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## **Versatile diamondoids : applications in bioorganic chemistry**

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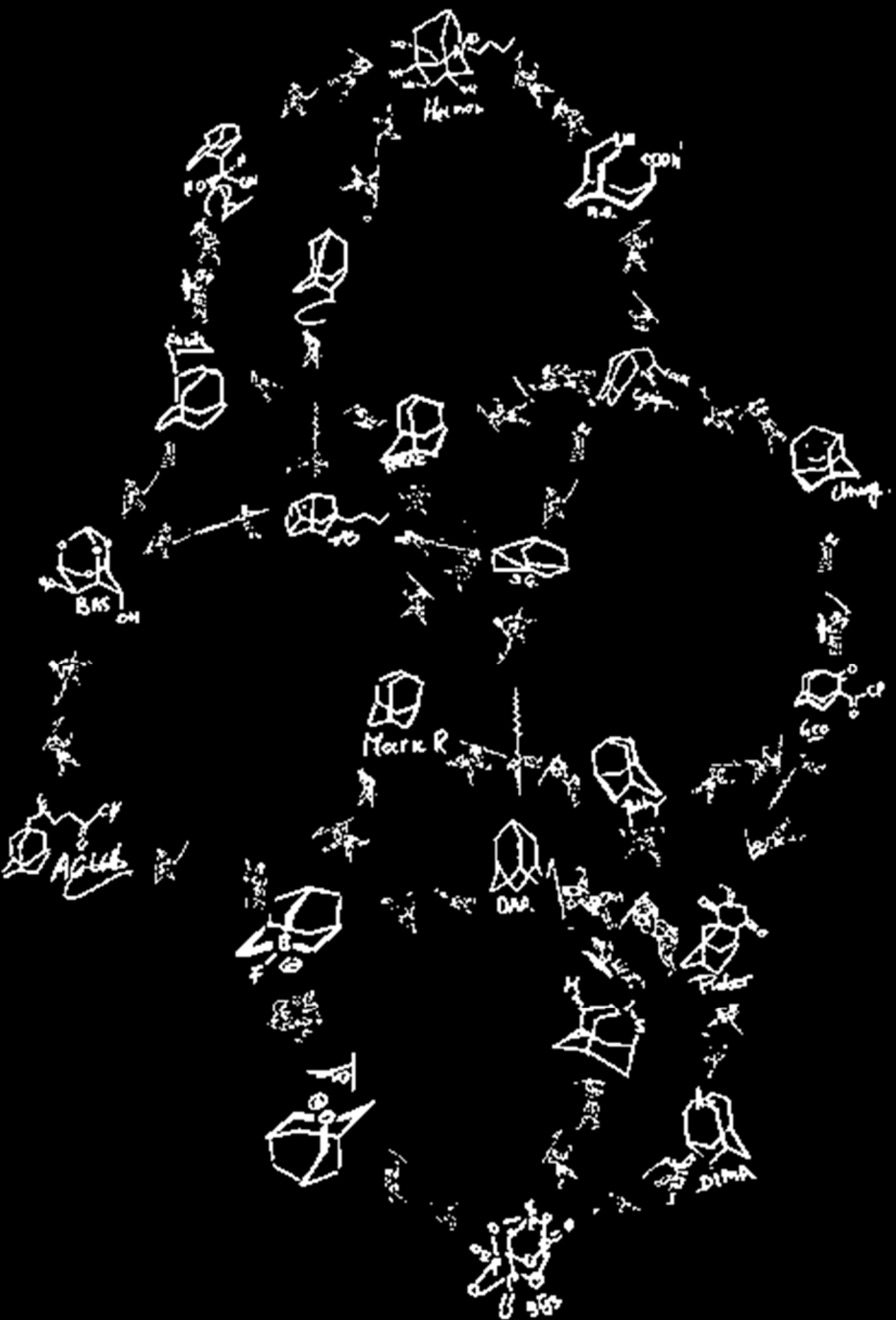
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# Versatile Diamondoids

