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Palladium-Mediated Organic Synthesis Using Porous Polymer Monolith Formed in situ as a Continuous Catalyst Support Structure for Application in Microfluidic Devices
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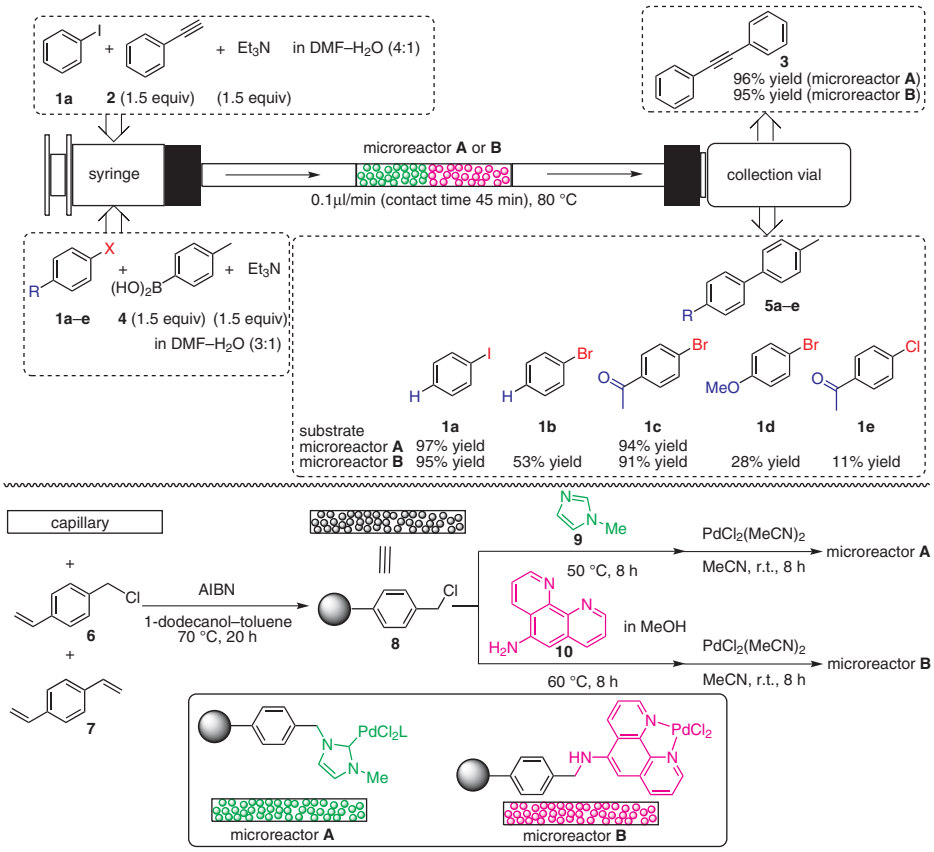
Flow-Through Reaction in Palladium-Supported Microreactors



Significance: The authors reported the Sonogashira and the Suzuki–Miyaura reaction performed with microflow reactors filled with palladium polymer (∅ 250 µm, length 5 cm). Thus, the Sonogashira reaction of iodobenzene (**1a**) and phenylacetylene (**2**) was carried out with the microreactor **A** or **B** to give diphenylacetylene (**3**) in 96% (with **A**) or 95% yield (with **B**), respectively. The Suzuki–Miyaura reaction of aryl halides **1a**–**e** with 4-tolylboronic acid (**4**) gave the corresponding biphenyls **5a**–**e** under similar flow-reaction conditions in 11–97% yield.

Comment: Chloromethylstyrene (**6**) and divinylbenzene (**7**) were polymerized inside a capillary [pretreated with 3-(trimethoxysilyl)propyl methacrylate] in the presence of a porogen (toluene–dodecanol) and AIBN to afford a polymer-installed capillary **8**. The capillary **8** was subsequently treated with the ligand precursor [1-methylimidazole **9** (for **A**) or 5-amino-1,10-phenanthroline **10** (for **B**)] and $PdCl_2(MeCN)_2$ to give the reactive capillary **A** and **B**.

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