

Curriculum Vitae- Helena Macut, PhD



Personal information

- Name: Helena Macut
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Qualifications

Experienced researcher in analytical development for biopharmaceuticals with a PhD in pharmaceutical sciences/medicinal chemistry

Fields of previous research work:

- ***Biopharmaceuticals:*** big pharma industrial experience in analytical development of biosimilars; analytical expert support for the late phase development of New Biological Entities; analytics of glycans with a focus on U(H)PLC/HPLC based fluorescence and mass detection; size exclusion chromatography for the detection of aggregates and degradation products; experience with automated sample preparation processes; experience with Empower software; familiar with the DoE approach; analytical method transfer; method validation
- ***Medicinal chemistry:*** design and synthesis of small molecules and peptides (automated and manual), *in vitro* biological evaluation
- ***Biophysical techniques:*** extensive experience with the development of binding assays using microscale thermophoresis (NanoTemper Monolith instrument) and surface plasmon resonance (Biacore instrument);
- ***Instrumental analysis:*** strong expertise with LC/MS methods, NMR (including 2-D NMR techniques) and IR

- **Structural biology:** protein expression, characterization and crystallization
- Very proactive and a good team player with Excellent time management skills
- Outstanding communication, intercultural and multi-lingual skills
- Highly developed networking skills
- Excellent research, writing and presentation skills
- Experience with dissemination of scientific content for different target audiences

Professional experience

- November 2021- ongoing: **Senior expert Science and Technology** at Novartis, Schaffhausen, Austria.
Main activities and responsibilities: analytical expert role for biopharmaceuticals development with a focus on the late stage development.
- February 2019- October 2021: **Senior scientist in technical development** at Novartis, Mengeš, Slovenia.
Main activities and responsibilities: analytical support for biopharmaceuticals development; design, planning, documenting and interpreting scientific experiments. Documenting and interpreting raw data, supervising research projects, development/transfer of new analytic methods and processes, communication with contract research organizations, team coordination and work assignment. Experience with project management, Quality by Design and DoE principles.
- February 2016- January 2019: **Early stage researcher** in the Horizon 2020 Marie Skłodowska Curie Innovative Training Network MOGLYNET (Modulation of glycolytic flux as a new approach for treatment of atherosclerosis and plaque stabilization: a multidisciplinary study, Grant agreement N. 675527). Supervisors: Prof. Maria Luisa Gelmi (University of Milan), Prof. Matteo Zanda (University of Aberdeen).
Main activities and responsibilities: design and synthesis of bioactive peptides and their biological evaluation *in vitro*, including several biophysical techniques.
This fellowship resulted in a joint doctorate degree between the University of Milan and the University of Aberdeen.
- November 2014- January 2015: **Research fellow** at Jožef Stefan Institute in Ljubljana, Slovenia in the field on nanoscience and nanotechnology. I was engaged in the design and synthesis of stimuli responsive coatings for nanoparticles for bioapplications. We were especially focused on the use of nanoparticles as potential drug delivery systems in cancer therapy.

Education and training

- February 2016- January 2019: **PhD in Pharmaceutical Sciences/Medical Sciences** at the University of Milan, Italy and University of Aberdeen, United Kingdom.
- October 2009- September 2014: **Master of Pharmacy degree** (Uniform Master's study programme Pharmacy), Faculty of Pharmacy, University of Ljubljana.

- September 2005- August 2009: **International Baccalaurate Diploma**, Gimnazija Bežigrad, Ljubljana, Slovenia.

Languages

- Slovenian, Croatian: bilingual proficiency
- English: Full professional proficiency
- Italian: Professional working proficiency
- German: Limited working proficiency

Prizes and Awards

- 2017: Poster award at 10th Joint Meeting on Medicinal Chemistry, 25-28 June 2017, Dubrovnik, Croatia. Title of the flash presentation: Design, synthesis and in vitro evaluation of modulators of PFKFB3 autoregulatory domain.
- 2014: Prešeren award for excellence in research: This award is given by the University of Ljubljana for the best Master degree theses.
- 2005- 2014: Zois scholarship for gifted students, which is managed by the Slovene Human Resources Development and Scholarship Fund.

Publications

ORCID ID: <https://orcid.org/0000-0003-0040-8949>

- Macut, H.; Hu, X.; Tarantino, D.; Gilardoni, E.; Clerici, F., Regazzoni, L.; Contini, A.; Gelmi, M.L.; Pellegrino, S., Tuning PFKFB3 Bisphosphatase Activity Through Allosteric Interference, *Sci. Rep.* 2019, DOI: <https://doi.org/10.1038/s41598-019-56708-0>.

- Bucci, R.; Dapiaggi, F.; Macut, H.; Pierracini, S.; Sironi, M.; Gelmi, M.L.; Erba, E.; Pellegrino, S., On resin multicomponent 1,3-dipolar cycloaddition of cyclopentanone-proline enamines and sulfonylazides as an efficient tool for the synthesis of amidino depsipeptide mimics, *Amino Acids.* 2019, DOI: <https://doi.org/10.1007/s00726-019-02805-3>.

- Zidar, N.; Macut, H.; Tomašič, T.; Peterlin Mašič, L.; Ilaš, J.; Zega, A.; Tammela, P.; Kikelj, D., New N-phenyl-4,5-dibromopyrrolamides as DNA gyrase B inhibitors, *Med Chem Comm.* 2019, 10(6), 1007-1017.

- Dapiaggi, F.; Pieraccini, S.; Potenza, D.; Vasile, F.; Macut, H.; Pellegrino, S.; Aliverti, A.; Sironi, M., Computer aided design and NMR characterization of an oligopeptide targeting the Ebola virus VP24 protein. *New J. Chem.* 2017, 41, 4308-4315.

- Zidar, N.; Tomašič, T.; Macut, H.; Sirc, A.; Brvar, M.; Montalvão, S.; Tammela, P.; Ilaš, J.; Kikelj, D., New N-Phenyl-4,5-dibromopyrrolamides and NPhenylindolamides as ATPase Inhibitors of DNA Gyrase. *Eur. J. Med. Chem.* 2016, 117, 197-211.

- Zidar, N.; Macut, H.; Tomašič, T.; Brvar, M.; Montalvão, S.; Tammela, P.; Solmajer, T.; Peterlin Mašič, L.; Ilaš, J.; Kikelj, D., N-Phenyl-4,5-dibromopyrrolamides and N-phenylindolamides as ATP competitive DNA gyrase B inhibitors: design, synthesis, and evaluation. *J. Med. Chem.* 2015, 58 (15), 6179–6194.