

Exploring the properties and applications of DNA four-way junctions

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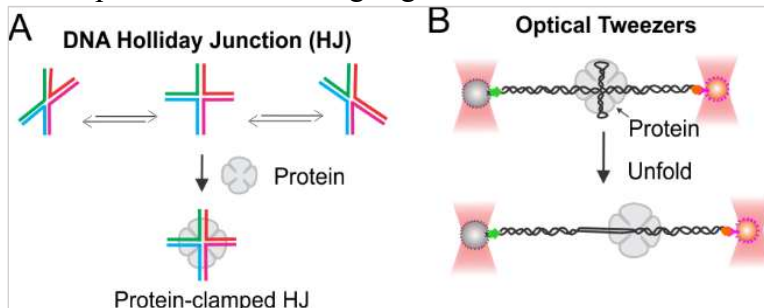
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Knowledge of how four-way DNA (also called Holliday junction) interacts with other biomolecules such as proteins is not only crucial for understanding the biological processes but also essential for the development of sensors, detection of diseases, designing new drugs, and many more. The recent advancements in single-molecule techniques such as fluorescence microscopy and optical tweezers have enabled the visualization and manipulation of four-way DNA structures at the single-molecule level. In this presentation, I will share our recent success in measuring the properties of DNA four-way junctions and applying them for the detection of cancer-related markers such as micro-RNAs. Overall, this presentation will highlight novel research areas with potentially high impact on improving human health through the early diagnosis of cancers.

I will also briefly cover different research areas that we have been pursuing at VCU, which can be helpful for those who are looking for a career in the STEM field.



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