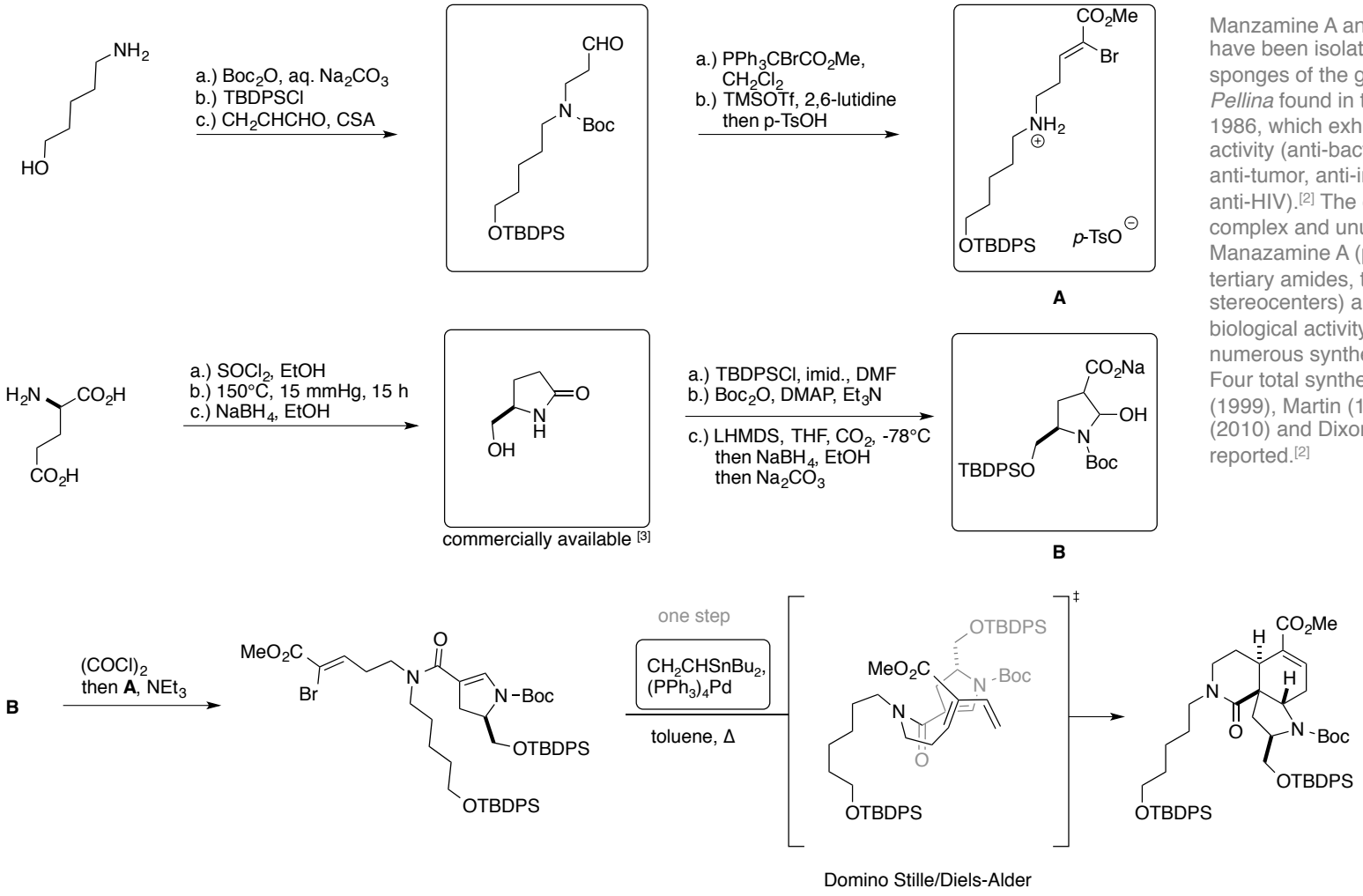
E3: Synthesis of Manzamine A and Related Alkaloids [1,3]



Manzamine A and related alkaloids have been isolated from marine sponges of the genera *Haliclona* and *Pellina* found in the Okinawa Sea in 1986, which exhibit a broad biological activity (anti-bacterial, antimalarial, anti-tumor, anti-inflammatory and anti-HIV).[2] The combination of the complex and unusual structure of Manazamine A (pentacyclic core, two tertiary amides, two *Z*-olefins and five stereocenters) and its promising biological activity have inspired numerous synthetic investigations.[1,2] Four total syntheses by Winkler (1999), Martin (1998), Fukuyama (2010) and Dixon (2012) have been reported.[2]

[1] J. M. Humphrey, Y. Liao, A. Ali, T. Rein, Y.-L. Wong, H.-L. Chen, A. K. Countrey, S. F. Martin, *J. Am. Chem. Soc.* **2002**, *124*, 8584-8592.

