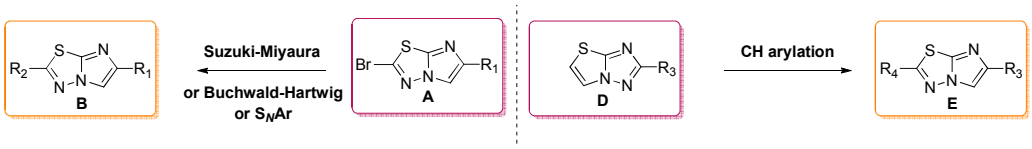
Regioselective functionalizations of thiazolotriazoles and imidazothiadiazoles

Sylvain Routier, Gérald Guillaumet, Frédéric Buron, Chloé Copin, Mikaël Le Meur

Institut de Chimie Organique et Analytique (ICOA), Université d'Orléans, UMR CNRS 7311, Orléans, France

The interest in the [5,5]-fused bicyclic as thiazolotriazoles and imidazothiadiazoles for use in pharmaceutical products makes these scaffolds a highly useful building block for organic chemistry. Such derivatives have found applications in oncology,[1] infectiology[2] or neurodegenerative deseases.[3]

However, the synthetic tools for accessing of highly functionalized thiazolotriazoles or imidazothiadiazoles are very limited and only few functionalization methods are described.[4-6] In order to access to new families of imidazo[1,2-*b*][1,3,4]thiadiazoles **B** or thiazolo[3,2-*b*][1,2,4]triazoles **D**, there is consequently tremendous interest in developing efficient synthetic methodologies. In order to introduce a wide range of functional groups, a promising solution is to find an efficient alternative to selectively functionalize imidazo[2,1-b][1,3,4]thiadiazoles or thiazolo[3,2-*b*][1,2,4]triazoles at the *C-2* position. Consequently, we report the efficient functionalization of these scaffolds with various reactions as classical S_NAr or selective palladium-catalyzed reactions like Suzuki-Miyaura and Buchwald-Hartwig cross couplings or CH arylations.[7,8] These methodologies will have a major impact on the synthesis of new bioactive compounds containing thiazolotriazoles and imidazothiadiazoles as central skeleton.



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