

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>

Design and Development of New Hydroxy Methyl Phosphine Based Bifunctional Chelating Agents (BFCAs) for Use in Radiopharmaceutical Applications

S. R. Karra^a; R. Schibli^a; H. Gali^a; K. V. Katti^a; W. A. Volkert^a

^a Center for Radiological Research, University of Missouri-Columbia, Columbia, MO, USA

To cite this Article Karra, S. R. , Schibli, R. , Gali, H. , Katti, K. V. and Volkert, W. A.(1999) 'Design and Development of New Hydroxy Methyl Phosphine Based Bifunctional Chelating Agents (BFCAs) for Use in Radiopharmaceutical Applications', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 147: 1, 151 — 152

To link to this Article: DOI: 10.1080/10426509908053556

URL: <http://dx.doi.org/10.1080/10426509908053556>

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.

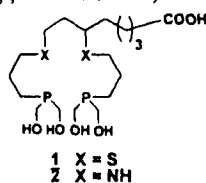
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any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

Design and Development of New Hydroxy Methyl Phosphine Based Bifunctional Chelating Agents (BFCAs) for Use in Radiopharmaceutical Applications

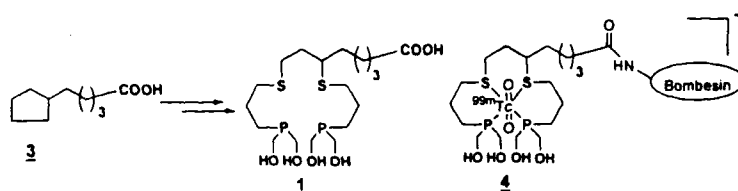
KARRA S.R., R. SCHIBLI, H. GALI, K.V. KATTI and W.A. VOLKERT

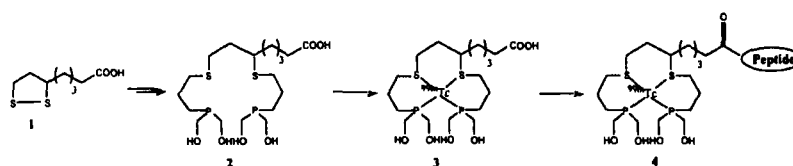
Center for Radiological Research, 306 Business Loop, Rm. 106 University of Missouri-Columbia, Columbia, MO 65211, USA

Hydroxymethyl phosphine compounds are water-soluble and moderately air stable. This class of compounds have the potential for use in variety of catalytic and biomedical applications.¹ As part of our ongoing program to utilize the hydroxymethyl phosphine ligands for applications in Nuclear Medicine, we are interested to develop tetradentate hydroxy methyl phosphine-based Bifunctional Chelating Agents (BFCAs) 1 and 2. Site-directed biomolecules such as receptor-avid peptides and proteins modified with these BFCAs can be used as vehicles or specific delivery of diagnostic (e.g., ^{99m}Tc) and therapeutic radionuclides (e.g., ¹⁸⁸Re and ¹⁸⁶R) to target cancer cells.²



We have now developed a six step route for the synthesis of 1 from DL-Thioctic acid 3. The ^{99m}Tc complex of 1 was conjugated to a 14 amino acid peptide, Bombesin for which specific receptors were expressed on a variety of cancer cell lines.





References

- [1] (a) Katti, K.V.; *Current Science*, **70**, 219 (1996).
(b) DuBois, D.L.; Miedaner, A. *J. Am. Chem. Soc.*, **109**, 113 (1987). *Commun.*, 1863 (1994).
- [2] Fishchmann, A.J.; Babich, J.W.; Strauss, J.W.; *J. Nucl. Med.*, **34**, 2253 (1993).