

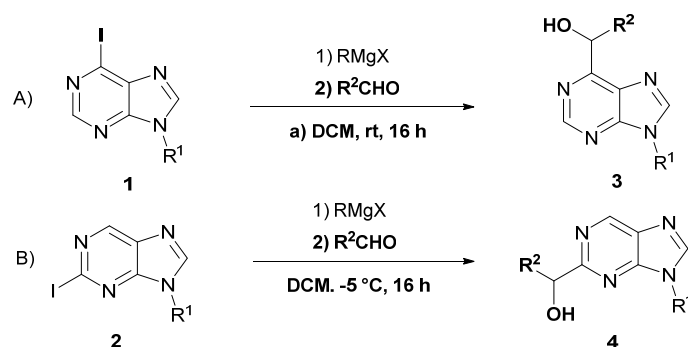
NOVEL Mg-BASED APPROACH FOR THE REGIOSELECTIVE FUNCTIONALIZATION OF PURINE DERIVATIVES

Silvia Gazzola^a, Malcolm R. Gordon^b, Stephen D. Lindell^b

^aScience and High Technology Department, University of Insubria, 22100, Como, Italy

^bBayer CropScience, BCS AG-R&D-SMR-WC-WCC, Frankfurt am Main, G836, 200

The synthesis and the functionalization of purine rings have been deeply investigated to generate potential bioactive compounds for pharmaceutical and agrochemical purposes [1]. Many examples in the literature show the possibility to introduce a carbon substituent at the C-2, C-6 and C-8 positions through transition metal catalyzed cross coupling reactions of purine halides [2]. The opposite approach, coupling of metalated purines with appropriate C-electrophiles, has been less developed due to the low stability of the resultant purine anion in THF, which often causes a mixture of regioisomers as final product [3]. Herein we present a novel Mg-halogen exchange protocol, starting from 6-iodopurines **1** [4] and 2-iodopurines **2**, that provides predictable regioisomeric products (**3** and **4**) at room temperature (A) or -5 °C (B) in dichloromethane as solvent (Scheme 1).



Scheme 1

Currently our work is focused on the optimization of the C2-position functionalization of purines with aldehydes, and on the extension of these protocols with alternative electrophiles.

[1] (a) Novosjolova, I.; Bizdena, E.; Turks, M. *Eur. J. Org. Chem.* **2015**, 3639; (b) Legraverend, M. *Tetrahedron* **2008**, *64*, 8585.

[2] (a) Abdoli, M.; Mirjafary, Z.; Saeidian H.; Kakanejadifard, A. *RSC Adv.* **2015**, *5*, 44371; (b) Hocek, M. *Eur. J. Org. Chem.*, **2003**, 245.

[3] (a) Tobrman, T.; Dvořák, D. *Org. Lett.* **2006**, *8*, 1291; (b) Leonard, N. J.; Bryant, J. D. *J. Org. Chem.* **1979**, *44*, 4612.

[4] Gordon, M. R.; Lindell, S. L.; Richards, D. *Synlett* **2018**, *291*, 473.