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Formal Aryne Polymerization: Use of [2.2.1]Oxabicyclic Alkenes as Aryne Equivalents
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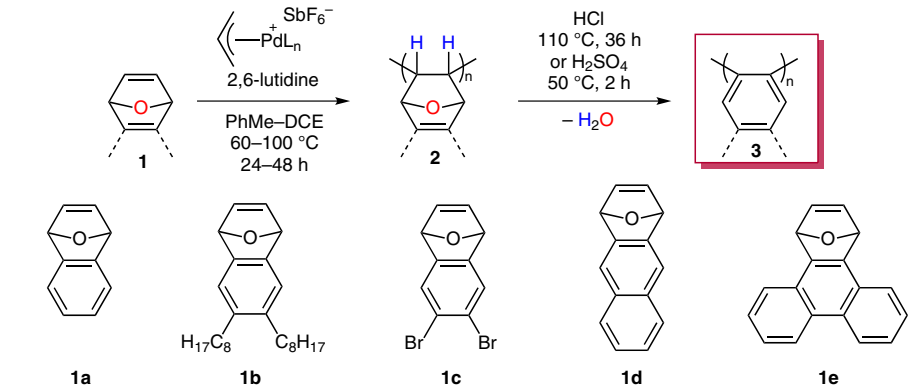
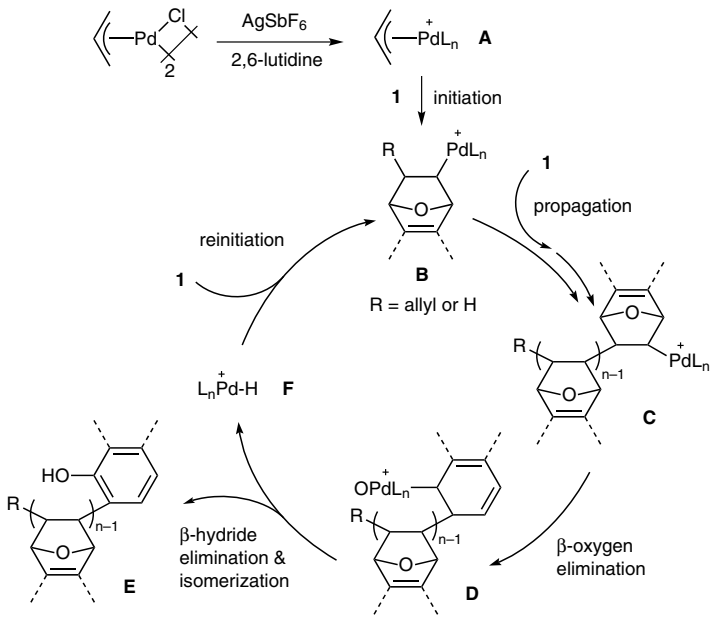
Poly(*o*-arylene)s from [2.2.1]Oxabicyclic Alkenes as Monomers



Plausible mechanism of the polymerization:



Significance: The instability of aryne has prevented its polymerization to form poly(*o*-arylene)s. Only few examples of oligomeric *o*-arylenes through iterative coupling reactions are reported. Ito, Takahashi, and Nozaki report the synthesis of poly(*o*-arylene)s via polymerization of [2.2.1]oxabicyclic alkenes, followed by acid-catalyzed dehydration.

Comment: In this chain-growth polymerization, the co-solvent and the additive 2,6-lutidine play key roles. Toluene may stabilize the cationic palladium catalyst species and may hinder β-oxygen elimination (the termination step). Dichloroethane (DCE) solubilizes the palladium catalyst in toluene. 2,6-Lutidine produces polymer **2** with high yields and a low polydispersity index.

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