# Tris[tri(2-thienyl)phosphine]palladium as the Catalyst Precursor for Thiophene-Based Suzuki-Miyaura Cross-Coupling and Polycondensation

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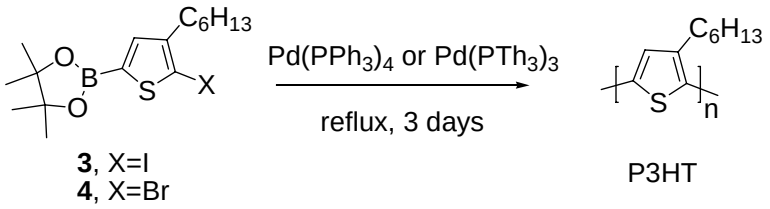
Zero-valent palladium complex, $Pd(PTh_3)_3$, with three tri(2-thienyl)phosphine ligands was prepared and characterized. $Pd(PTh_3)_3$ is superior to $Pd(PPh_3)_4$ in catalyzing Suzuki-Miyaura coupling and polymerization of thiophene-based derivatives. The Suzuki polycondensation of 3-hexyl-5-iodothiophene-2-boronic pinacol ester with $Pd(PTh_3)_3$ as the catalyst precursor afforded high-molecular-weight P3HT (*Mw*=26 000) with high regularity (>97%) and yield (72%).




**3**, X=I
**4**, X=Br

P3HT