Deutsche Forschungsgemeinschaft
Informationen für die Wissenschaft

Call for Proposals

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Priority Programme "Phenotypic Heterogeneity and Sociobiology of Bacterial Populations" (SPP 1617)

The Senate of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) has announced the establishment of a new Priority Programme, entitled "Phenotypic Heterogeneity and Sociobiology of Bacterial Populations". The programme is designed to run for six years, and this is the call for the first three-year funding period.

This Priority Programme aims at the characterisation of the molecular mechanisms of bacterial phenotypic heterogeneity, the elucidation of its biological significance, and answering the question how evolution gave rise to genotypes that express diverse phenotypes.

To reach these goals, the combined effort from molecular microbiologists, experts on single-cell experimentation and theoreticians is required. To elaborate a comprehensive model of the biological significance of phenotypic heterogeneity the projects shall concentrate on three different social strategies of bacteria: 1) communication and production of common goods, 2) division of labour, and 3) bet-hedging. Therefore, all model organisms of research proposals of the network should fulfil the following criteria:

- bacteria should follow one out of the three strategies
- bacteria should be of medical, biotechnological or ecological interest
- bacteria should be accessible for genetic manipulations, and the genome sequence should be available

Knowledge on the phenotypic heterogeneity and the principal components will be regarded as prerequisite for each biological research proposal to integrate modelling approaches from the very early stage of the projects. Likewise, modelling-centered proposals should aim for and incorporate proof-of-principle studies in living organisms. These requirements will ensure an active exchange and a truly interdisciplinary approach of all participants of the programme.

The projects should concentrate on the following research topics:

- elucidation of the basic design principles responsible for phenotypic individuality
- quantitative analysis of the dynamics of the spatial and temporal distribution of cells with different phenotypes in growing populations
- quantitative analysis of isolated subpopulations with respect to metabolism, stress adaptation and energetics
- biological significance of heterogeneous populations

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All quantitative data shall be analysed and interpreted with the help of theoretical models. These models will also be an essential tool to put phenotypic heterogeneity in an evolutionary perspective, to study how selection under variable conditions in different environments shaped the interaction between single cells in a population.

The topic of phenotypic heterogeneity necessitates interdisciplinary approaches. The Priority Programme is intended to team up scientists from microbiology, physics, chemistry and mathematics. A clear intent on intense collaborations between experimentalists and theoreticians will be the prerequisite for each participating project.

Proposals for the first three-year funding period should be submitted on paper (2 copies) and on CD-ROM no later than **4 October 2011.** Proposals must be written in English. Submissions, marked as "SPP 1617", should be addressed to Deutsche Forschungsgemeinschaft, Dr. Carola Vogt, 53170 Bonn. Proposals must be prepared according to the guidelines for individual research grants (1.02e).

The evaluation meeting including presentations by the applicants will take place in Munich in the end of January or in February 2012.

Further information

The "Research Grants – General Information and Guidelines for Proposals" (form 1.02e) can be found under:
www.dfg.de/foerderung/formulare_merkblaetter

For scientific enquiries please contact the programme coordinator, Professor Dr. Kirsten Jung, Department of Biology I, Microbiology, Ludwig-Maximilians-Universität München, phone: +49 89 2180-74500, jung@lmu.de

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