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**LITHIUM TETRAFLUOROBORATE: A MILD AND EFFICIENT
REAGENT FOR THE CLEAVAGE OF DIMETHOXYTRITYL
ETHERS**

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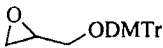
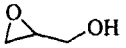
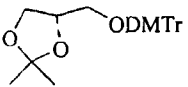
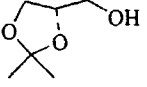
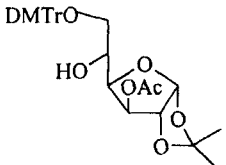
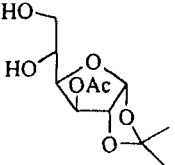
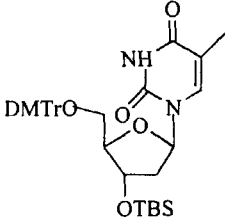
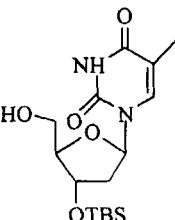
Abstract: A mild and efficient method for the cleavage of dimethoxytrityl ethers using lithium tetrafluoroborate is reported.

4, 4'-Dimethoxytrityl (DMTr) is widely used for the protection of primary hydroxy group, particularly in nucleotide chemistry¹. Organic protic acids and Lewis acids are the commonly used reagents for the cleavage of DMTr ethers². Herein we wish to report a novel and efficient method for the deprotection of DMTr ethers using lithium tetrafluoroborate.

We have found that in the presence of methanol, LiBF₄ is a mild and highly efficient reagent for the cleavage of DMTr ethers. The reaction is fast (< 15 min) and gives excellent yields of the alcohols (Table). Functional groups such as TBS, isopropylidene, ester, epoxide were not effected, and cleavage of the

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Table Results of deprotection of DMTr ethers^a

Entry	Substrate	Product ^{b, c}	Yield (%) ^d
1	CH ₃ (CH ₂) ₇ ODMTr	CH ₃ (CH ₂) ₇ OH	94
2	TBSO(CH ₂) ₁₀ ODMTr	TBSO(CH ₂) ₁₀ OH	90
3	AcO(CH ₂) ₁₀ ODMTr	AcO(CH ₂) ₁₀ OH	90
4			92
5			94
6			90
7			86

a: All reactions were carried out on a 1.0 mmol scale. b: DMTrOMe was also isolated.

c: All Products gave satisfactory spectroscopic data. d: Isolated yields after column chromatography.

nucleotide bond² and reverse tritylation³ were not observed. Replace of LiBF₄ with lithium chloride or bromide did not effect the detritylation.

Typical procedure: To a solution of DMTr ether (1.0 mmol) in 10% methanol in dichloromethane (v/v, 10 ml) was added a solution of lithium

tetrafluoroborate in acetonitrile (1.1 ml of a 1.0 M solution, 1.1 mmol) at ambient temperature. The reaction mixture was stirred for ca 15 min. Conventional work-up and purification by column chromatography on silica gel afforded DMTr methyl ether and the alcohol.

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References and notes:

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2. Habus, I. and Agrawal, S., *Nucleic Acids Research*, **1994**, *22*, 4350 and references cited therein.
3. Ravikumar, V. T.; A. Krotz, H. and Cole, D. L., *Tetrahedron Lett.*, **1995**, *36*, 6587.

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