PostDoctoral Fellowship

**Horizontal Gene Transfer in Microbial Biofilms**
Technical University of Denmark

The RaMAda project (Rapid Microbial Adaptation via Horizontal Gene Transfer) aims to predict and quantify the incidence of extant horizontal gene transfer (HGT) in microbial biofilm communities. HGT may play an important role in the adaptive behavior of microbial ecosystems. This project has both an experimental and numerical-computational element. Molecular biomarkers and confocal scanning laser microscopy are employed for single-cell resolved detection of microbial growth and gene transfer dynamics. Experimentation is conducted in parallel with the development of an Individual-based (Ib) model of microbial biofilms that incorporates a description of gene transfer dynamics.

The candidates will join the RaMAda team to lead the experimental phase of this project: Candidates will work on one or more of the following project elements; in situ inspection of microbial biofilms via advanced microscopy, micrographic image analysis, examination of cell growth, motility, and gene transfer dynamics via bioreporter constructs; biokinetic analysis of microbial growth and gene transfer dynamics; quantification of gene dosage and gene expression via qPCR techniques.

The applicants will be based at the Institute of Environment & Resources at the Technical University of Denmark (E&R DTU), work under the supervision of Prof. Barth F. Smets, join the Microbial Ecology Research Group and the multi-institutional Center for Environmental and Agricultural Microbiology. E&R DTU offers state-of-the-art facilities and equipment to execute this project. The modeling efforts occur in close collaboration with Dr. J. U. Kreft at the University of Birmingham (UK).

The successful candidates will have a high motivation for research and solid written/spoken communication skills. The applicants will enjoy working in and contributing to an international and cross-disciplinary team, and enjoy periodic research exchanges at other European Universities.

At the date of appointment, candidates must have at least 4 (but less than 10) years of relevant research experience counted from the time of obtaining a degree allowing access to doctoral studies in same country) or a PhD degree (Molecular Biology, Microbiology/Environmental Science/Ecology, Bio/Environmental/Chemical Engineering), and evidence of research productivity, with expertise in one or more of the following fields: molecular microbiology or advanced microscopy, applied to environmental/microbial/biochemical systems.

Initial appointment will be for a period of 12 months, with anticipated extension up to 48 months, pending performance.. Salary will be at EU scale, with vacation and full health benefits, and possibility for mobility and travel allowance. Applications will be accepted until the positions are filled, but a start date of ultimo Oct. 01, 2007 is preferred.

Applications should be electronic and should include a letter of intent, a CV, a statement describing research expertise and interests, 2 to 3 key original research articles, and a list of three academic referees. All information should be attached as one pdf file.

For any further information or applications, please contact: Prof. Barth F. Smets (bfs@er.dtu.dk) or Dr. Laurent Lardon (lal@er.dtu.dk).

This research is supported by the European Commission through a Marie Curie Actions Excellence Grant (MEXT-CT-2005-024004) RaMAda.

Prof. Barth F. Smets
Institute of Environment & Resources DTU
Building 115, Technical University of Denmark
DK-2800 Kgs. Lyngby, Denmark
www.emerg.er.dtu.dk