Book of Abstracts

UNIVERSIDADE DE ÉVORA

SOCIEDADE PORTUGUESA DE QUÍMICA

Contents

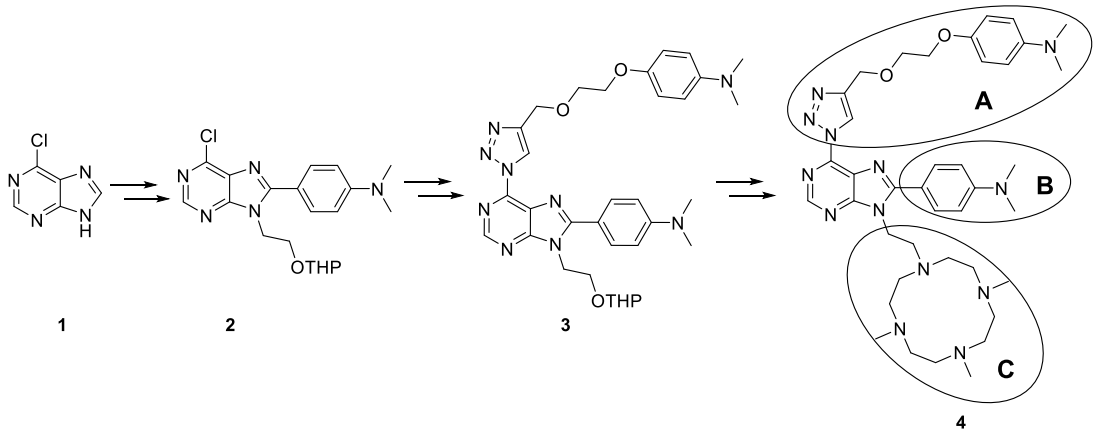
Synthetic Pathways Toward Designed Purine Derivative for the Photo-Catalysis

Aleksejs Burcevs,[a] Gediminas Jonusauskas,[b,c] Kamilė Tulaitė,[b] Justina Jovasaite,[b] Saulius Juršėnas,[b] Irina Novosjolova,[a] Māris Turks[a]

[a]Institute of Technology of Organic Chemistry, Faculty of Materials Science and Applied Chemistry, Riga Technical University, P. Valdena Str. 3, Riga, LV-1048, Latvia
[b]Institute of Photonics and Nanotechnology, Faculty of Physics, Vilnius University, Sauletekis Av. 3, Vilnius, LT-10222, Lithuania
[c]Laboratoire Ondes et Matière d'Aquitaine, Bordeaux University, Umr Cnrs 5798, 351 Cours de la Libération, 33405 Talence, France

Email: irina.novosjolova@rtu.lv

Fluorescent purine derivatives have a variety of uses in analytics – they can be used as a metal ion and pH sensors.[1] They also can be used for cell imaging[2] and as photo-catalysts.[3]
Target purine compound **4** was designed with an aim to be used as a potential molecular system for the photo-catalysis. Several synthetic pathways were designed and have been tested to obtain it (**Scheme 1**). For the synthesis of **4**, 6-chloropurine (**1**) needs to be derivatized at *C*(6), *C*(8) and *N*(9) positions by introducing **A**, **B** and **C** moieties. In the end, target compound **4** was obtained in 9 steps, using the combinations of S_NAr, S_N2, CuAAC, C-C metal catalyzed coupling, alkylation and Mitsunobu reactions. Further, it is planned to test its fluorescence properties and complexation abilities.
We will discuss approaches toward purine derived photo-catalyst **4** and its application.



Scheme 1: Synthetic route toward target compound **4**.

Acknowledgements: The authors thank MEPS co-project LV-LT-TW/2022/9 for financial support. A.B. thanks the European Social fund within project Nr. 8.2.2.0/20/I/008 and Riga Technical University.

References:

1. a) Jovaisaite J.; Cīrule D.; Jeminejs A.; Novosjolova I.; Turks M.; Baronas P.; Komskis R.; Tumkevicius S.; Jonusauskas G.; Jursenas S. *Phys. Chem. Chem. Phys.* **2020**, *22*, 26502–26508. b) Sun K. M.; McLaughlin C. K.; Lantero D. R.; Manderville R. A. *J. Am. Chem. Soc.* **2007**, *129*, 1894–1895.
2. Šišuļins A.; Bucevičius J.; Tseng Y.; Novosjolova I.; Traskovskis K.; Bizdēna Ē.; Chang H.; Tumkevičius S.; Turks M. *Beilstein J. Org. Chem.* **2019**, *15*, 474–489.