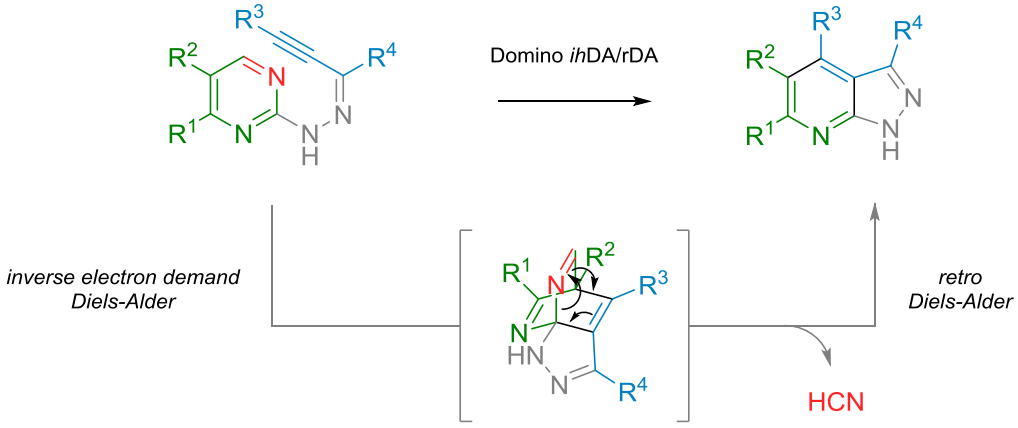
Inverse Electron Demand Diels-Alder Cycloaddition For The Synthesis of N-Containing Heterocycles

Vincent Le Fouler,[a] Philippe Bisseret,[a] Christophe Salomé,[b] Thomas Fessard,[b]
Nicolas Blanchard [a,*]

[a] Université de Haute-Alsace, Université de Strasbourg, CNRS, LIMA, UMR 7042 68000 Mulhouse - France,
[b]SpiroChem AG, Rosental area, WRO-1047-3, Mattenstrasse 24, 4058 Basel - Switzerland
vincent.le-fouler@etu.unistra.fr

Alkaloids hold a central place in bioactive natural products. More specifically, 7-azaindazoles constitute an important family of these *N*-containing compounds, owing to their broad applications in medicinal chemistry.[1]

In line with our interest in the synthesis of N-containing heterocycles using efficient methods,[2] we are pursuing a new and general access to 7-azaindazoles through a domino sequence inverse demand hetero Diels-Alder (*ih*DA) cycloaddition between a pyrimidine and an alkyne followed by a retro Diels-Alder reaction step (*r*DA).



Here we report the first results of a dawning methodology giving an efficient and practical access to new 7-azaindazoles. This communication focuses on the easy preparation of the cycloaddition precursors in only three steps from inexpensive building blocks and a preliminary scope of the domino sequence ihDA/rDA.

[1] Ranjana A.; Suresh K. *Beilstein J. Org. Chem.* **2018**, *14*, 203.
[2] (a) Duret, G.; Quinlan, R.; Martin, R. E.; Bisseret, P.; Neuburger, M.; Gandon, V.; Blanchard, N. *Org. Lett.* **2016**, *18*, 161. (b) Duret, G.; Quinlan, R.; Yin, B.; Martin, R. E.; Bisseret, P.; Neuburger, M.; Gandon, V.; Blanchard, N. *J. Org. Chem.* **2017**, *82*, 1726. (c) Duret, G.; Le Fouler, V.; Bisseret, P.; Bizet, V.; Blanchard, N. *Eur. J. Org. Chem.* **2017**, 6816.