Department of Chemistry
UNIVERSITY OF WISCONSIN–MADISON

ORGANIC SEMINAR

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EMORY UNIVERSITY

A chemical biology toolbox for probing A-to-I RNA editing

RNA undergoes extensive modification through enzymatic post-transcriptional editing events. Adenosine-to-inosine (A-to-I) editing is one of the most widespread and impactful of these modifications and is catalyzed by adenosine deaminases acting on RNA (ADARs). Resulting inosines base pair with cytosine, essentially re-coding adenosine sites to guanine. Editing is essential for a number of processes including embryogenesis, neurological function, and innate cellular immunity. Dysfunctional editing is also linked to auto-immune diseases, neurological disorders, and several types of cancer. Despite this importance, numerous challenges remain for studying A-to-I editing, and our overall understanding of the locations and frequency of inosine sites remains limited. To address this challenge, we have repurposed EndoV from an RNA-cleaving enzyme into an RNA-binding protein and demonstrated its use for mapping of A-to-I editing sites and global profiling of RNA inosine content in cells and tissue samples. We are also harnessing single-cell sequencing methods to quantify the cell-to-cell variability in A-to-I editing at key sites linked to cancer progression.

GRAINGER HALL, ROOM 2120 | **TUESDAY, OCTOBER 12** | **3:30 PM (CT)**

For more information, contact Beatriz Lemire, at beatriz.lemire@wisc.edu
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