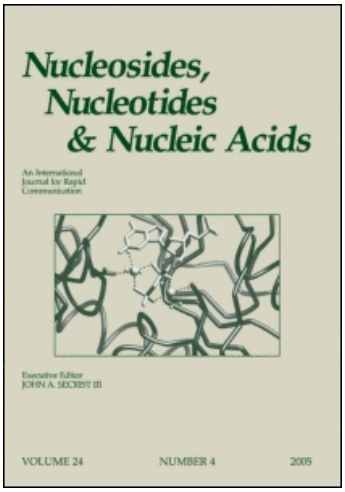


Nucleosides, Nucleotides and Nucleic Acids
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713597286

SYNTHESIS AND EVALUATION OF ANTIVIRAL ACTIVITY OF HIGHER HOMOLOGUES OF XYLO-CARBOCYCLIC NUCLEOSIDES

O. Caamaño[a]; M. J. Figueira[a]; F. Fernández[a]; M. D. García[a]; M. I. Nieto[a]; E. de Clercq[b]; J. Balzarini[b]
[a] Depto. Química Orgánica, Universidad de Santiago, santiago de composa, Spain [b] Rega Institute for Medical Research, Katholieke Universiteit Leuven, Leuven, Belgium

Online publication date: 31 March 2001

NUCLEOSIDES, NUCLEOTIDES & NUCLEIC ACIDS, 20(4–7), 1137–1139 (2001)

SYNTHESIS AND EVALUATION OF ANTIVIRAL ACTIVITY OF HIGHER HOMOLOGUES OF XYLO-CARBOCYCLIC NUCLEOSIDES

O. Caamaño,[1,*] M. J. Figueira,[1] F. Fernández,[1] M. D. García,[1] M. I. Nieto,[1] E. De Clercq,[2] and J. Balzarini[2]

[1]Depto. Química Orgánica, Universidad de Santiago, E-15706, Santiago de Compostela, Spain
[2]Rega Institute for Medical Research, Katholieke Universiteit Leuven, B-3000 Leuven, Belgium

ABSTRACT

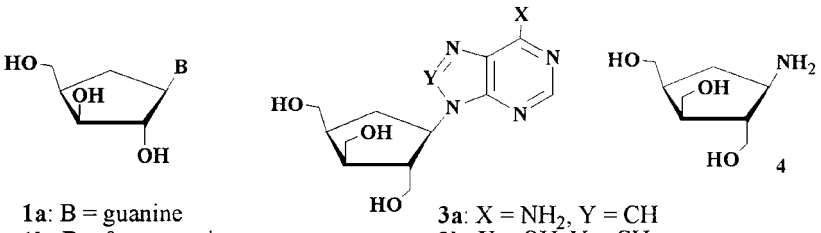
New carbocyclic nucleosides with purine (compounds **3a** and **3b**), and 8-azapurine (compounds **3c** and **3d**) as base were prepared and assayed for *in vitro* activity.

Several carbonucleosides with *xylo* configuration in their pseudo-sugar moiety have shown interesting antiviral or antineoplastic properties. Thus, carbocyclic xylofuranosylguanine **1a** and its 8-aza analogue **1b** were active against herpes simplex virus (types 1 and 2) and **1b** also exhibited potent activity against human cytomegalovirus (CMV) and varicella-zoster virus (VZV) (1). Besides, carbocyclic xylofuranosyladenine **2a** and the corresponding 8-aza derivative **2b** exhibited significant *in vivo* antitumor activity (2).

In a search for novel structures with biological activity, we set about to prepare higher homologues of **2**, of type **3**.

The synthesis of a series of new carbonucleosides **3a–d**, using the aminocyclopentanetrismethanol (±)-**4** as key intermediate, is presented in this communication (3).

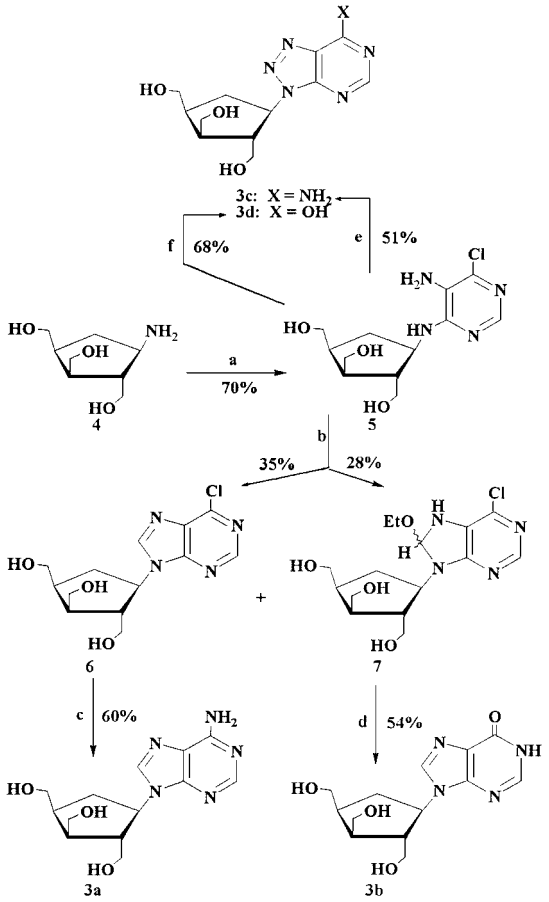
*Corresponding author.



1a: B = guanine
1b: B = 8-azaguanine
2a: B = adenine
2b: B = 8-azaadenine

3a: X = NH_2, Y = CH
3b: X = OH, Y = CH
3c: X = NH_2, Y = N
3d: X = OH, Y = N

Compounds **3** were assayed against a variety of viruses, including HIV, CMV, TK^+ VZV and TK^- VZV, and also evaluated as antineoplastic agents. Some of these compounds showed only marginal antiviral activity at subtoxic concentrations.



a) 5-Amino-4,6-dichloropyrimidine, Et_3N, n-butanol, reflux, 56 h; b) $CH(OEt)_3$, 12N HCl, r.t., 18 h; c) 14N NH_4OH, reflux, 29 h; d) 1N HCl, reflux, 2.5 h; e) $NaNO_2$, H_2O, 14N NH_4OH, reflux, 2 h; f) $NaNO_2$, AcOH, H_2O, r.t., 18 h.

MARCEL DEKKER, INC.
270 Madison Avenue, New York, New York 10016

REFERENCES

1. R. Vince, R. H. Turakhia, W. M. Shannon, G. Annett, *J. Med. Chem.* **1987**, *30*, 2026–2030.
2. R. Vince, J. Brownell, S. Daluge, *J. Med. Chem.* **1984**, *27*, 1358–1360.
3. All compounds had spectral and analytical data consistent with their structures.

MARCEL DEKKER, INC.
270 Madison Avenue, New York, New York 10016

Request Permission or Order Reprints Instantly!