Harnessing photoheterotrophic metabolism to convert methane into biopolymers

This fully funded PhD project aims to develop a biotechnology platform for new methane-derived product markets whilst significantly improving the efficiency of methane bio-oxidation (methanotrophy). Conventional biotechnologies utilising methane have poor economic returns; a result of low product yields, a limited range of commercialisable end-products, and high operational costs (including elevated H&S risk profiles). Our central hypothesis is that light energy can be incorporated into methane gas fermentations, thereby improving metabolic productivity. Whilst metabolically feasible, utilising light to promote methanotrophy (photomethanotrophy) represents an unproven microbial metabolism. Through a combination of careful enrichment, bioreaction-engineering and genomic assessment, this PhD project will investigate the coupling of aerobic methane oxidation with bacterial anoxygenic (non-oxygen producing) photosynthesis.

We are offering a stipend of NZD $27,000 per year (tax free) plus tuition fees for three years. Funding is also available to cover research project consumable costs. Note: the successful candidate will be based in Scion (Rotorua) but will need to apply to enrol at the University of Canterbury and must meet UC's entry criteria. International candidates will also need to meet the English language requirements and, once given an offer of place, arrange for a NZ student visa. Information on UC's entry requirements for PhD study is here http://www.canterbury.ac.nz/enrol/doctoral/

Applicants please email Dr Carlo Carere (carlo.carere@canterbury.ac.nz) using the subject line "Photomethanotrophy PhD" with your CV, including at least two academic referees, a statement of your research interests/experience and your university transcripts. Feel free to ask any questions you may have relating to this PhD project. More information about this project can be found in the link below:
https://www.findaphd.com/phds/project/harnessing-photoheterotrophic-metabolism-to-convert-methane-into-biopolymers/?p114935