

This article was downloaded by:

On: 26 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Nucleosides, Nucleotides and Nucleic Acids

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713597286>

### Synthesis of New Pseudonucleosides Containing Sulfamylated Derivatives of Natural Amino Acids as Aglycone

Nour-Eddine Aouf<sup>a</sup>; Ouassila Attoui<sup>a</sup>; Abdelghani Djahoudi<sup>a</sup>

<sup>a</sup> Laboratory of Bioorganic Chemistry, Annaba University, Hadjar, Algeria

**To cite this Article** Aouf, Nour-Eddine , Attoui, Ouassila and Djahoudi, Abdelghani(1999) 'Synthesis of New Pseudonucleosides Containing Sulfamylated Derivatives of Natural Amino Acids as Aglycone', *Nucleosides, Nucleotides and Nucleic Acids*, 18: 6, 1385 – 1386

**To link to this Article:** DOI: 10.1080/07328319908044724

**URL:** <http://dx.doi.org/10.1080/07328319908044724>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

**SYNTHESIS OF NEW PSEUDONUCLEOSIDES CONTAINING  
SULFAMYLATED DERIVATIVES OF NATURAL AMINO ACIDS  
AS AGLYCONE**

Nour-Eddine Aouf\*, Ouassila Attoui and Abdelghani Djahoudi  
Laboratory of Bioorganic Chemistry, Annaba University, BP12 El-Hadjar, Algeria

**ABSTRACT** : New chiral sulfahydantoins have been synthesized *via* alkaline cyclisation, starting from symetric sulfamide derivatives of natural amino acids. Tetraacetyl ribofuranose was used in the glycosylation step in order to obtain the pseudonucleosides in  $\beta$ -anomeric configuration.

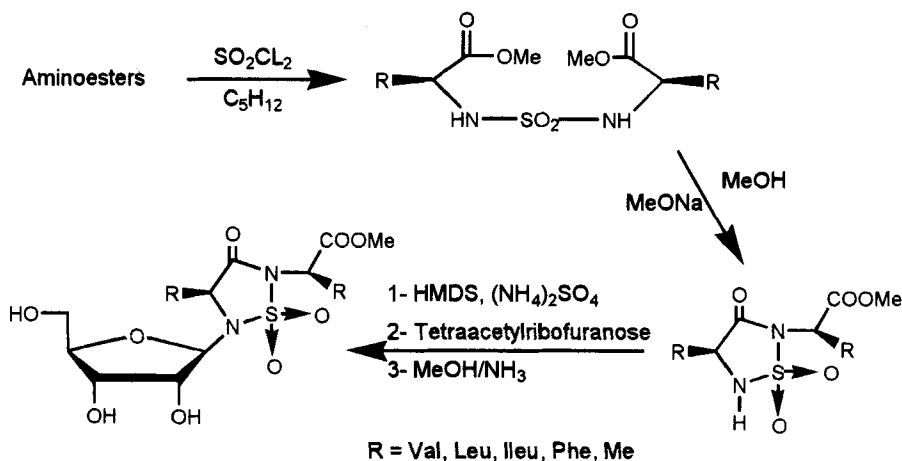
**Introduction** : In the course of our investigations of modified nucleosides, our interest was focused on the development of synthetic ways for pseudonucleosides containing modified aglycone<sup>1</sup>. The modification of the heterocyclic aglycone is important for the preparation of new nucleosidic analogues used in antiviral and/or antitumoral chemotherapy. In order to interfere with biological process, pseudonucleoside has to be able to inhibit nucleoside biogenesis enzymes, or to selectively hybridize with natural nucleotides. Recently, we have reported the synthesis of new pseudonucleosides containing chiral *sulfahydantoin*<sup>2</sup>. We have extended our studies in the series pseudonucleosidic derivatives of symetric sulfamides.

**Synthesis** : Chiral *sulfahydantoins* have been synthesized *via* alkaline cyclisation, starting from amino esters. The symetric sulfamides were prepared using K. Danek *et al.* method<sup>3</sup> in 71-85% yield by treatment of the amino esters with sulfuryl chloride in pentane. Cyclisation was obtained by refluxing the sulfamides with sodium methoxide in methanol for one hour.

Then, the Vorbrüggen<sup>4</sup> method of glycosylation was applied. This route, requiring preliminary silylation of the aglycone, proved to be a method of choice for the

glycosylation of sulfahydantoins. The heterocycle was first treated by hexamethyldisilazane (HMDS) containing catalytic quantities of ammonium sulfate.

The condensation with tetraacetyl- $\beta$ -D-ribofuranose was carried out in acetonitrile, in the presence of tin tetrachloride. Finally, the ester groups were removed by treatment with methanolic-ammonia.



All of these compounds were characterized by usual spectroscopic methods, i.e.  $^1\text{H}$  and  $^{13}\text{C}$  NMR, mass spectrometry and elemental analyses.

The  $\beta$ -anomeric configuration of the pseudonucleosides was confirmed by  $^1\text{H}$  NMR studies ( $J_{\text{H}^1\text{H}^2} = 7,2 - 7,8 \text{ Hz}$ )

**Conclusion :** We described here the preparation of new pseudonucleosides containing sulfamylated derivate of natural amino acids as aglycones. The pharmacological evaluation of these compounds is in progress.

#### Acknowledgements

Financial support from the Algerian Ministry of Scientific Research of national academic agreement 2301/09/96.

#### REFERENCES

1. Ozola, V. ; Ramzeva, N. ; Maurinsh, Y. ; Lidaks, M. *Nucleosides & Nucleotides*, **1993**, *12*, 827-839.
2. Dewynter, G. ; Aouf, N. ; Regainia, Z. ; Montero, J.-L. *Tetrahedron*, **1996**, *52*, 993-1004.
3. Danek, K. ; Kelly, D.K. ; Stell, P. *J. Org. Chem.*, **1991**, *56*, 2031-2039.
4. Vorbrüggen, H. ; Bennua, B. *Chem. Ber.*, **1981**, *114*, 1279-1288.