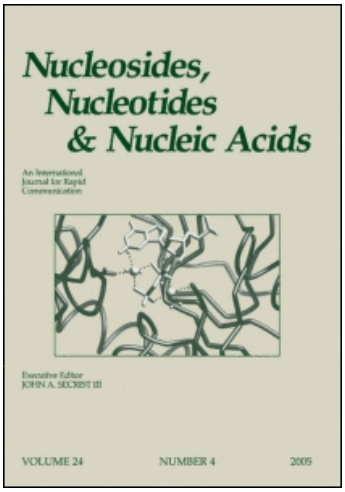

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Triazole and Imidazole Reversed Nucleosides of L-Idose and D-Glucose

L. Vanbaelinghem[a]; P. Martin[a]; D. Postel[a]; G. Goethals[a]; D. F. Ewing[b]; G. Mackenzie[b]; G. Ronco[a]; P. Villa[a]
[a] Laboratoire de Chimie Organique et Cinétique, Université de Picardie Jules Verne, Amiens, France [b] Department of Chemistry, University of Hull, Hull, UK

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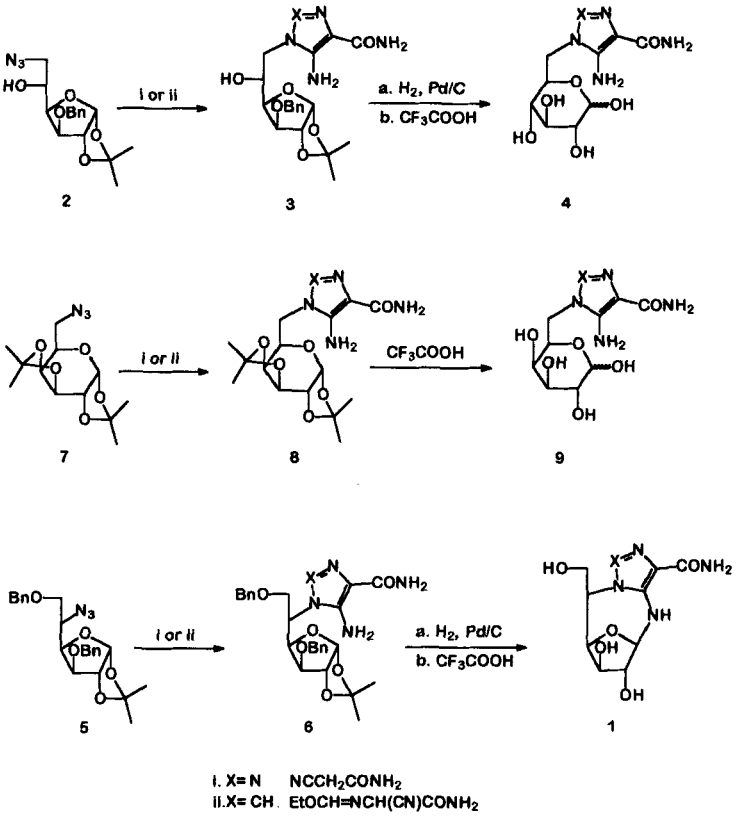
TRIAZOLE AND IMIDAZOLE REVERSED NUCLEOSIDES OF L-IDOSE AND D-GLUCOSE

L. Vanbaelinghem[a], P. Martin[a], D. Postel[a], G. Goethals[a],
D. F. Ewing[b], G. Mackenzie[b]*,G. Ronco[a], P. Villa[a]*,
a- Laboratoire de Chimie Organique et Cinétique,Université de Picardie Jules Verne 80039, Amiens, France
b- Department of Chemistry, University of Hull, HU6 7RX, Hull, UK

ABSTRACT: 6-azido-6-deoxy-gluco-(galacto)pyranose and 5-azido-5-deoxy-glucofuranose derivatives were used to obtain reversed nucleoside analogues with either the 5-aminoimidazole-4-carboxamide or 5-amino-1,2,3-triazol-4-carboxamide groups attached, through the N-1 site, to the C-6' (C-5') site of the sugar. When deprotected some of these compounds cyclised spontaneously to form a bond between the exocylic nitrogen and the anomeric carbon of the sugar.

We have been interested to synthesise novel imidazo (and triazo) diazocine systems of type **1** as (i) analogues of known imidazotriazepines[1] which are active as reverse transcriptase inhibitors, (ii) conformationally restricted nucleosides, (iii) precursors of related purine nucleosides. We have previously developed an entry into the 2,5-epoxyimidazo[1,5-a][1,3] diazocin (type **1**, X= CH) and 5,8-epoxy[1,2,3] triazolo[1,5-a][1,3] diazocin (type **1**, X= N) systems from D-xylose[2]. These new compounds contain a fused azole-diazocine system (thus showing structural similarity to antivirals such as TIBO[1]), but are also reversed cyclonucleoside analogues (thus retaining direct potential for interaction at the nucleic acid level). The triazole and imidazole reversed nucleosides **3** and **6** were obtained from compounds **2** and **5** in similar yields to that observed for D-xylose[2]. 1,2-acetal groups were removed by treatment with trifluoroacetic acid: intramolecular cyclisation occured with compound **6** to afford **1**; in contrast, compounds **3** gave the reversed pyranosyl nucleosides **4**.

Therefore it would appear that the steric constraints in the pyranose configuration are not favourable to cyclisation. The analogous galactopyranosyl derivatives **8** were synthesised in a similar manner from the pyranosyl azide **7**.



The hexofuranosyl systems such as **1** possessing a primary hydroxyl group were of interest since they have the potential to undergo *in vivo* phosporylation to the triphosphate derivative similar to that which takes place with AZT or ddI.

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