

## DMTMM

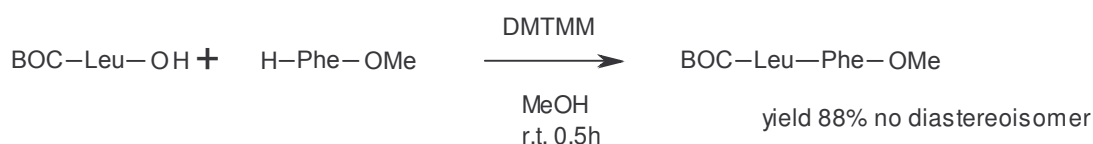
Powerful coupling reagent in THF, MeOH, H<sub>2</sub>O  
First choice in amide bond formation  
Mild condition for methyl ester formation  
DMF replacement  
Recovering of product after simple work up

### Example for ester bond formation

N - methylmorpholine (1 mmol) is added at room temperature under nitrogen to a solution of carboxylic acid (1 mmol) and DMTMM (2 mmol) in methanol (5 mL, dried over molecular sieves). The mixture is stirred for 2-8 h, the solvent is evaporated, and the residue is extracted with diethyl ether. The organic phase is washed with NaHCO<sub>3</sub> 5%, NaHSO<sub>4</sub> 5%, brine and is dried over Na<sub>2</sub>SO<sub>4</sub>. Filtration and evaporation of the solvent afforded the methyl ester. Eventually the product can be purified over silica gel.

### Example for amide bond formation

DMTMM (1.1 mmol) is added at room temperature to a solution of carboxylic acid (1 mmol), N - methylmorpholine (1.1 mmol) and amine (1 mmol) in MeOH or THF (5 mL,). The mixture is stirred for 0.5-4 h, the solvent is evaporated, and the residue is extracted with ethyl acetate. The organic phase is washed with NaHCO<sub>3</sub> 5%, NaHSO<sub>4</sub> 5%, brine and is dried over Na<sub>2</sub>SO<sub>4</sub>. Filtration and evaporation of the solvent afforded the amide compound. Eventually the product can be purified over silica gel.



The coupling efficiency of DMTMM in Solid Phase Peptide Synthesis was found to be comparable to PyBOP while racemization could be kept below the detection limit.

Falchi, A.; Giacomelli, G.; Porcheddu, A.; Taddei, M. *Synlett* **2000**, 275.

A Racemization Test in Peptide Synthesis Using 4-(4,6-Dimethoxy-1,3,5-triazin-2-yl)-4-methylmorpholinium Chloride (DMT-MM)

M. Kunishima, A. Kitao, C. Kawachi, Y. Watanabe, S. Iguchi, K. Hioki, and S. Tani, *Chem. Pharm. Bull.* **2002**, 50, 549–550

Preparation of Weinreb Amides Using 4-(4,6-Dimethoxy-1,3,5-triazin-2-yl)-4-methylmorpholinium Chloride (DMT-MM)

K. Hioki, H. Kobayashi, R. Ohkihara, S. Tani, and M. Kunishima; *Chem. Pharm. Bull.* **2004**, 52, 470–472

A New, Simple Procedure for the Synthesis of Formyl Amides

L. De Luca, G. Giacomelli, A. Porcheddu, M. Salaris *Synlett* **2004**, 2570-2572

Development of a Simple System for Dehydrocondensation Using Solid-Phase Adsorption of a Water-Soluble Dehydrocondensing Reagent (DMT-MM)

Y. Watanabe, T. Fuji, K. Hioki, S. Tani, and M. Kunishima, *Chem. Pharm. Bull.* **2004**, 52, 1223–1226

Novel Synthesis of N-Substituted Polyacrylamides: Derivatization of Poly(acrylic acid) with Amines Using a Triazine-Based Condensing Reagent

K. Thompson, S. Michielsen, *Journal of Polymer Science: Part A: Polymer Chemistry*, **2006**, 44, 126–136