

This article was downloaded by:

On: 29 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



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

Thio Nucleoside Derivatives as Intermediates or Target Compounds in the Attempt of Finding New Agents Against HIV

Erik B. Pedersen; Kim L. Dueholm; Ali El-emam; Thomas Kofoed; Abdelmoneim A. -M. El-Torgoman; Mohammed S. Motawia; Youssef L. Aly; Per T. Jørgensen; Ahmed A. K. El-barbary; Ahmed Khodair; Erik Larsen

To cite this Article Pedersen, Erik B. , Dueholm, Kim L. , El-emam, Ali , Kofoed, Thomas , El-Torgoman, Abdelmoneim A. -M. , Motawia, Mohammed S. , Aly, Youssef L. , Jørgensen, Per T. , El-barbary, Ahmed A. K. , Khodair, Ahmed and Larsen, Erik(1993) 'Thio Nucleoside Derivatives as Intermediates or Target Compounds in the Attempt of Finding New Agents Against HIV', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 74: 1, 465 — 466

To link to this Article: DOI: 10.1080/10426509308038166

URL: <http://dx.doi.org/10.1080/10426509308038166>

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.

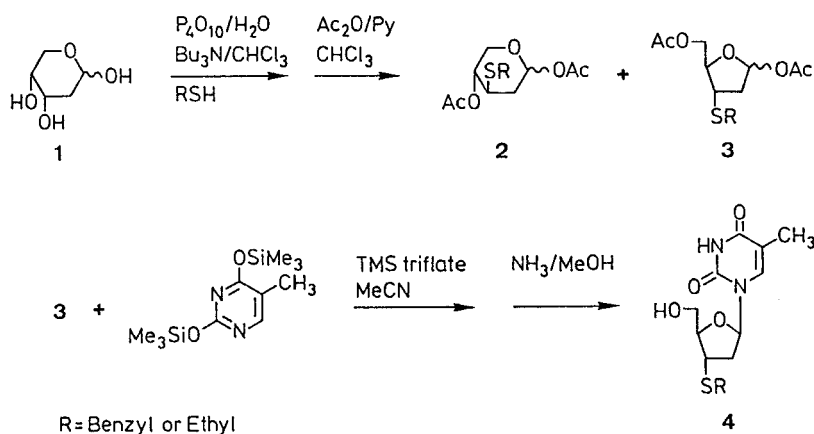
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any 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.

THIO NUCLEOSIDE DERIVATIVES AS INTERMEDIATES OR TARGET COMPOUNDS IN THE ATTEMPT OF FINDING NEW AGENTS AGAINST HIV

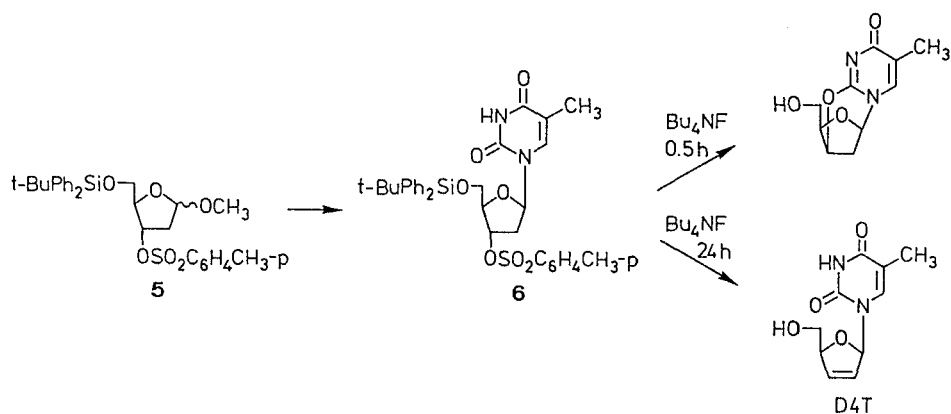
ERIK B. PEDERSEN, KIM L. DUEHOLM, ALI EL-EMAM, THOMAS KOFOED, ABDEL-MONEIM A.-M. EL-TORGOMAN, MOHAMMED S. MOTAWIA, YOUSSEF L. ALY, PER T. JØRGENSEN, AHMED A. K. EL-BARBARY, AHMED KHODAIR AND ERIK LARSEN.

Abstract 3'-Alkylthio-2',3'-dideoxy nucleosides and D4T are synthesized. An attempt of synthesizing a hybrid between AZT and HEPT is presented.

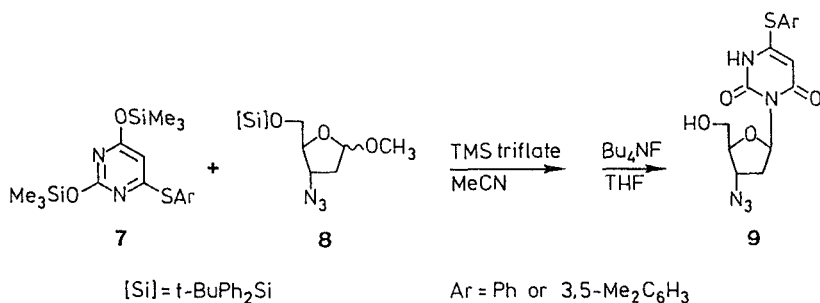
In our laboratory we have been very successful in using a convergent strategy for the synthesis of 2,3-dideoxy nucleosides by condensing appropriately substituted methyl glycosides with nucleobases.



Direct condensation of 2-deoxy-D-ribose 1 with mercaptans using the $P_4O_{10}/H_2O/Bu_3N$ reagent in chloroform resulted in coupling at C-3 to give the anomeric mixtures of the corresponding pentopyranoses 2 and pentofuranoses 3 after acetylation with acetic anhydride in dry pyridine. The latter was used in the synthesis of the nucleoside 4.



The methyl glycoside **5** was synthesized from 2-deoxy-D-ribose by successive methyl glycosidation, silylation and tosylation and subsequently used for the synthesis of the nucleoside **6** which was isolated in 48% yield by precipitation. From this product D4T could be synthesized by refluxing with Bu_4NF in THF for 24 h in 20% overall yield from 2-deoxy-D-ribose. Using shorter reaction time and lower reaction temperature one can produce 2,3-anhydrothymidine which is an important intermediate in the synthesis of AZT.



It was attempted to synthesize a hybrid between AZT and HEPT by reaction the 6-arylthiopyrimidine derivative **7** with the sugar **8** using TMS triflate as the catalyst. Due to sterical hindrance from sulfur alkylation occurred at N-3 and not as expected at N-1.