

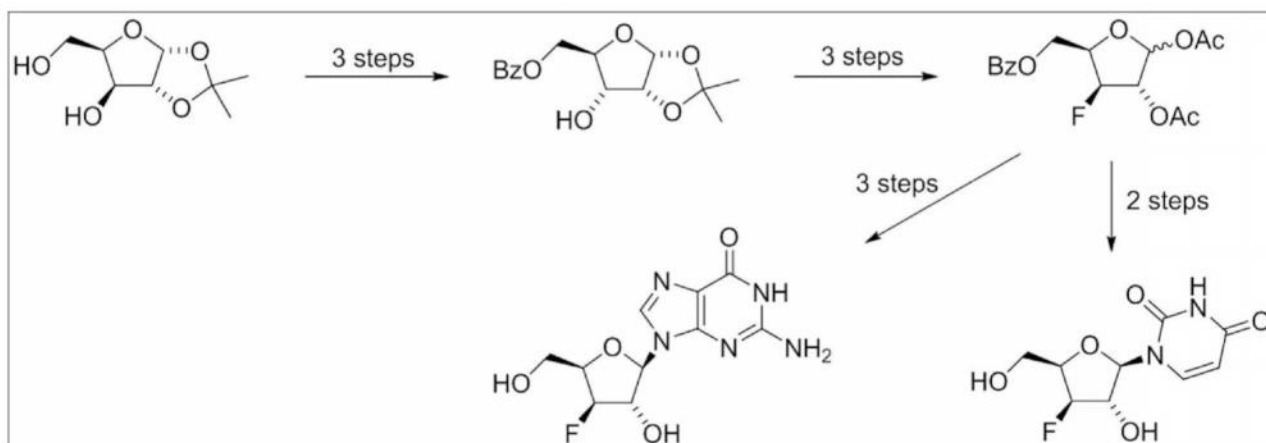
Nucleosides & Nucleotides: They're in our DNA

Access to Highly Functionalised Compounds for your Drug Discovery Programs

Analogue of nucleosides, nucleotides and oligonucleotides are useful tools in biotechnology, biology and medicine, for the treatment of cancer, viral infections and metabolic disorders, by interference with oligonucleotide function. More than thirty FDA approved nucleoside/nucleotide drugs are on the market and thirty additional compounds are currently in the pipeline.^{i,ii} Over many years, Charnwood Molecular has acquired significant experience in the synthesis of nucleosides and nucleotides, from route development and route scouting, to the synthesis of building blocks and larger quantities of final compounds. Our projects have included :

- Novel nucleosides (route development, scale-up synthesis)
- Highly functionalised sugars, including arabinoses, riboses pentoses, galactoses (>50g over multiple steps)
- Halogenated sugars
- Different purine and pyrimidine-based nucleosides & nucleotides
- Cyclic phosphate nucleotides
- Nucleotide prodrugs
- Deoxy nucleosides/nucleotides

The scheme below shows a couple of nucleosides recently synthesised in our laboratories:



1,2-O-Isopropylidene-α-D-xylofuranose was converted, in six steps, into a fluorinated sugar intermediate which allowed us to prepare gram quantities of the functionalised guanine and uracil nucleosides.

More than 150 nucleoside and nucleotide analogues have been synthesised over the past few years in our laboratories from mg to multigram quantities. Charnwood Molecular is an established provider for route scouting, building blocks and the bespoke synthesis of nucleosides and nucleotides to enhance and accelerate our clients' Drug Discovery programs.

i. Schinazi, R. F. *et al. Chem. Rev.*, **2014**, *114* (18), 9154

ii. Dumontet, C. *et al. Nat. Rev. Drug Discov.*, **2013**, *12*, 447

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