



Cross Coupling of Phenolic Derivatives

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SUMMARY

Investigators at UCLA have identified a new reaction that enables carbon-carbon bonds and carbon-heteroatom bonds to be introduced into organic molecules. The reaction is cost-effective and highly efficient.

BACKGROUND

Synthesis of organic molecules plays a vital role in modern society: carbon-carbon and carbon heteroatom bonds are encountered in natural products, materials, drug substances and agrochemicals. There are currently methods in place for coupling phenol groups to carbon atoms, but these reactions require expensive materials and are often not efficient. Practical methods that allow for the cross coupling of phenol derivatives to carbon atoms are therefore extremely interesting, especially given their prevalence in the pharmaceutical industry.

INNOVATION

Researchers at UCLA have identified reactions that utilize unconventional phenol derivatives as cross-coupling partners, resulting in an extremely cost-effective method for introducing C-X or C-C bonds into organic molecules and drug substances.

APPLICATIONS

- Process chemists in pharmaceutical industry
- Synthesis of drugs or other materials

ADVANTAGES

- Reagents are easy to prepare
- Reagents are very cost-effective
- Reagents are stable to a variety of reaction conditions
- Reagents are able to direct installation of other functional groups on an aromatic ring

STATE OF DEVELOPMENT

The invention has been tested and is confirmed to work. Researchers are currently exploring the scope of substrates that can be used in the reaction.

RELATED MATERIALS

- Quasdorf, Tian and Garg. Cross-coupling Reactions of Aryl Pivalates with Boronic Acids. *J. Am. Chem. Soc.* (2008)

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,546,607	10/01/2013	2009-085

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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OTHER INFORMATION

KEYWORDS

method, chemicals, novel chemistry,
phenol-coupling

CATEGORIZED AS

- **Materials & Chemicals**
 - Chemicals
 - Other

RELATED CASES

2009-085-0

- ▶ [Synthesis Of Heteroatom Containing Polycyclic Aromatic Hydrocarbons](#)
- ▶ [Amination of Aryl Alcohol Derivatives](#)

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