Iodine atom transfer mediated radical addition - cyclization processes using alpha-boryl radicals

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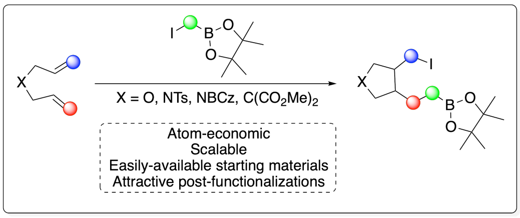
Since the pioneering work of Suzuki[1] and his discovery of cross coupling reactions, boron has emerged as an important element for organic synthesis. Moreover, boron is as well contained in active compounds and, until 2022, 5 of them were approved by the FDA[2]. It is thus important to develop new organic reactions which help synthesizing new boron containing compounds. We exploited the unique features of alpha-boryl radicals and their addition to unsaturated systems[3][4] to develop an easy, scalable and efficient reaction to access 1,5-iodoboronic esters which possess a cyclopentane scaffold via 5-exo-*trig* cyclization. The optimization of the conditions and a scope of the reaction will be presented. The new products can be derivatized using further post-functionalization. Our new methodology could be used for the synthesis of small natural products, such as in the case of iridolactones.



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