

**Host organization: UNIWERSYTET WROCLAWSKI**

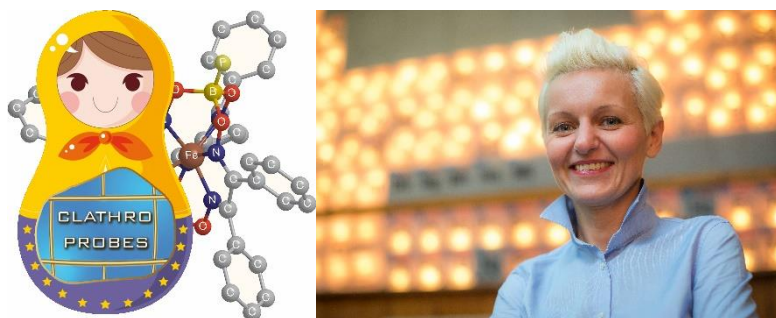
**Country: POLAND**

**Organization role: coordinator; beneficiary**

**Project Acronym: CLATHROPROBES**

**Project start and end date: 1.01.2018 – 31.12.2021**

**Type of MSC action, H2020: RISE**



### **Project objectives and research field:**

The project is devoted to the design of novel and highly efficient chiroptical, luminescent and NMR probes, built on the basis of cage metal complexes (clathrochelates), which will be further examined as molecular reporters for sensing of proteins and their structural changes. The main objectives of the project include the design and synthesis of new compounds, their comprehensive characterization, determination of the parameters of their interaction with proteins, and bioactivity and cytotoxicity studies.

### **Tell us why the topic is important and/or how it brings to advancement in your research field:**

The majority of known probes for protein sensing or inhibition are based on organic compounds, built on a carbon-based scaffold, with the highest number of substituents on a carbon atom of 4. In contrast, clathrochelate metal-based scaffolds offer higher number of substituents that significantly expands the available structural space and thus allows efficient targeting of a variety of proteins. Cage complexes are (photo)chemically robust compounds, which exhibit high thermodynamic and kinetic stability under standard physiological conditions. Used as guest molecules, they can influence the function of proteins and thus determine their biological activity. Vice versa, the host molecules can affect the geometry and spectral characteristics of the probes, which may then become specific reporters of proteins structural changes. The unique advantage of the cage molecules, is the possibility to arrange them in a way to obtain complementary multiple spectral responses upon binding to proteins.

### **What are the benefits of participating in a MSC action?**

Strengthening collaboration between the European research and industry sectors, especially when operating in the frontiers of chemistry and biology, is a priority in order

to sustain and potentiate the strength and attractiveness of research and development environment. We believe that this project moves in this direction and encourages the exchange of research expertise, know-how, and technologies to create the background for further innovation activity. The success of this exchange programme will be delivered by a tight cooperation among six partners (four from academia and two from industry), and will contribute directly to the benefits of the researchers via their career development (especially important at early stage), as well as to society through the design and elaboration of novel materials of technological use, i.e. efficient and selective probes for sensing of proteins. It is worth to highlight, that the use of imaging probes together with the cutting-edge technologies, has reshaped the philosophy of drug design and discovery in pharmaceutical sciences by providing more cost-effective ways to evaluate the efficacy of a drug candidate and allowed pharmaceutical companies to reduce the time it takes to introduce new therapeutics into the market.

**Did you encounter any challenges during application/ implementation and did you get any help?**

Preparing a successful EU proposal is a demanding challenge. It needs lots of efforts/willpower of the authors and their very good know-how and skills in proposal writing. Apart from excellent and innovative science, good skills in describing non-scientific issues are also required. Some of our early attempts were not as successful as we had hoped, but as in scientific research, the best response to the inevitable stumble or obstacle is not to give up but to reflect on what you can do better, make adjustments, and reapply.

What departments, institutions, and other entities did to support our efforts? Regional Contact Point in Wroclaw regularly organizes professional trainings on proposal writing, as well project management & execution, while UWR administration helps with internal administrative issues to facilitate project implementation. Our project has started January 1<sup>st</sup> 2018, and until now, when confronted with any implementation challenge, we get help needed from the UWR administration, being in tight contact with National Contact Point. Any question not answered at this level is addressed to REA officers, who, as we were assured during the H2020-RISE-2017 Coordinators Day, are ready to support the coordinators at any point. I hope it will work this way along the whole project.

**Would you recommend others to apply? What useful advice/ tips can you give them?**

I will always encourage other researchers to apply for the EU projects. Building a consortium and preparing a joint proposal is an adventure already, and the satisfaction and benefits brought by a successful project, are much higher than the effort. The team building, collaboration experience, and new scientific ideas raised by a joint work bring lots of satisfaction.

My advice? 1. “Be very precise when preparing the proposal – accurately address all the issues you are asked about” 2. “Be patient, don’t expect everything to work out the first time. Realize that art of writing the EU proposal takes time to learn... Be willing to apply and get better at it!”

**What strategies did your organization use to attract the fellow/s? Are they in line with national strategies supporting the widening EC policy?**

UNIwersytet Wrocławski has adopted the Strategy for 2013-2020. One of its aim is the high quality of research achieved in particular by its internationalisation. The project CLATHROPROBES ties in with that Strategy.

One of the mechanisms facilitating the RISE project implementation in Poland was the programme "Bonus for Horizon" in which employees engaged in RISE project may get extra salary for their work. We have applied for it and the bonus has been granted to CLATHROPROBES project. Another scheme was the co-financing of Polish secondments within RISE by the Ministry of Science and Higher Education. We have also used that opportunity and submitted a proper application. Moreover, this year a new Act has been adopted by the Polish government - The Law on Higher Education and Science (Law 2.0). This Law increases the level of internationalisation of Polish universities and science.