Technology Licensing Opportunity

Non-Confidential Summary

UNIVERSAL PCR PRIMERS FOR SPECIES IDENTIFICATION OF *ARCHAEA*
ROI # 09-020

Opportunity:

Researchers at the University of Saskatchewan have designed novel universal PCR primers to detect and identify single-celled microorganisms known as Archaea.

Background:

Archaea are prokaryotic organisms that are widely distributed throughout the environment. Among the Archaea, the methanogens have been widely exploited in biodigester systems for the production of methane (Talbot G et al, *Water Research*). Methanogens and sulfate-reducing Archaea are also present in corrosion sites and contribute significantly to the microbiologically influenced corrosion process (Larsen J et al, *Corrosion* 2010).

The current "Gold standard" is the use of the Archaeal 16S rRNA gene, a sequence that has limited utility for discriminating closely related species. Thus, the need for a more informative target for species identification and discrimination led to the development of new universal primers targeting the universally conserved type II chaperonin gene.

Invention:

- The invention consists of a set of universal PCR primers that target the type II chaperonin gene (also known as the thermosome gene, TF55, CCT or TCP-1) found in all Archaea
- The primers allow for the amplification of sequence that is specific and characteristic of archaeal isolates and individual Archaeal members in complex microbial communities
- This type II chaperonin sequence gives superior resolution of Archaea spp. compared to 16S rRNA

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Researcher profiles:

Janet Hill, Ph.D.
Associate Professor, Dept. of Veterinary Microbiology, WCVM

Research interests: microbial ecology, livestock and human disease, phylogenetics and taxonomy, molecular diagnostics, and the development of cpnDB, a chaperonin sequence database

Bonnie Chaban, Ph.D.
Research Associate, Dept. of Veterinary Microbiology, WCVM

Research interests: Archaea detection and physiology, microbial ecology, molecular biology

Patent Status:
US Provisional Application no. 61/317,970 filed March 26, 2010
PCT Application filed March 8, 2011

Publications:
Chaban B, Hill JE. A universal type II chaperonin PCR detection system for the investigation of archaea in complex microbial communities. Submitted to the ISME Journal

Development Stage:
Product is ready for licensing to a commercial partner

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