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Dublin, IrelandAlexander O Terent'ev et al., J Org Inorg Chem 2018, Volume 4  
DOI: 10.21767/2472-1123-C4-011**OXIDATIVE CROSS-COUPLING WITH C-O BOND FORMATION****Alexander O Terentev, Alexander S Budnikov, Stanislav A Paveliev and Oleg V Bityukov**

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**O**xidative cross-dehydrogenative coupling methodology lies in the modern trend of organic chemistry. It eliminates necessity for installation of additional functional groups and affords direct coupling in one stage (via selective C-H activation) with limited amount of wastes, high atom- and step- economy. Oxidative cross-dehydrogenative C-C coupling were studied in detail; the C-N, C-P, and C-O cross-coupling reactions are less well developed. It is difficult to achieve high selectivity in the cross-dehydrogenative C-O coupling because the starting compounds are prone to side oxidation and fragmentation reactions giving, for example, alcohols and carbonyl compounds. This gives rise to a problem of searching for oxidizing agents and reaction conditions suitable for the cross-coupling of different types of substrates. We discovered oxidative cross C-O coupling of 1,3-dicarbonyl compounds, their heteroanalogs and heterocycles with peroxides, oximes and hydroxyamides. The best result obtained with the use of the widely available copper, iron, manganese or lanthanide salts as catalysts or oxidants.

**Recent Publications**

1. A O Terentev et al. (2014) Iminoxyl radical based strategy for intermolecular C-O bond formation: cross

dehydrogenative coupling of 1,3 dicarbonyl compounds with oximes. *Adv. Synth. Catal.* 356(10):2266-2280.

2. I B Krylov, V A Vil' and A O Terent'ev (2015) Cross-dehydrogenative coupling for the intermolecular C-O bond formation. *Beilstein J. Org. Chem.* 11(2015):92-146.
3. I B Krylov et al. (2017) Selective cross-dehydrogenative C-O coupling of N-hydroxy compounds with pyrazolones: introduction of the diacetyliminoxyl radical into the practice of organic synthesis *Org. Chem. Front.* 4(10):1947-1957.

**Biography**

Alexander O Terentev pursued PhD Degree (2000); DSc Degree (2009). He worked as a Professor at the D Mendeleev University of Chemical Technology of Russia (2011). He became the head of laboratory at N D Zelinsky Institute of Organic Chemistry of the Russian Academy of Sciences (2014), head of laboratory in All Russian Research Institute of Phytopathology (2016). He has published 3 chapters of books, 100 research papers, and 30 patents. His research interests include: organic chemistry, medicinal and agricultural chemistry and chemical technology.

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