Applications are invited to join a dynamic, multidisciplinary ETN training network, SyMBioSys, which represents an interdisciplinary joint effort of modellers, systems and software engineers, as well as experimentalists and intends to address these challenges by providing an innovative research and training programme for young researchers. The main objective of SyMBioSys is to provide a new generation of innovative and entrepreneurial early-stage researchers (ESRs) that will develop cutting-edge kinetic models for biological processes via systems engineering research and will exploit these for designing novel biotechnological applications. To achieve this, the ESRs projects will be integrated in such a way that all will collaboratively contribute to the building and usage of proper kinetic models of complex biological systems.

Mathematical models play a central role in biological systems engineering, supporting the generation of new testable hypotheses and novel ways of intervention, as well as providing mechanistic explanations of experimental results. Kinetic (i.e. dynamic) models are particularly important since they can explain and predict the functional behavior that emerges from the time-varying concentrations in cellular components. However, there are currently many pitfalls and challenges for kinetic model building.

The skills and competences acquired by the ESRs will open up significant opportunities: 1) working at simulation and bioinformatics companies to develop advanced software and algorithms tools; 2) working at White (industrial) and Red (medical) Biotech companies for biotechnological (e.g. amino acid and monoclonal antibody production) and biomedical (e.g. chemotherapy) applications; and 3) in the academic sector applying the developed tools for the generation of new biological insights (e.g. new insights regarding drug effects in signalling networks for diseased and intact cell systems).

The research program will be carried out in the newly founded Joint Research Centre for Computational Biomedicine (www.combine.rwth-aachen.de) at the RWTH Aachen University Hospital (Uniklinik). Applications are invited for a three-year ETN Early Stage Researcher Position in “identification of both structure and parameters of large signalling models” under the supervision of Prof. Julio Saez-Rodriguez.
The aim of the project is to (i) Understand of optimization methods; (ii) Exploit advanced methods for mixed-integer dynamic optimization developed by the Banga group at CSIC; (iii) Understand data acquisition: from mass spectrometry based phosphoproteomics to single-cell phosphorylation data recorded with imaging data. In particular, the use of xMAP core technology; (iv) Optimal experimental design

The successful candidate should be motivated and independent. S/he should have a background in computational sciences (mathematics, physics, engineering), although biological background with some training in computational disciplines could be considered. Programming skills and good understanding of numeric and optimization techniques are advantageous.

Benefits

This program offers a three year full-time position as researcher with a salary and allowances according to EU regulations for Marie Curie ITN Early Stage Researchers. ESRs in an ITN also undertake a comprehensive personalised development programme with targeted training measures and participate in a range of network events with the consortium partners.

Eligibility restrictions:

To be eligible the candidate must have no PhD and less than 4 years' research experience. At the time of the selection, applicants must not have resided or carried out their main activity (work or studies) in Germany for more than 12 months in the 3 years immediately prior to the starting date.

These eligibility requirements for Marie Curie ESRs are non-negotiable and ineligible candidates will not be considered.

If you would like to discuss the project, please contact jobs@combine.rwth-aachen.de, with the word SymBioSys in the Email Subject.

How to apply:

Please send your CV, cover letter (stating why you are interested in this position), and names of 2-3 references to jobs@combine.rwth-aachen.de with the word SymBioSys in the email subject.

Closing date: 28 October 2015