

This article was downloaded by:

On: 28 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>

Enantioselective Synthesis of α -Alkoxy-Phosphonates by Chiral Phase Transfer Catalysis

Zsuzsa M. Jászay^a; Imre Petneházy^b; Árpád Szabó^b; Péter Bakó^b; György Clementis^c; László Töke^b

^a Organic Chemical Technological Research Group of the Hungarian Academy of Sciences, ^b

Department of Organic Chemical Technology, Technical University of Budapest, Budapest, Hungary ^c

EGIS Pharmaceuticals Ltd., Budapest

To cite this Article Jászay, Zsuzsa M. , Petneházy, Imre , Szabó, Árpád , Bakó, Péter , Clementis, György and Töke, László(1999) 'Enantioselective Synthesis of α -Alkoxy-Phosphonates by Chiral Phase Transfer Catalysis', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 147: 1, 135

To link to this Article: DOI: 10.1080/10426509908053548

URL: <http://dx.doi.org/10.1080/10426509908053548>

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.

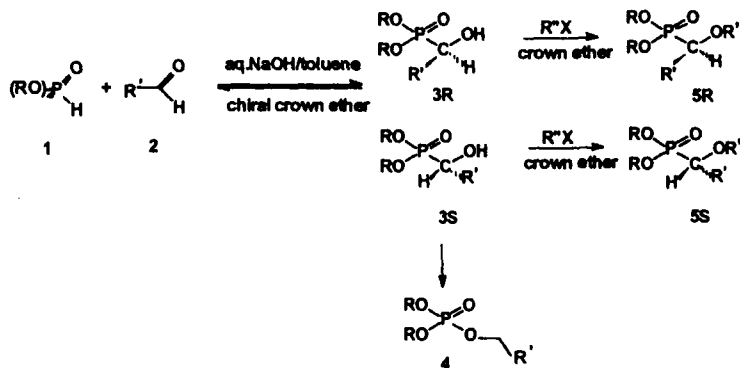
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any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

Enantioselective Synthesis of α -Alkoxy-Phosphonates by Chiral Phase Transfer Catalysis

ZSUZSA M. JÁSZAY^a, IMRE PETNEHÁZY^b, ÁRPÁD SZABÓ^b,
 PÉTER BAKÓ^b, GYÖRGY CLEMENTIS^c and LÁSZLÓ TÖKE^b

^aOrganic Chemical Technological Research Group of the Hungarian Academy of
 Sciences, ^bDepartment of Organic Chemical Technology, Technical University of
 Budapest, H-1521 Budapest, Hungary and ^cEGIS Pharmaceuticals Ltd.,
 H-1475 Budapest, 10 POB 100

Enantioselective PTC phosphorylation of aldehydes performed in a two phase (aq.
 NaOH/toluene) system mediated by chiral crown ether incorporating one or two sugar
 units. To avoid the rearrangement of hydroxy phosphonate **3** to nonchiral mixed
 phosphate ester **4** the hydroxy phosphonate was trapped by alkylation to give **5**.



The best ee (42%) was achieved for the α -m-methoxyphenyl phosphonate formed from dimethyl phosphite and m-methoxy-benzaldehyde by methylation. The ee was measured by capillary electrophoresis using a chiral selector.

General procedure: Into an ice cold mixture of 45% NaOH (6 ml), toluene (5 ml) and 0,2 mmol of crown ether a toluene solution of dialkyl phosphite (2 mmole), aldehyde (2,2 mmole), dialkyl sulphate (2,2 mmole) was added dropwise. After completion of the reaction cc. NH_4OH was added, the organic layer separated, washed, dried and the solvent evaporated. The residue was purified by column chromatography.

Acknowledgement: Support from the Hungarian Research Foundation (OTKA T 026478) is acknowledged.