

‘Guanine quadruplexes: A tale of expanding discoveries in nucleic acid targeting’

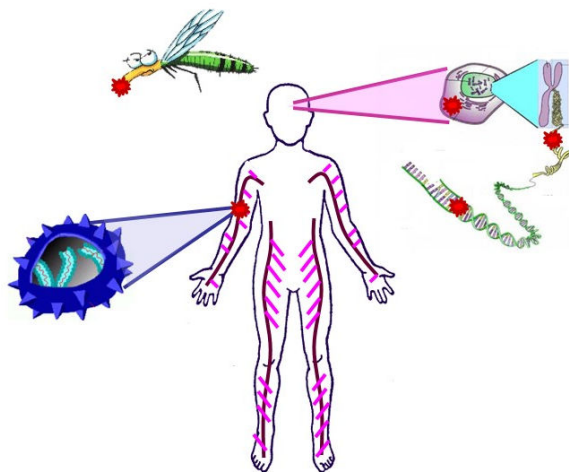
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The past 20 years have seen a revolution in nucleic acid structure and function. Guanine quadruplexes, an alternate family of structures of nucleic acids which differs from the traditionally recognized double-helix, have revealed themselves from curiosities suspected to occur in obscure fragments of DNA, to a massively present motif in DNA, RNA and DNA-RNA hybrids in a variety of contexts (*e.g.*, mammals, insects, plants, viruses). Evidence is increasingly suggesting that guanine quadruplexes are heavily involved in the regulation of essential processes^[1] that play important roles in conditions as varied as cancers, infectious and parasitic diseases, and neurological disorders.^[2]



This presentation will relate the fascinating discoveries that are leading to the realization of the guanine quadruplex motif prominence, together with the tale of our group’s fortunate (and sometimes accidental) incursions in the field, through bio-organic and bio-inorganic approaches.^[3,4]

References:

- [1] Varshney *et al.*, *Nat. Rev. Mol. Cell Biol.* **2020**, *21*, 459–474 [doi.org/10.1038/s41580-020-0236-x].
- [2] Katie Manas, Celena Hoeve, *Queen’s Science Undergraduate Research Journal*, **2020**, *4*, 40–50. [<https://ojs.library.queensu.ca/index.php/qsurj/article/view/13966>].
- [3] Merle *et al.*, *Mol. Cancer Ther.* **2011**, *10*, 1784–1795 [doi.org/10.1158/1535-7163.MCT-10-0664].
- [4] Miron *et al.* *Angew. Chem. Int. Ed.* **2021**, *60*, 2500–2507 [doi.org/10.1002/anie.202012520]