



Expression of supervisor's interest to host Marie Skłodowska-Curie Individual Fellows at the University of Ljubljana

Prof. dr. Marko Anderluh from University of Ljubljana (UL) is searching for a top-class experienced researcher of any nationality interested in **developing collaborative MSCA IF application** for the following EU Framework Programme for Research and Innovation **Horizon 2020** actions:

- Marie Skłodowska-Curie Individual Fellowships – European (MSCA-IF-2017-EF)
- Marie Skłodowska-Curie Individual Fellowships – Global (MSCA-IF-2017-GF)

H2020 Call MSCA-IF-2017

Planned opening date: 11 April 2017
Deadline: 14 September 2017

More info [H2020-MSCA-IF-2017](#)

ELIGIBILITY CRITERIA FOR MSC IF RESEARCHER

- The researcher must, at the deadline for the submission of proposals, be in possession of a doctoral degree or have at least four years of full-time equivalent research experience. The researcher may be of any nationality.
- Mobility rule: the researcher must not have resided or carried out his/her main activity (work, studies) in the country of the host organisation for more than 12 months in the 3 years immediately prior to the deadline for submission of proposals.

OPPORTUNITIES FOR POTENTIAL CANDIDATES – RESEARCHER'S CAREER DEVELOPMENT

The goal of MSCA Individual Fellowships is to enhance the creative and innovative potential of experienced researchers (post-doctoral or with 4 years of equivalent research experience) wishing to diversify their individual competence in terms of skill acquisition through advanced training, international and intersectoral mobility. The researcher and supervisor will develop the MSC IF application jointly. If the application will be successful, the grant provides an allowance to cover your living, travel and family costs. The research costs and overhead of the host organisation(s) are also supported. More information about the call may be found [here](#).

University of Ljubljana offers stimulating environment for postdoctoral research providing modern core facilities in a supported environment with on-the-job training and supervision. In addition, postdoctoral researchers will have access to the generic and transferable skills trainings, they will have the possibility to be involved in educational process and if suitable, they will be seconded to industry all with the purpose for further development of their careers in the academic and non-academic sector.

Researchers who wish to cooperate with UL for the submission of a project proposal under the Marie S.-Curie Individual Fellowships should check that they fulfil the respective eligibility criteria and then send an Expression of interest, consisting of a CV and a summary presentation of their research proposal by email to: MSCA@uni-lj.si with the following reference: "MSCA prof. *name*". The deadline for submission is **15 March 2017**. Proposals will be pre-selected based on internal evaluation and the availability of suitable supervision. Candidates will be informed of the results of the pre-selection by 20 March 2017. **Selected candidates will be invited to meet the supervisor and visit the research environment of the University within a 2-day MSCA-IF Proposal writing Workshop in Ljubljana organised by the UL in June 2017.**

UNIVERSITY OF LJUBLJANA

University of Ljubljana (Univerza v Ljubljani, UL) is the oldest and largest higher education and scientific research institution in Slovenia. It encompasses 23 faculties and 3 art academies and has more than 40.000 undergraduate and postgraduate students and approximately 5.600 employees. UL is listed amongst the **top 500 universities** in the world according to the ARWU Shanghai, Times THES-QS and WEBOMETRICS rankings. UL is very active in national and international R&D and educational programmes, and creates almost half of the research results of Slovenia. In the period 2007-2013 UL cooperated in 163 FP7 projects, which places UL between **the leading organisations in the EU 13** member states. In 2016 UL cooperated in 54 Horizon2020 projects, including 2 ERC grants and is involved in over 300 other EU projects. The University of Ljubljana has close ties with many excellent Slovenian and foreign companies. In May 2015, UL founded the Slovenian Innovation Hub, which will operate mainly as a facilitator and promoter of development and research teams in the academic and business sphere. UL is also founder of the University incubator, the Institute for Research and Innovation, and recently the SMUL network - a global alumni and associates network. UL is committed to respect the principles of the European Charter for Researchers and the Code of Conduct for Recruitment of Researchers, which led to the right, from 2013, to use the logo '*HR Excellence in Research*'.