## Applications in Bioorganic Chemistry



Amar B.T. Ghisaidoobe

## Versatile Diamondoids: Applications in Bioorganic Chemistry

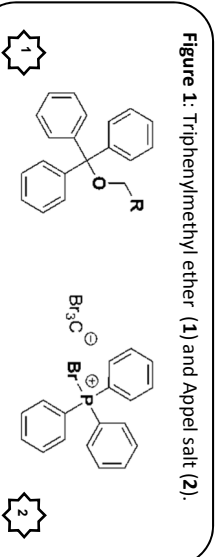
Amar B.T. Ghisaidoobe

### A new look at old stuff: Reactivity of Trityl ethers towards Appel salts

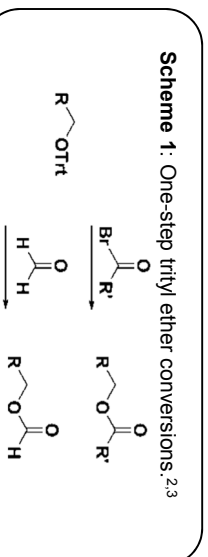
Dedicated to: Erica Wenker, Bart van Ommen, Anne Geert Volbeda, Jos Poolman, Nuria Roda Monsalves, Daan van der Es, Geoffroy Genital and Casper Remmerswaal



The triphenylmethyl (trityl) protective group has enjoyed widespread use in organic synthesis for the selective protection of primary alcohol functionalities.

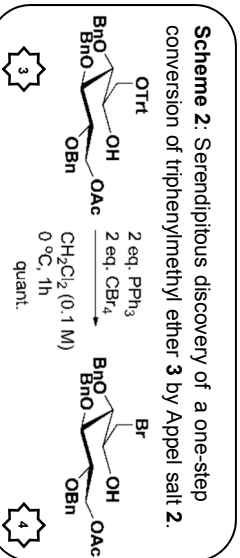


Since its pioneering application in classical carbohydrate chemistry,<sup>1</sup> the stability of the trityl group towards a variety of reaction conditions has led to the development of different methods for its mild introduction and cleavage.

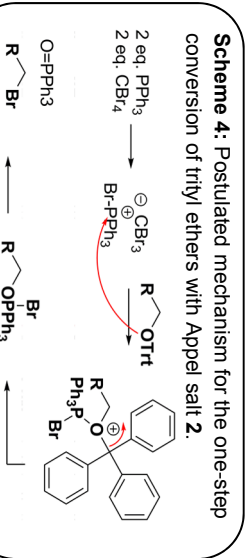
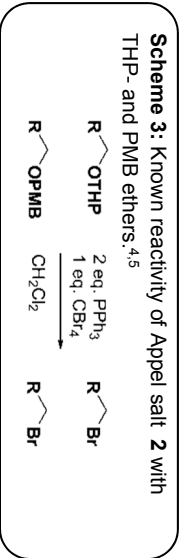


Oriyama *et al.* (2003) reported a one-step conversion of trityl ethers to the corresponding acetates utilizing 1.2 equiv. of acylbromides.<sup>2</sup> In 2006, Tsoukala *et al.* reported the one-step conversion of trityl ethers to the corresponding formates.<sup>3</sup>

Here, we report a one-step conversion of trityl ethers to the corresponding bromides utilizing two equivalents of the Appel salt **2**.



The Appel salt **2** normally effects the transformation of an alcohol to a halogen. An unusual reactivity of Appel salts was previously demonstrated by Mioskowski *et al.* (1989) and by Mishra *et al.* (2002) with the one-step conversion of tetrahydropyranyl (THP) – and parramethoxybenzyl (PMB) ethers respectively, towards their corresponding bromides.<sup>4,5</sup>



To explore the scope of this direct conversion, a row of trityl ethers was examined. The trityl ethers were reacted under the conditions depicted in Scheme 2 and then purified over silica gel chromatography.

Starting Compound	Yield (%)
THPO-OTr	complex mixture
PMBO-OTr	complex mixture
BHO-OTr	81
BHO-OTr	75
BHO-OTr	80
BHO-OTr	73
BHO-OTr	90
BHO-OTr	64

In conclusion, we have demonstrated the use of Appel salt **2** in the conversion of trityl ethers towards their corresponding bromides. This direct conversion has the potential to shorten the synthetic schemes towards complex molecules. This work was supported by NWO, Mozaiek grant.

[1] Jhilly S. Yadav, Basi V. S. Reddy, *Carbohydr. Res.* **2000**, 392, 885-888. [2] Kumiko Kobayashi, Tsutomu Watahiki, Takeshi Oriyama, *Synthesis*, **2003**, 4, 484-487. [3] Dimitri Komitovs, George Agelits, Stella Mania, Niki Tzioumaki, Evangelia Tsoukala, J. *Carbohydr. Chem.*, **2006**, 25, 441-450. [4] A. Wagner, M.P. Heitz, C. Mioskowski, *Tetrahedron Letters*, **1989**, 30, 557-558. [5] J.S. Yadav, Rajesh K. Mishra, *Tetrahedron Letters*, **2002**, 43, 54-19-54-22. [shvaki@live.com](mailto:shvaki@live.com)