Functionalization of diboryl(silyl)ethenes towards new metalloid-substituted olefins

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Olefins are important structural motifs, which are commonly found in many natural products, pharmaceuticals, and organic materials. On the other hand, they belong to useful building blocks reactive in a variety of chemical transformations, including ionic, radical, and pericyclic reactions.[1-2] Boron and/or silicon-functionalized derivatives are a particularly attractive group of olefins because of the high activity of specific metalloids in the carbon-carbon bond-forming reactions, such as Suzuki-Miyaura or Hiyama-Denmark cross-couplings, offering the stereoselective access to diverse tri- and tetrasubstituted olefins with high application potential in both academia and industry. Despite the publication of few reports on this topic, new synthetic methodologies that allow for more flexible structural modifications, leading to new interesting structures, are still in high demand.[1-2]

Within this communication, we present the application of trimetalated (*E*)-1-silyl-1,2-diborylethenes in the synthesis of a series of metalloid-functionalized olefins *via* palladium-catalyzed Suzuki–Miyaura cross-coupling reactions.[3] The developed methodology permits the discrimination of the two boryl groups, thus providing practical, selective access to three structurally diversified classes of products (**Figure 1**). Due to the presence of C(sp_2)-H, C(sp_2)-silyl, and C(sp_2)-boryl moieties in the molecules of the products, reactive in numerous derivatizations, the synthesized compounds can be regarded as attractive precursors of various valuable more complex olefins, such as anti-cancer drugs (tamoxifen derivatives), organic luminogens, or polymers.[3]

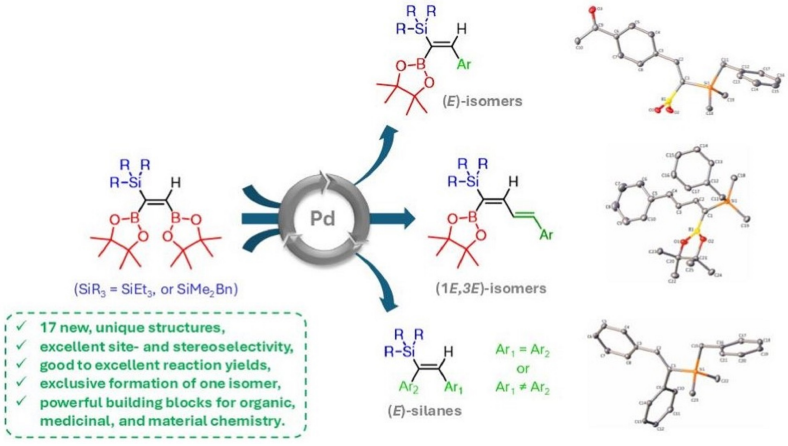

Figure 1. *General concept of the communication.*

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