Project 2.8. "C–H Activation of nitrones with directing groups"

Supervisor: Dr hab. Rafał Loska

Institute: Institute of Organic Chemistry, Polish Academy of Sciences, Warsaw

Unit: : Team no. 14

WWW: http://www.icho.edu.pl/loska

Background:

- synthesis of nitrones with directing groups
- optimization and investigation of the scope of the title C–H activation reactions of nitrones
- preparation of scientific papers

Aim:

The aim of the project is to develop a new class of carbon-carbon and carbon-nitrogen bond forming reactions of nitrones, catalyzed by complexes of Pd, Rh or Co and promoted by directing group present in the molecule of the starting nitrone.

The use of suitably ositioned directing groups is a well establiszhed strategy in C(sp2)–H activation chemistry. In the case of aldonitrones, activation of the carbon-hydrogen bond the C=N double bond will enable direct transformation of aldonitrones into ketonitrones. Such a new type of transformation would be important considering exceptional prevalence of nitrones as intermediates in the synthesis of nitrogen-containing biologically active compounds (pharmaceuticals, unnatural aminoacids, alkaloids) and their analogues. The research will involve both coupling of nitrones with substrates containing good leaving groups (mainly aryl halides) and double C–H activation reactions, that is cross-dehydrogenative coupling (CDC), mainly with aromatic heterocycles.

Requirements:

- beneficiary of the "Diamentowy Grant" program
- good knowledge of organic chemistry
- dedication to the project, interpersonal skills,
- good English skills, sufficient for research work in chemistry