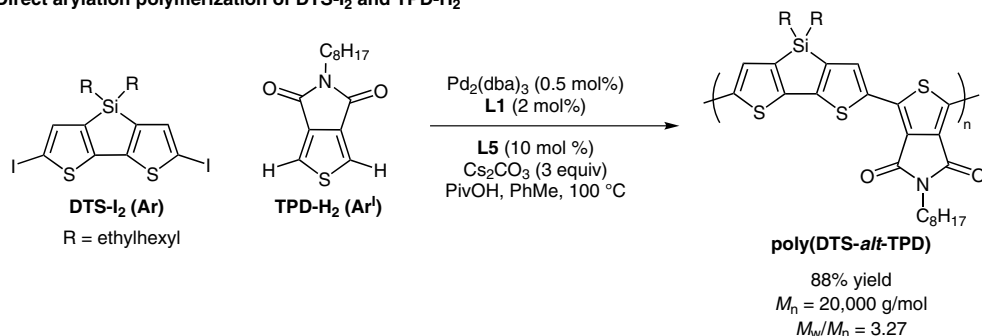
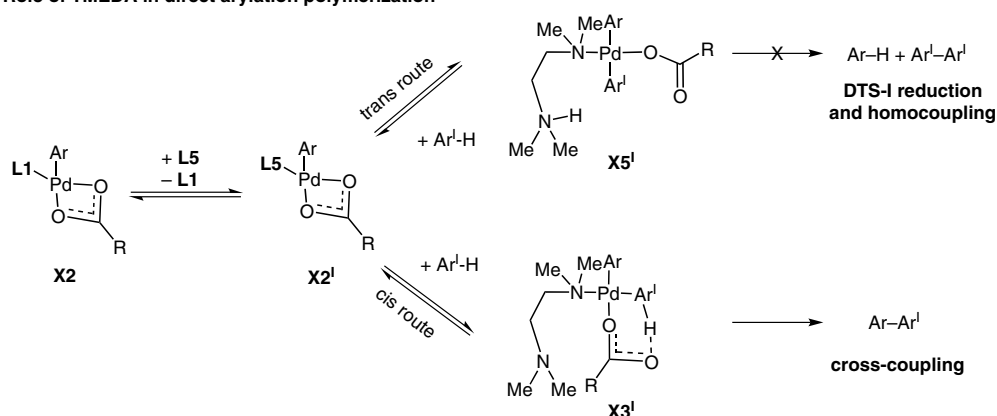


# Doubling Down on Diamines for Direct Arylation Polymerization

## Direct arylation polymerization of DTS-I<sub>2</sub> and TPD-H<sub>2</sub>



## Role of TMEDA in direct arylation polymerization



**Significance:** Side reactions such as homo-coupling and C–H activation at undesirable positions lead to branching, cross-linking, and the formation of insoluble materials during direct arylation polymerization (DAP). The authors developed a novel, mixed ligand catalyst system for palladium-catalyzed DAP. With the addition of tetramethylethylenediamine (TMEDA) as a co-ligand, these side reactions have been prevented and higher polymer molecular weights can be achieved.

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**Comment:** The presence of TMEDA as basic co-ligand interferes with a catalytic cycle that leads to aryl halide (DTS-I<sub>2</sub>) reduction and homo-coupling of an unfunctionalized arene (DTS), the so-called trans route. This promotes the desired cross-coupling reaction to form poly(DTS-*alt*-TPD) through the cis route.