[2] P. Jakubec, A. Hawkins, W. Felzmann, D. J. Dixon, *J. Am. Chem. Soc.* **2012**, *134*, 17482-17485.

[3] Y. Hamada, O. Hara, A. Kawai. Y. Kohno, T. Shioiri, *Tetrahedron* **1991**, *47*, 8635-8652.

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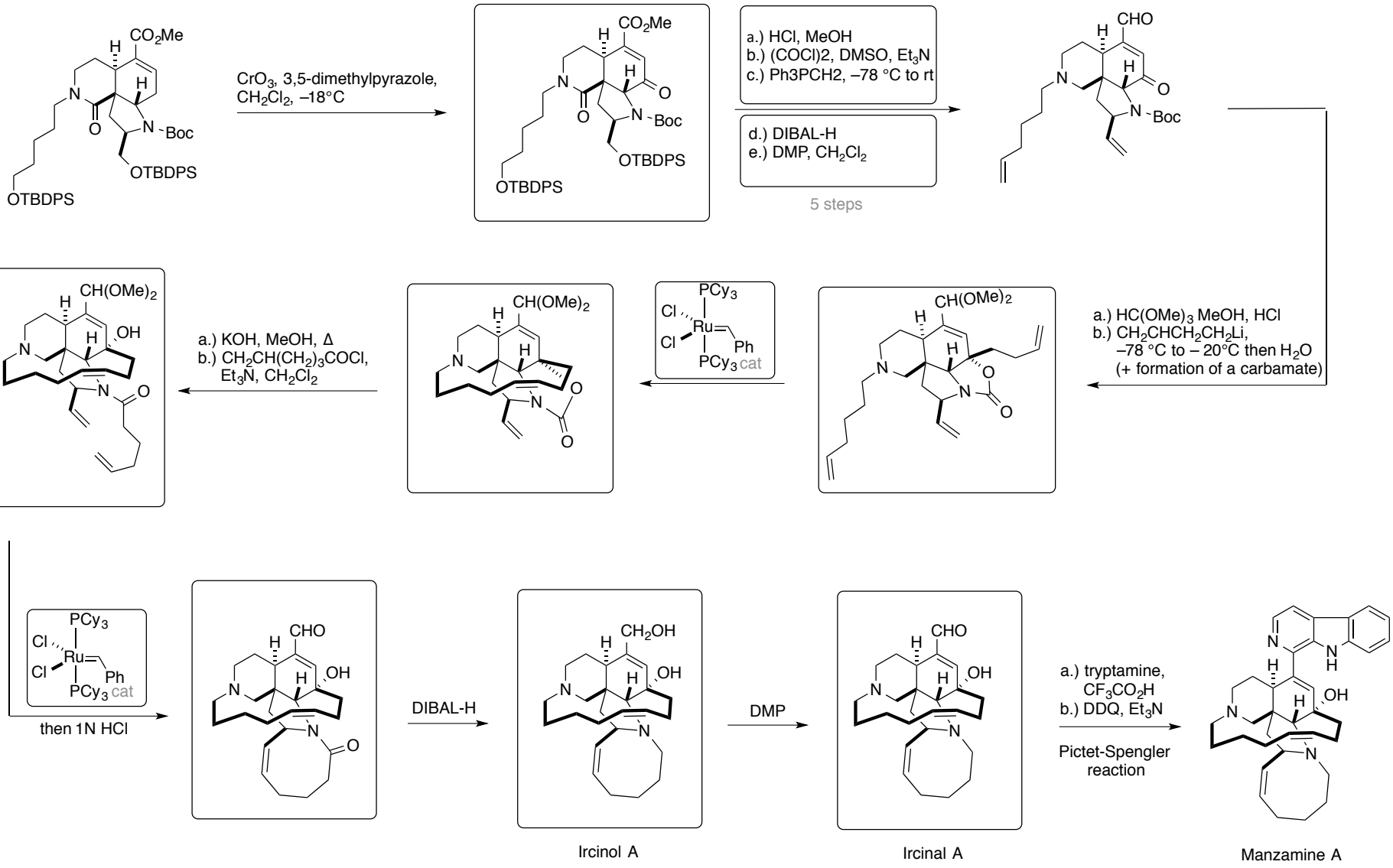

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