Microbiology of anaerobic methane oxidation

PhD position at Microbiology, I WWR

For over a century it was believed that methane could only be oxidized by microbes in the presence of oxygen. The possibility of nitrate/nitrite-dependent anaerobic methane oxidation (N-Damo) was dismissed. However, about 7 years ago the microorganisms responsible for the N-Damo reaction were discovered in our laboratory (Raghoebarsing et al Nature 2006). This was followed by the development of dedicated cultivation and molecular approaches that resulted in the identification of the responsible bacteria, Methylomirabilis oxyfera and the elucidation of their molecular mechanism (Ettwig et al Nature 2010). Recently, the environmental occurrence of the M. oxyfera bacteria was demonstrated in several wetland ecosystems leading to the realization that M. oxyfera bacteria may play a significant role in biological carbon cycle. The M. oxyfera bacteria are unique microbes with many unusual properties that we hardly understand. These include the biological production of oxygen from nitric oxide.

The PhD project will investigate the diversity of N-Damo micro-organisms in several oxygen limited ecosystems by molecular and metagenomic methods. Selected samples will be used to enrich new N-Damo micro-organisms in dedicated bioreactors. The ecophysiology of the new enrichment cultures will be investigated by 15N and 13C experiments. The expression of important genes and proteins will be studied by metagenomic approaches.

Expected qualifications of the Anaerobic Methane Oxidation PhD Student

- M.Sc. degree in (micro)biology, microbial ecology or a related field;
- Experience with anaerobic microbiology and metagenomics is preferred;
- Enthusiasm, perseverance, creativity, patience and courage;
- Excellent communication skills, team spirit;
- Excellent computer and software skills;
- Fluency in English.

The salary will be between EURO 2.042 and 2.612 gross per month on a full-time basis, depending on qualifications and experience. PhD positions a 1,5 + 2,5 year contract is available after yearly evaluation. Benefits are according to central Radboud University Nijmegen package.

Applications should include a cover letter with motivation and a curriculum vitae with experimental expertise, and 2 outstanding reference letters.

You can apply for the job (mention the vacancy number 62.96.12) before 15 February 2013 by sending your application by email to:
pz@science.ru.nl, Mrs. M. van Oostveen, P&O, FNWI, Radboud University

More information:

For more information on the vacancy you can contact:
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