

Two **doctoral student positions** are available in the EU HORIZON 2020 MSC-ITN project *RNAct* on:

**Integrative structural biology and biophysics to analyze and design
RNA interactions of RNA-Recognition Motif (RRM) proteins**

Thesis supervisor: Prof. Dr. Michael Sattler, Helmholtz Zentrum München / Technical University of Munich

Starting date: Between March and December 2019

Duration: 36 months

[ESR5 project: RRM structure and design for synthetic biology and bio-analytics applications](#)

This project will design RRM proteins with novel RNA binding properties and develop small molecules to modulate RNA binding activity. The design will be confirmed using experimental structural biology. The modulation of RNA binding by small molecules will be experimentally assessed by combining state-of-the-art solution NMR and biophysical techniques (ITC, FP, SPR). The project is in collaboration with computational groups of the ITN for the design of RRM variants and for experimental validation in cellular assays.

[ESR6 project: Conformational dynamics and RNA binding specificity of RRM proteins using integrative structural biology and biophysics](#)

This project will characterize the dynamics and RNA recognition of RRM proteins using a combination of advanced solution NMR (relaxation measurements to characterize internal dynamics from nanosecond to millisecond timescales) and biophysical techniques (ITC, FP, SPR). These experiments will identify the role of specific residues and dynamic features in RRM proteins for RNA binding specificity and identify key residues and molecular features involved. In close collaboration with computational groups of the ITN, RRM variants that modulate RNA recognition will be designed and experimentally verified.

Eligibility:

European funding requires **international mobility**: The candidates must not have resided or carried out their main activity in Germany for more than 24 months in the 3 years prior to the recruitment.

Candidates must have a master degree relevant disciplines: (bio-)physics, structural biology, biochemistry, chemistry

The project is highly interdisciplinary and combines molecular biology and recombinant protein expression with advanced techniques in structural biology focusing on solution NMR and crystallography. Some experimental experience in these techniques is very desirable. Candidates must be highly motivated and interested in interdisciplinary research and developing new ideas.

Candidates must be fluent in English.

We offer outstanding facilities for NMR (<http://www.bnmrz.org>) with various high-field NMR spectrometers (including 950, 900, 800 MHz, 1.2 GHz pending), crystallography, small angle scattering (in-house SAXS) and access to synchrotron beamtime, as well as a new biochemical lab.

Applications need to be sent on the RNAct centralized application web site:

[Apply for RNAct ESR positions](#)