## Objective

The impressive progress in synthetic organic chemistry during the past century has propelled this discipline to its current central place as the key enabling technology in the physical and life sciences. Despite these remarkable advances, our ability to construct molecules of even moderate structural complexity remains unsatisfactory, since these syntheses continue to be inefficient, rely on a high number of reaction steps, and generate undesired, often toxic waste. These features led to the general need for greener transformations that will stimulate the development of more sustainable chemical industries.

Conventional approaches in synthetic organic chemistry make use of starting materials displaying specific functional groups, the installation of which results in costly reaction and purification steps. Therefore, an environmentally-sound and economically-attractive alternative is represented by the direct functionalization of ubiquitous carbon-hydrogen (C–H) bonds. These transition-metal-catalyzed
processes avoid pretreatment strategies, prevent the formation of undesired waste, and thus enable an overall streamlining of organic synthesis. While considerable recent progress has been accomplished in C–H bond functionalizations, available methodologies continue to be limited in scope, and key challenges are still to be overcome. Establishing a full set of sustainable C–H bond functionalization protocols will undeniably have a tremendous impact on various applied areas, such as drug discovery, chemical industries or material sciences.

**Field of science**

/social sciences/economics and business/economics/sustainable economy
/natural sciences/chemical sciences/organic chemistry

**Programme(s)**

**Topic(s)**

**Call for proposal**

ERC-2012-StG_20111012

**Funding Scheme**

ERC-SG - ERC Starting Grant

**Host institution**

GEORG-AUGUST-UNIVERSITAT GOTTINGENSTIFTUNG OFFENTLICHEN RECHTS

Address
Wilhelmsplatz 1
37073 Gottingen
Germany

Activity type
Higher or Secondary Education Establishments

EU contribution
€ 1 499 338

Website
Contact the organisation

Principal investigator
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Nadja Daghbouche (Mrs.)

**Beneficiaries (1)**
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