NAME OF THE SUPERVISOR: Marko Anderluh

MAIN RESEARCH FIELD: medicinal chemistry, glycochemistry, molecular probes' design and synthesis, structure-based drug design, binding assays, biophysical methods (ITC, SPR)

E-MAIL address: marko.anderluh@ffa.uni-lj.si

LINK to SUPERVISOR's CV: <http://www.ffa.uni-lj.si/en/faculty/organization/chairs/the-chair-of-pharmaceutical-chemistry/staff-list/anderluh-marko>

DESCRIPTION OF THE SUPERVISOR (max. 200 words)



Assoc. Prof. Marko Anderluh

- 2004: PhD in Medicinal chemistry, work on the design, synthesis and biological evaluation of integrin receptor antagonists and antithrombotic compounds with dual mechanism of action
- Academic titles: 2000-2007: Teaching Assistant, 2007-2012 Assistant Professor of Medicinal Chemistry, 2012-2017 Associate Professor of Medicinal Chemistry
- 2007-2008: University of Milan, Italy, guest (post-doc) researcher in the group of Prof. Anna Bernardi
- 2005-current: experience with 3 European projects: a) FP6 EUR-Intafar; b) FP7 MAREX; c) FP7 ORCHID
- 2 projects with Pharmaceutical industry (Krka, d.d., and Lek, d.d., a part of Novartis)
- 2 Bilateral projects: a) in collaboration with Assist. Prof. Dr. Sylvie Mavel, University of Tours, France; b) in collaboration with Assoc. Prof. Dr. Andrija Šmelcerović, University of Niš, Serbia

Supervision

- A supervisor to over 20 thesists from Uniform master's programme of Pharmacy
- The supervisor of 3 PhD's, currently supervising 2 PhD students and 1 Erasmus PhD student

Awards

- 2015: Recognition for a leader of the working group "Quality and Visibility of Training in Medicinal Chemistry" of European Federation for Medicinal Chemistry in 2015
- 2009: an award given by University of Ljubljana to excellent young academic teachers
- 2006: Futurum 2006 award for outstanding Ph.D. thesis of Ad Futura; Scientific and Educational Foundation of the Republic of Slovenia
- 2005: 35th Krka Prize for top 5 research achievements in year 2005

RESEARCH FIELD OF THE SUPERVISOR

Main research field:

Peptidomimetics: design and synthesis of peptidomimetics. Peptidomimetics are molecules that mimic the bioactive conformation of a selected peptide and serve as adequate substitutes for these peptides in the interaction with the binding sites. By 2004, the candidate was engaged in the design, synthesis and biological evaluation of peptidomimetic integrin receptor antagonists and antithrombotic agents with a dual mechanism of action.

Glycoconjugates/glycomimetics: design and synthesis glycomimetics and glycoconjugates, development of innovative synthetic routes for the synthesis of glycomimetics. This is one of the main scientific areas in which the candidate is engaged. Candidate designs and synthesizes DC-SIGN antagonists, FimH and PA-IIL antagonists and inhibitors of enzymes OGT and AtLE.

Biologically active compounds/molecular probes: the rational design and synthesis of new biologically active compounds. Rational design of new compounds (lead compounds) based on knowledge of the crystal structure of the receptor/enzyme (validated targets) or the ligand and comprises the use of computer programs (in silico). This is followed by a synthesis of small molecules and the evaluation of their biological activity.

Sub-fields: structure-based drug design, molecular modelling, organic synthesis, physico-chemical profiling, biophysical methods (STD-NMR, ITC), binding assays, cell-based assays

