



## An Enantioselective and Modular Platform for C4'-Modified Nucleoside Analogue Synthesis

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### HIGHLIGHTS

- New chemical process to produce C4'-modified nucleoside analogues.
- Potential application in developing antiviral and anticancer medications, as well as oligonucleotide-based therapeutic treatments.
- Provides new opportunities in drug design.

### OPPORTUNITY

Nucleoside analogues are vital for modern medicine, serving as key treatments for cancer and viral infections, with C4'-modified nucleoside analogues being especially significant for antiviral and therapeutic research. Despite the significance of C4'-modified nucleoside analogues, the complexity of their synthesis presents an ongoing challenge for researchers. Currently, there is no general platform that provides direct access to libraries of naturally configured C4'-modified nucleoside analogues.

University of Alberta researchers have developed a modular 5-step process to produce a diverse collection of C4'-modified nucleoside analogues. This platform addresses many of the current shortcomings associated with the synthesis of C4'-modified nucleoside analogues and provides a powerful tool for exploring new chemical space around this valuable chemotype to support efforts in drug design.

### COMPETITIVE ADVANTAGE

- Two- to three fold reduction in the number of steps compared to the most recently reported biocatalytic approaches.
- Offers a highly accessible and streamlined protocol which potentially enables the discovery of new chemical variations within this important chemotype.

### STATUS

- Patent Pending.
- [Nuligonda T, Kumar G, Wang JW, Rajapaksha D, Elayan IA, Demir R, Meanwell NJ, Wang SF, Mahal LK, Brown A, Meanwell MW. An enantioselective and modular platform for C4'-modified nucleoside analogue synthesis enabled by intramolecular trans-acetalizations. Nature Communications. 2024 Aug 17;15\(1\):7080.](#)

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