## Project 2.1. Photocatalysis - Synthesis of ketones from amines and carboxylic acids

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Unit: group XV

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### **Background:**

Ketons are ubiquitous organic compounds present in Nature and utilized as medicines, food additives, fragrances etc. This structural motif is widely spread in biologically important compounds, in 2020, in the Drugbank database 10.5% out of 2635 catalogued small molecules comprised ketone moiety.

Based on our group studies and literature results concerning pyridinium salts and precursors of acyl radical, we envisaged the photocatalytic method for the synthesis of ketones from amines and carboxylic acids.

## Aim:

# The aim of the project is to develop photocatalytic methods for the synthesis of ketones from amines and amino acids involving pyridinium salts as reactive intermediates.

To achieve the set goal the challenging objectives are divided into sub-tasks:

- selection of activating group for amine and carboxylic acid
- optimization studies,
- elaboration of photo- and electrochemical conditions for the synthesis of ketones,
- mechanistic studies,
- scope and limitation studies.

### **Requirements**:

- master in chemistry or related
- broad knowledge of organic chemistry
- good communication skills in English
- strong motivation and ability to work in a team