RECENT TRACK-RECORD and other SIGNIFICANT ACHIEVEMENTS

- **Lecture:** **ANDERLUH, Marko**. Lectins as targets in antiadhesion therapy-example of DC-SIGN and FIMH antagonists. V: Book of abstracts, [XXIII] International Symposium on Medicinal Chemistry, Lisbon, Portugal, September 7-11, 2014, ChemMedChem. Weinheim: Wiley, 2014, pp. 47-48, LE043. Invited lecture at the largest World Congress of Medicinal Chemistry.
- **Article:** ŠVAJGER, Urban, **ANDERLUH, Marko**, JERAS, Matjaž, OBERMAJER, Nataša. C-type lectin DC-SIGN; an adhesion, signalling and antigen-uptake molecule that guides dendritic cells in immunity. Cellular signalling, 2010, vol. 22, iss. 10, pp. 1397-1405. JCR, WoS: No. citations (TC): 90, pure citations (CI): 80. Highly cited article in the eminent journal.
- **Article:** **ANDERLUH, Marko***, KOCIC, Gordana, TOMOVIĆ, Katarina, KOCIĆ, Radivoj, DELJANIN ILIĆ, Marina, SMELCEROVIĆ, Andrija. Cross-talk between the dipeptidyl peptidase-4 and stromal cell-derived factor-1 in stem cell homing and myocardial repair: potential impact of dipeptidyl peptidase-4 inhibitors. Pharmacology & therapeutics, 2016, vol. 167, pp. 100-107. IP 2015: 11,000. Article in the recognized journal with high impact factor, the candidate is the first and leading author.
- **Article:** TOMAŠIČ, Tihomir, HAJŠEK, David, ŠVAJGER, Urban, LUZAR, Jernej, OBERMAJER, Nataša, PETIT-HAERTLEIN, Isabelle, FIESCHI, Franck, **ANDERLUH, Marko***. Monovalent mannose-based DC-SIGN antagonists: targeting the hydrophobic groove of the receptor. European Journal of Medicinal Chemistry, 2014, vol. 75, pp. 308-326. IP 2014: 3,447. Article in the recognized journal with high impact factor, the candidate is the leading author.
- **Organisation of the flagship congress:** 2.-6.9.2018: EFMC-ISMC 2018 International Symposium on Medicinal Chemistry, Ljubljana, Slovenia. Function: (future) President of the International Organizing Committee (chairman). The candidate, as president of the Section for Medicinal Chemistry of the Slovenian Pharmaceutical Society (SFK-SFD) prepared thoroughly the candidacy for the largest world congress in the field of Medicinal chemistry. SFK-SFD has won the bid and the candidate became the President of the International Organizing Committee.

Full list available at <http://izumbib.izum.si/bibliografije/Y20141030161453-21456.html>.

FACULTY/DEPARTMENT/LABORATORY

The Chair of Pharmaceutical Chemistry at The University of Ljubljana is the largest and most multidisciplinary Pharmaceutical/Medicinal Chemistry Department in Slovenia. Every year approximately 100-research papers are published within the Department in international refereed journals and several home and international patents are awarded to the scientists of the department. Major research interests include a) design, synthesis and biological evaluation of organic compounds; b) development of synthetic methods and synthesis of drugs for pharmaceutical industry; c) virtual screening and computational chemistry; d) development of novel biological assays; e) analytical and spectroscopic methods; f) macromolecular chemistry; g) peptide chemistry and h) fluorine chemistry. The department has participated or is still participating in several projects funded by EU. There are also numerous other on-going international collaborations, among which some are relevant for the present project.

Given all the host expertise in the field of Medicinal chemistry, we believe that the Chair of Pharmaceutical Chemistry at The University of Ljubljana is a perfect host for proposed training programme. The host institution is an academic institution (public university) and thus meets the criteria for eligibility for Marie Curie Intra-European Fellowships for Career Development.

RESEARCH INFRASTRUCTURE

The practical implementation of the project is guaranteed by the scientific infrastructure of The Chair of Pharmaceutical Chemistry at The University of Ljubljana and that of the associated National Institute of Chemistry, Ljubljana, Slovenia. The department has available several workstations with specialized programs for in silico structure-based design. The department laboratories are well equipped for synthesis, purification and characterization of the designed compounds. The department has a well-equipped laboratory for biological assays and a dedicated cell laboratory.

