REGISTRATION FORM FOR CZECH SCIENTIFIC INSTITUTION

1. Research institution data (name and address):

Department of organic chemistry, Faculty of Science
Charles University
Hlavova 8
128 00 Praha 2, Czech Republic

2. Type of research institution: Public university (veřejná vysoká škola)

3. Head of the institution: prof. MUDr. Milena Králíčková, Ph.D. – Rector

4. Contact information of designated person(s) for applicants:

Jindřich Jindřich – head of the department
jindrich.jindrich@natur.cuni.cz, +420 221951575
PřF UK
Hlavova 8, 128 43 Praha 2, Czech Republic

5. Research discipline in which the strong international position of the institution ensures establishing a Dioscuri Centre:

Natural Sciences and Technology: *Physical and analytical chemical sciences* - physical chemistry/chemical physics, theoretical chemistry, analytical chemistry, inorganic chemistry, organic chemistry, method development

6. Description of important research achievements from the selected discipline from the last 5 years including a list of the most important publications, patents, or other results:

Workgroups at the Department of Organic Chemistry publish in respected chemistry journals. Example recent publications:

B. Mallada, B. de la Torre, J. I. Mendieta-Moreno, D. Nachtigallová, A. Matěj, M. Matoušek, P. Mutombo, J. Brabec, L. Veis, T. Cadart, M. Kotora, P. Jelínek: On-Surface Strain-Driven Synthesis of Nonalternant Non-Benzenoid Aromatic Compounds Containing Four- to Eight-Membered Rings. Journal of the American Chemical Society 143, 14694 (2021). DOI: 10.1021/jacs.1c06168.

R. P. Kaiser, D. Nečas, T. Cadart, R. Gyepes, I. Císařová, J. Mosinger, L. Pospíšil, M. Kotora: Straightforward Synthesis and Properties of Highly Fluorescent [5]- and [7]- Helical Dispiroindeno[2,1-c]fluorenes. Angewandte Chemie International Edition 58, 17169 (2019). DOI: 10.1002/anie.201908348.

L. Rycek, M. Mateus, N. Beytlerová, M. Kotora: Catalytic Cyclotrimerization Pathway for Synthesis of Selaginpulvilins C and D: Scope and Limitations. M. Organic Letters 23, 4511 (2021). DOI: 10.1021/acs.orglett.1c00519.

M. Franc, I. Císařová, J. Veselý: Advanced Synthesis & Catalysis 363, 4349-4353 (2021). DOI: 10.1002/adsc.202100571

V. Tarallo, K. Sudarshan, V. Nosek, J. Misek J.: Development of a Simple HighThroughput Assay for Directed Evolution of Enantioselective Sulfoxide Reductases. Chemical Communications. 56, 5386 (2020). DOI: 10.1039/d0cc01660h.

E. Procházková, P. Šimon, M. Straka, J. Filo,M. Májek, M. Cigáň, O. Baszczyňski: Phosphate linkers with traceable cyclic intermediates for self-immolation detection and monitoring. Chemical Communications 57, 211-214 (2021). DOI: 10.1039/d0cc06928k

7. List of no more than 3 important research projects in the selected discipline awarded in national and international calls to the institution in the last 5 years:

ProTide based drug delivery vehicles

Ondřej Baszczyňski

Experientia.cz Startup Grant

4 mil. CZK (2019-2021)

REAP and other catalytic reactions for the synthesis of azapolyaromatic hydrocarbons

Martin Kotora

Czech Science Foundation

7 mil. CZK (2021-2023)

New areas of catalysis by N-heterocyclic carbenes

Jan Veselý

Czech Science Foundation (2022-2024)

8. Description of the available laboratory and office space for a Dioscuri Centre:

The standard laboratory equipped for organic synthesis (for up to four full time people) is available. Besides the hoods, laboratory tables, rotary evaporators, ESI MS, and glove box, it includes also an office space separated by transparent walls.

9. List of the available research equipment for a Dioscuri Centre:

All devices available at the Department of organic chemistry (http://orgchem.natur.cuni.cz/equipment-gallery) and in the chemistry building are available for the Dioscuri Centre:

NMR lab: NMR - 300, 400, 600 MHz machines (400 MHz with autosampler),

MS lab: Ionization techniques: APCI, APPI, EI, ESI, CI, MALDI.

Gel Imaging System - an integrated system for DNA and protein analysis

PCR Thermal Cycler - equipment for DNA amplification by polymerase chain rection

Laser Scanner Imaging System - imaging system for measurements of radioisotopic labels, chemifluorescent Western blots, single fluorescence and colorimetric documentation

HPLC-HRMS - equipment for characterization of individual compounds or their mixtures using HPLC separation with mass spectrometry detection

ESI-MS - Electrospray ionization mass spectrometer (Shimadzu LCMS-2020).

Freeze Dryer (Labconco FreeZone 2.5).

IR spectrometer (Thermo Nicolet - Avatar 370 5T-IR)

UV-VIS spectrometer (UV-VIS Request Form)

Chiral HPLC - equipment for HPLC separation of enantiomers

10. List of the additional benefits (other than listed in the conditions for hosting a DC, see invitation) that the Institution declares to provide for a Dioscuri Centre (i.e.: additional funds, personal benefits, dual career options, relocation support or other):

When employed, for the applicant, all the employees' benefits offered by the Faculty will be available. At the department, there are several groups with young group leaders, who are all willing to help with eventual starting problems. The applicant will participate in teaching activities, and carrier growth will be expected.

11. Other information about the internationalization of the research institution, international researchers employed at the institution, the availability of English language seminars etc.:

Most of the research groups at the department have international cooperations. The Faculty is participating in the international programs Erasmus and 4EU+. The Faculty also offers mobility funding for its employees, which is intended to develop international collaborations. There are advanced English courses available – Scientific Writing, Scientific Oral Presentations – which are very helpful for starting scientists. The lector of those courses also cooperates in editing scientific articles.