4-π-PHOTOCYCLISATION OF DIHYDROPYRIDAZINES: ACCESS TO VERSATILE BICYCLIC DIAZETIDINES

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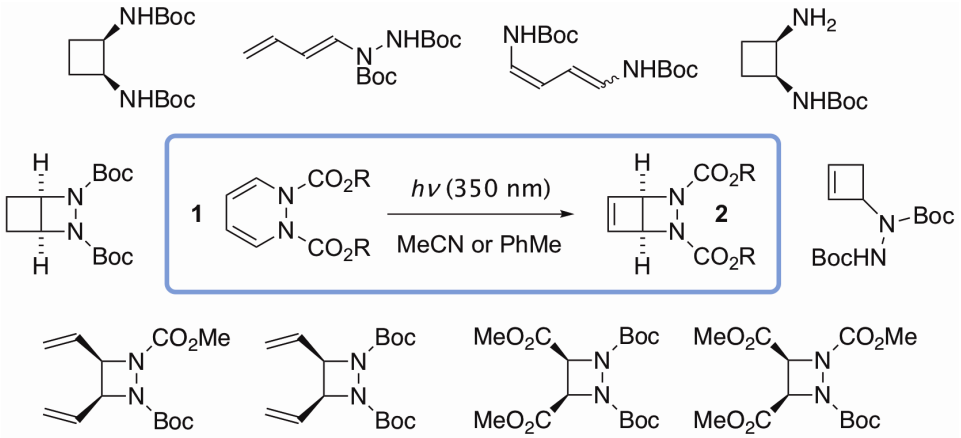
Despite their utility in a wide variety of applications, the synthesis of four-membered carbo/heterocycles is often difficult, especially if specific substituent patterns are required. Recently, we have shown that bicyclic diazetidines **2** can be easily accessed on multigram scale through the 4-π-photocyclisation of 1,2-dihydropyridazines **1** [1,2], an intriguing reaction that has been studied only sporadically since its first introduction in 1968 [3]. Bicyclic diazetidines **2** are highly strained but bench-stable, and are not only interesting target molecules in themselves but also valuable synthetic intermediates – the straightforward conversion of **2** to a variety of novel building blocks (examples given in the scheme below) will be presented.



[1] T. K. Britten, G. R. Akien, P. D. Kemmitt, N. R. Halcovitch, S. C. Coote, *Tetrahedron Lett.* **2019**, accepted manuscript.

[2] T. K. Britten, G. R. Akien, P. D. Kemmitt, N. R. Halcovitch, S. C. Coote; manuscript in preparation.

[3] (a) L. J. Altman, M. F. Semmelhack, R. B. Hornby, J. C. Vederas, *Chem. Commun*. **1968**, 686; (b) L. J. Altman, Semmelhack, R. B. Hornby, J. C. Vederas, *Org. Prep. Proced. Int*. **1975**, *7*, 35; (c) S. Masamune, N. Nakamura, J. Sapadaro, *J. Am. Chem. Soc*. **1975**, *97*, 918; (d) E. A. Wildi, B. K. Carpenter, *Tetrahedron Lett*. **1978**, *19*, 2469; (e) R. N. Warrener, E. E. Nunn, M. N. Paddon-Row, *Aust. J. Chem*. **1979**, *32*, 2659; (f) R. A. Sterns, P. R. Ortiz de Montellano, *J. Am. Chem. Soc*. **1985**, *107*, 234.