The research facilities are fully equipped with cutting-edge instrumentation and equipment for synthetic and computational work including the screening of potentially active compounds including: NMR (Bruker Avance 400, 500 MHz, and up to 800 MHz at National Institute of Chemistry), EPR (Miniscope MS400), FT-IR, UV (PerkinElmer LS 55), fluorometer, analytical and preparative HPLC, GC, polarimeters, etc. Instrumentation for high resolution mass spectrometry is available via the collaboration with the laboratory of Centre for Mass Spectrometry at Jožef Stefan Institute, Ljubljana, Slovenia. A fully equipped laboratory for performing biological assays is also at our disposal at the Faculty of pharmacy including 3 microtiter plate readers (Tecan GENios, Tecan Sapphire and microplate reader Synergy H4 with robotic hand Precision XS), ITC Calorimeter NanoITC (TA Instruments), centrifuge, pH-meter, vortex, electronic multichannel pipettes etc. Instrumentation for SPR is available via collaboration with the laboratory of Infrastructural center for Surface Plasmon Resonance at the Department of Biology, Biotechnical Faculty, University of Ljubljana, Slovenia. We have a fully equipped cell laboratory with all the necessary instrumentation to perform cell-based assays. On-line internet connection with full access to the main literature databases (Sci-Finder, MedLine and Web of Science) and on-line access to the primary literature journals for Chemistry, Medicinal chemistry and Biochemistry are also available. There are workstations and specialized programs for computational chemistry research (AutoDock, LeadIT, Gold, OpenEye software, ChemBioOffice, Schrödinger Suite, NAMD, etc.) available at the Faculty of Pharmacy. These infrastructures and instrumentation fully meet the requirements necessary for the execution of the supervisor's research project.

ACADEMIC AND NON-ACADEMIC COLLABORATION

(Describe briefly your involvement in important international networks and projects, highlighting the interdisciplinary collaborations and transfer of knowledge. Describe significant collaborations with other stakeholders highlighting the secondment opportunities for MSC researchers to industry/SMEs/NGOs/institutes if relevant.)

- The member of the program group P1-0208 Pharmaceutical chemistry: design, synthesis and evaluation of substances for a period between 1999-2015. Within this program group he is primarily engaged in the design, synthesis and biological evaluation of antagonists of lectin DC-SIGN as potential antiviral agents.
- By 2004, I was engaged in the design, synthesis and biological evaluation of integrin receptor antagonists and antithrombotic compounds with dual mechanism of action. In addition to numerous publications, two national patents have been also awarded as a result of the project findings.

- European project: EUR-Intafar (inhibition of New Targets for Fighting Antibiotic Resistance). Funded by: European Community Sixth Framework Programme (FP6), Contract number (LSHM-CT-2004-512138). He has optimized synthetic route for the preparation of differently substituted benzylidenrhodanines. Based on this route, several substituted benzylidenrhodanines were synthesized and evaluated as potent Mur ligase inhibitors.
- Currently involved in the European project: MAREX (Exploring Marine Resources for Bioactive Compounds: From Discovery to Sustainable Production and Industrial Applications). Funded by: European Community 7th Framework Programme (FP7), Project Reference: 245137. Contact person: TAMMELA Päivi.
- 2009-2010: the leader of the applied project led by the company Krka, d.d., where the aim was the innovative synthesis of substance vildagliptin. The project was successfully completed, and the invention was patented by an international patent application: ZUPET, Rok et al. SYNTHESIS AND USE OF VILDAGLIPTIN FOR THE PREPARATION OF PHARMACEUTICAL DOSAGE FORMS. Patent: WO/2011/012322, 2010, A2.
- Bilateral project PROTEUS BI-FR/12-13-PROTEUS-007; Synthesis, radiolabelling and biological characterization of fluorinated benzovesamicol derivatives as potential radioligands for the vesicular acetylcholine transporter, ARRS. Leading researcher: Assoc. Prof. Dr. Marko Anderluh explores methods for radiofluorination of various ligands as markers for positron emission tomography. Work is ongoing in collaboration with Assist. Prof. Dr. Sylvie Mavel, Laboratoire de Chimie Thérapeutique the Faculty of Pharmacy in Tours, France (Faculté de pharmacie, Tours, France).
- EU FP7 project ORCHID (2011-2015) »Open Collaborative Model for Tuberculosis Lead Optimization«, ID: 261378, Leadership: pharmaceutical company GlaxoSmithKline
- 2014-2015: the leader of the bilateral project with Republic of Serbia entitled "Screening of focused chemical libraries for antibacterial and anti-inflammatory activity" (ARRS-BI-RS-JR-Prijava/2013/32). Work was done in collaboration with Assoc. Prof. Dr. Andrija Šmelcerović, University of Niš, Serbia.
- The leader of the project "Development of the synthesis of active pharmaceutical ingredients" in cooperation with Lek d.d. (a part of Novartis, 2014-2015).
- Research project L1-6745 Combating bacterial resistance: optimisation of bacterial cell wall biosynthesis inhibitors (2014—2017) (Leader: Prof. Dr. Stanislav Gobec)
- Collaboration with Acies Bio, a small biotech company committed to the development of novel drugs targeting severe and debilitating rare diseases, or life-threatening multi-drug resistant bacterial pathogens – the post doc researcher will be given the chance for training on Intellectual property, biotech entrepreneurship and life-science start-ups

