Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM SEMINAR SERIES
WEDNESDAY, FEBRUARY 10, 2021
3:10PM VIA ZOOM
HTTPS://UTORONTO.ZOOM.US/J/82818772109


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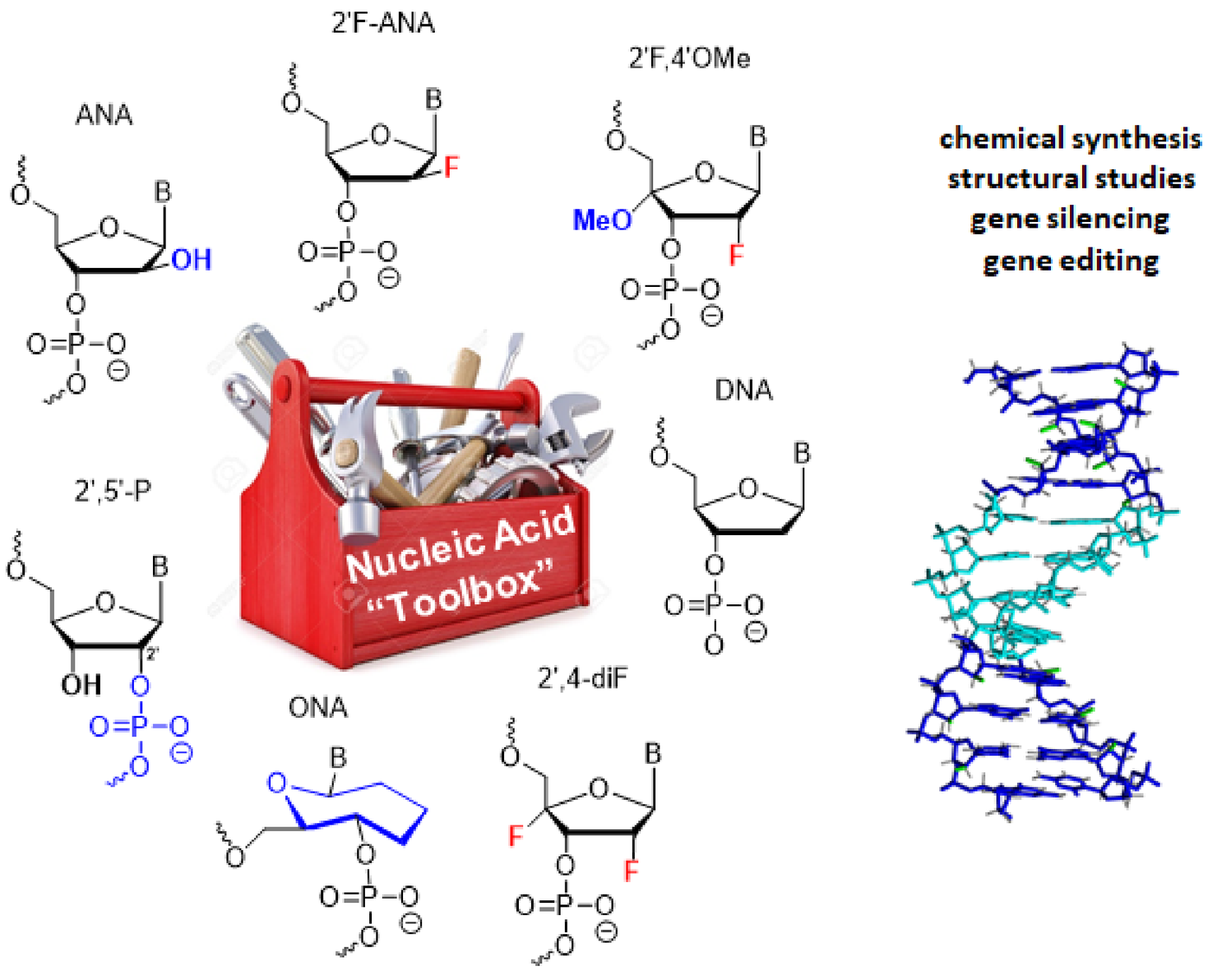
# Turning genes on and off with chemically modified DNA and RNA





This presentation will provide an overview of recent and past work in our laboratory concerning the chemical synthesis, structural studies, and biological properties of chemically modified nucleic acids (DNA and RNA). I will introduce concepts behind the development of 'DNA/RNA therapeutics', such as "RNAi", "antisense", and "CRISPR" technologies, and explain how chemistry can overcome obstacles encountered when advancing nucleic acid therapeutics to the clinic. Among our favorite molecules are nucleic acids containing a fluorine atom and/or a functional group in their ribose sugar ring. Fluorine is a popular choice since it is a reasonable mimic of either a hydrogen atom (size) or a OH functional group (electronegativity), and yet endows nucleic acids with stability in vitro/in vivo and high affinity to mRNA targets. Time permitting I will also describe recent developments in the synthesis of both DNA and RNA.