



Early Stage Researcher Project

**“Structural elucidation of allosteric mechanisms  
in G-protein coupled receptors or other membrane  
proteins by structural biology methods”**

in

Charité – Universitaetsmedizin Berlin, Germany

You want to participate in a training programme in and beyond the fields of physical chemistry of biological systems, theoretical and computational chemistry, biological chemistry, biochemistry, targeted drug delivery/discovery and medicinal chemistry?

14 Early Stage Researcher (ESR) positions are available within the EU-funded Marie Skłodowska Curie Innovative Training Network on **Allo**stery in **D**rug **D**iscovery (**ALLODD**) under Grant Agreement No. 956314.

The ALLODD project is a collaboration between 13 academic and industrial organizations with 14 ESR/PhD students in total. The aim of ALLODD is to train a new generation of scientists to exploit the concept of allostery in drug design, putting together a whole array of technologies to identify and characterize allosteric modulators of protein function that will be applied to therapeutically relevant systems.

## Project Description

**Host Organisation:** Charité

**Scientist-in-Charge:** Dr. Patrick Scheerer

### Objectives:

- 1) Large-scale expression and purification of specific GPCRs (Rhodopsin, MC4R, un-named specific GPCR targets) or other membrane proteins ,
- 2) Biophysical characterization of allosteric modulator binding to the selected GPCRs targets using Microscale Thermophoresis (MST) or Nano differential scanning fluorimetry (nanoDSF) technologies and Microscale fluorescent thermal stability (CPM) assays or additional cell signaling assays (e.g. nanoBRET). ,
- 3) Structural characterization of the selected receptor-ligand complexes (allosteric ions, modulators, peptides) using protein X-ray crystallography or cryo-EM).



## Expected Results:

Structural determination and visualization of diverse allosteric ligand binding sites in GPCRs. Elucidation of interrelations between identified binding sites and understanding underlying mechanisms of allosteric effects.

## Planned Secondement(s):

- **Host1:** UNIURB, timing M10, length: 2 months, purpose Training MD methods to investigate binding kinetics of allosteric modulators,
- **Host2:** Novo Nordisk, timing M20: length: 3 months, purpose: training in peptides as allosteric modulators.
- **Host3:** FZJ, timing M30, length 2 months, purpose: training in allosteric drug-targeting of GPCRs.

## Eligibility Criteria

There are **strict eligibility requirements** to apply for participation in a Marie Skłodowska Curie Innovative Training Network:

- Applicants for the ESR/PhD positions should be in the first 4 years (full-time equivalent) of their research careers and not yet have been awarded a doctorate.
- Applicants must not have resided or carried out their main activity (work, studies, etc.) in the host country for more than 12 months in the 3 years immediately before the recruitment date. In addition, local regulations of the host countries may apply.

## Benefits

**Enrollment in Doctoral degree(s):** No.

**We are offering** a competitive, interdisciplinary environment with a track record of intense mutual collaboration. In addition to the individual training-through-research, our program includes further elements such as workshops, summer schools, internships and secondments to the partners' laboratories.

The successful candidate:

- will be funded for 36 months with a competitive salary in accordance with the MSCA regulation for Early Stage Researchers, including living allowance, mobility allowance and a family allowance (if married).
- will have to perform the secondments defined in his/her personalized career development programme.



## To be a part of ALLODD:

**Apply to and contact for further information:** Applicants should apply by email to [patrick.scheerer@charite.de](mailto:patrick.scheerer@charite.de) indicating Reference: ALLODD\_ESR6.

**Apply until:** 31 January 2022

**Starting date:** The earliest starting date will be **1 November 2021** The latest will be **1 September 2022**.