

**Low cost single molecule fluorescence sensing of nucleic acid and protein  
biomarkers in clinical samples with attomole sensitivity**

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Quantitative detection of functional macromolecules in peripheral blood, such as RNA and proteins, is of importance to clinical diagnostics and personalized medicine. Single molecule sensors operate by counting individual molecular targets in the detecting space, are endowed with ultra-sensitivity but often suffer challenges of high-cost and complicated procedures. This talk will cover our recent progress in the development of a microdroplet based single molecule fluorescence sensing technology for high-throughput sensing applications, with cost down to several dollars per assay and limit of detection down to attomole. Examples of applications were demonstrated using clinical samples such as urine for piRNA detection for prostate cancer screening, and p-Tau for early detection of Alzheimer's disease.

References

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