Bacterial Culture Collection from an Extreme Environment in Alaska

WARF: P03154US

Inventors: Jo Handelsman, Patrick Schloss

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in a culture collection of over 1,000 bacterial isolates from non-permafrost soils in an extremely cold and phosphorus-poor environment.

Overview

Microorganisms adapted to grow in exceptionally harsh environments, such as hot springs and arctic soils, are a potentially vast source of novel metabolic processes, antibiotics, enzymes and other proteins. Due to the difficulties involved in culturing these microbes – which by definition possess highly unusual growth requirements – this resource today remains largely untapped.

The Invention

A team of UW-Madison researchers has now created a culture collection of over 1,000 bacterial isolates from non-permafrost soil in the floodplain of the Tanana River – an extremely cold and mineral poor environment near Fairbanks, Alaska. To obtain the largest and most diverse collection of microbes possible, the researchers employed a range of media concentrations, added soil extract to the enrichment media, and performed extended incubations at low temperatures. Preliminary screening has identified at least 5 unique isolates with good antibiotic activity. The culture collection is arrayed in 96-well culture plates with 20 percent DMSO for preservation.

Applications

- Provides a potentially valuable source of new genes, antibiotics, metabolic processes and cold-adapted enzymes for food processing, medical and industrial applications

Key Benefits

- Culture conditions were optimized to obtain the most diverse collection of hard-to-isolate bacteria possible.

Additional Information

For More Information About the Inventors

- Jo Handelsman

Related Technologies

- See WARF reference number P04104US for information on 10 libraries of bacterial genomic DNA isolated directly from the Tanana River floodplain in Alaska.

Tech Fields

- Research Tools : Genomics & proteomics
- Research Tools : Microbial technologies

For current licensing status, please contact Emily Bauer at emily@warf.org or 608-960-9842