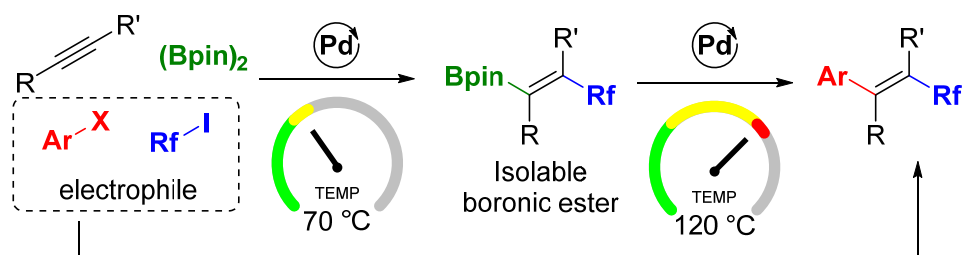


Pd-CATALYZED REDUCTIVE CARBOPERFLUOROALKYLATION OF ALKYNES WITH PERFLUOROALKYL AND ARYL IODIDES VIA BOROPERFLUOROALKYLATION

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A three-component tandem Pd-catalyzed boroperfluoroalkylation of terminal and internal alkynes will be presented. Based on this highly regio- and stereoselective transformation we developed a first example of a reductive dicarbofunctionalization of alkynes through formal *anti*-addition across a C-C multiple bond of groups originating from two different electrophiles – perfluoroalkyl and aryl iodides. The protocol takes advantage from *in-situ* umpolung of the key intermediate by swap of iodide to boronic ester in the perfluoroalkyl-substituted vinyl moiety. Mechanistic studies revealed that three basic reactions constituting this sequential transformation (i.e. iodoperfluoroalkylation, borylation, and coupling) significantly differ in rate, enabling control of the outcome of the reaction (towards vinyl iodides, boronates or olefins) simply through a temperature program.



Temperature controlled one-pot sequence
All four components and the catalyst in the reaction mixture