International collaboration with:

- **Prof. dr. Anna Bernardi**, Università di Milano, Italy
- **Prof. dr. Francesca Cateni**, Department of Pharmaceutical Sciences, University of Trieste, Italy
- **Prof. Dr. Beat Ernst**, Pharmacenter, University of Basel, Klingelbergstrasse 50, CH-4056 Basel, Switzerland
- **Prof. Dr. Franck Fieschi**, Institut de Biologie Structurale, CEA-CNRS-UJF, Grenoble, France,
- **Dr. Anne Imberty**, CERMAV-CNRS (Centre de Recherches sur les Macromolécules Végétales), Grenoble, France
- **Prof. Dr. Gordana Kocić**, Department of Biochemistry, Faculty of Medicine, University of Nis, Serbia
- **Dr. Javier Rojo Marcos**, Instituto de Investigaciones Químicas, CSIC – Universidad de Sevilla, Spain
- **Assist. Prof. Dr. Sylvie Mavel**, Laboratoire de Chimie Thérapeutique, Faculté de Pharmacie, Tours, France
- **Prof. Dr. Roland. J. Pieters**, Department of Medicinal Chemistry and Chemical Biology, Utrecht University, Utrecht, The Netherlands
- **Dr. Andreas Reisner**, University of Applied Sciences, Biomedical Science, Graz, Austria
- **Prof. Dr. Rafaella Sordella**, Cold Spring Harbor Laboratory, United States
- **Assist. Prof. Dr. Andrija Šmelcerović**, Department of Chemistry, Faculty of Medicine, University of Nis, Serbia
- **Dr. Nuska Tschammer**, NanoTemper Technologies GmbH, Munich
- **Dr. Marina Zacchigna**, Department of Pharmaceutical Sciences, University of Trieste, Italy

SPECIFIC REQUIREMENTS/PREFERENCES

The MSC researcher should have a PhD in Medicinal Chemistry or Organic Chemistry with strong background in synthetic organic chemistry and analytical methods used therein. Experience with computational medicinal chemistry methods, biophysical methods for ligands' binding to macromolecules, competitive binding assays and/or enzyme inhibition assays is welcome, but not obligatory. The MSC researcher should be fluent in English language.

The fellowship is given for 1 or 2 years. Researchers ready to spend both 1 or 2-years in my laboratory are welcome to contact me.

The supervisor is the main coordinator of the PhD4GlycoDrug consortium founded to apply for MSCA-ITN-EJD funding. The partners and their expertise are assembled into the PhD4GlycoDrug Consortium's overarching aim that is a glycodrug discovery research and training platform. This platform is dedicated to the discovery and development of compounds with modulatory activity on specific macromolecular targets - medically relevant carbohydrate binding proteins (CBPs) and OGT. The MSC researcher will be given a chance to exploit this consortium for collaboration and for short-term visits.

The PhD4GlycoDrug Consortium will aim to develop entrepreneurial ability and skills, as well as to increase the employability of ESRs, through exposure to the hands-on training in the non-academic sector. Hence, involvement of the non-academic sector in training activities is central to the PhD4GlycoDrug program. Non-academic partners will be committed to participate in and supervise training activities related to transferable skills related to non-academic (industrial) needs, e.g. dissemination, inventiveness, IP strategies, business planning, leadership, entrepreneurial skills, and venture fund recruitment. The MSC researcher will be fostered to use supervisor's network to gain some of the described transferable skills.