conferenceseries.com

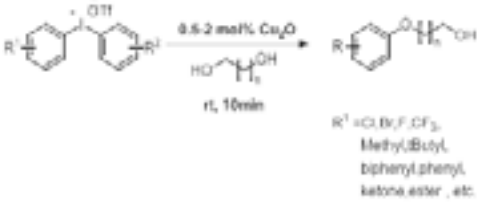
Kyung Mi Kim et al., Organic Chem Curr Res 2018, Volume:7
DOI: 10.4172/2161-0401-C1-023

4th European
ORGANIC CHEMISTRY CONGRESS
March 01-03, 2018 | London, UK

Neutral and room temperature conditions for Cu-catalyzed C-O coupling of aliphatic diols and diaryliodonium salts

Kyung Mi Kim and **Junghyun Chae**
Sungshin Women's University, South Korea

Developing mild and efficient conditions for C-O bond formation would be of significant interest for synthesis of organic compounds including natural products, pharmaceuticals, and various material compounds. Classical Ullmann and Buchwald coupling for C-O bond formation are well known and subsequent research on C-O bond coupling is still on going. Previously, aryl halides were important starting materials for C-O coupling. Recently, many groups reported that symmetric and asymmetric diaryliodonium salts have better reactivity than aryl halides in organic solvent and they are often used in C-O coupling reaction in place of aryl halides. When C-O alkyl bond is generated from diaryliodonium salts and aliphatic alcohols, either strongly basic alkoxide in the absence of metal catalyst is used at room temperature or aliphatic alcohols in the presence of transition metal catalysts at high temperature are used. A Non-basic and room temperature condition for C-O alkyl bond formation seems difficult to combine. Here, we report very mild, yet efficient reaction conditions for C-O-alkyl bond formation. Diaryliodonium triflate and diverse aliphatic diols were coupled under neutral and copper catalytic conditions. The reaction does not require any base and needs very low loading amount of copper (0.5-2 mol %). Still, the reaction can proceed even at room temperature within 10-15 min. Finally, we demonstrated that a variety of alkane diols cross-coupled with diaryliodonium triflate.



Recent Publications

1. Hongyu X, Bing J, Shasha L, Junghyun C and Yajun L (2017) Copper-catalyzed direct synthesis of aryl thiols from aryl iodides using sodium sulfide aided by catalytic 1,2-ethanedithiol. Synlett, 28:2272-2276.
2. Sangmee P, Hyunjoo K, Junghyun C and Jinho C (2016) Electrochemical generation of single emulsion droplets and *in-situ* observations in collisions on an ultra-microelectrode. J. Phys. Chem. C, 120(7):3922–3928.
3. Jihye K, Oyunsaikhan B, Yajun L and Junghyun C (2015) Reaction of 1,2-difunctionalized ethanes with aryl iodides in copper-catalyzed cross-coupling: application to synthesis of phenols. Bull. Korean Chem. Soc. 36:2833–2840.
4. Yajun L, Jihye K, Hisun S, Sunghyouk P and Junghyun C (2015) Copper(II)-catalyed single-step synthesis of aryl thiols using aryl halides and 1,2-ethanedithiol. Adv. Synth. Catal. 357:2205–2212.
5. Yajun L, Se Kyung P, Yan X and Junghyun C (2014) Copper(II)-catalyzed C-O coupling of aryl bromides with aliphatic diols: synthesis of ethers, phenols, and benzo-fused cyclic ethers. Org. Biomol. Chem., 12:4747–4753.

Biography

Kyung Mi Kim is a second year graduate student at Sungshin Women's University with a major in Organic Chemistry. During her Undergraduate, she worked on total synthesis of bioactive natural product in Hanyang University. She is particularly interested in transition-metal catalyzed bond forming reactions. Transition-metal catalyzed formation is very applicable in diverse organic synthesis. So, she is studying with her passion and will continue to study organic synthesis in the future.

kkm3235@gmail.com