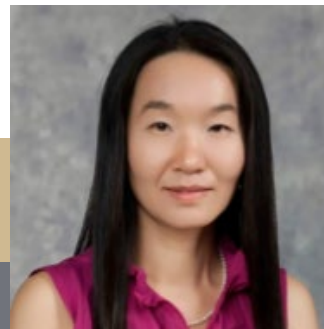


ANALYTICAL SEMINAR

Beauty Through Simplicity - Using aptamers to detect small molecules

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The detection of small molecules is important for a variety of applications such as environmental monitoring, food safety, law enforcement, and medical diagnostics. The most popular biosensors currently are immunoassays, which rely on antibodies to recognize target analytes. However, these assays are greatly limited by the costly and time-consuming process of developing, validating, and producing new target-specific antibodies, and their usefulness and reliability can also be impeded by batch-to-batch variation and short shelf-life. Aptamers – single-stranded oligonucleotide-based affinity reagents selected *in vitro* (e.g., via SELEX) that bind specific molecules with high affinity – offer a promising alternative that can overcome these limitations, while enabling new, unprecedented applications such as the real time monitoring of analytes in complex matrices. This talk will discuss recent advancements made by our group in three different facets of aptamer technologies in the pursuit of translating aptamers from prototype research materials to commercially available bioreceptors and analytical assays. These include innovative selection strategies for the systematic evolution of ligands by exponential enrichment (SELEX) technique, the development of novel high-throughput aptamer characterization methods, and innovative concepts in aptamer engineering for various small molecule analytes.

References

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2. Sci. Adv. 2024, 10, eadl3426
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4. Acc. Chem. Res. 2023, 56, 1731 – 1743.



Tuesday, September 16, 2025



3:30 pm



WTHR 172