these architectural regulatory programs collectively influence all aspects of genome function, they must be accurately reconstructed as cells divide, and precisely modulated as they differentiate. Unsurprisingly, such processes are also misregulated throughout a host of human pathologies, including neurodegenerative disorders, aging, and cancer.

Although the importance of nuclear architecture is well established, the mechanisms by which subnuclear structures regulate genome function remain opaque. Even less is known regarding the pathways by which these domains are assembled. Intriguingly, noncoding RNAs (ncRNAs) have recently emerged as potentially key components in each of these processes, purportedly nucleating or modulating nuclear structures that span all levels of organization. However, deciphering the function of these putative regulatory ncRNAs has proven extremely challenging, requiring new technologies that probe and manipulate ncRNA activity *in situ*. To overcome these limitations, I have recently developed a suite of such technologies, termed **CRISPR-Display**, **CLING**, and **IISAAC**.

<http://depts.washington.edu/phcol/faculty/shechner.php>

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Refreshments served outside the Auditorium at 3:20pm

Questions? Contact Brian Giebel at [bgiebel@uw.edu](mailto:bgiebel@uw.edu) or visit the Seminar website at <http://www.gs.washington.edu/news/seminars.htm>

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