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Functional Genomics for Emerging Infectious Diseases (PREPARE Project)

Status	Current
Competition	III
Sector	Health
Genome Centre	Genome British Columbia
Project Leaders	Brett Finlay, Robert Brunham & Neil Reiner

Project Description

Infectious diseases are the leading cause of premature mortality around the world and the fifth leading cause of premature mortality in Canada. The world scientific community has the tools and expertise to address emerging and re-emerging infectious diseases. Now an innovative project has been set up to bring these research efforts together, to systematically investigate life-threatening pathogens and to find rapid scientific solutions.

Dr. Brett Finlay, a microbiologist and Peter Wall Distinguished Professor at the University of British Columbia, and UBC colleagues Dr. Robert C. Brunham and Dr. Neil Reiner are project leaders of Functional Genomics for Emerging Infectious Diseases.

This Project will use one overall approach to uncover the biology of infection of such serious diseases as SARS, influenza, West Nile, BSE, pathogenic E. coli, tuberculosis, malaria and HIV/AIDS. The approach consists of identifying microbial drug targets through the study of protein interaction networks and the application of innovative computational genomics. Protein interaction networks are complex - they are involved in catalytic processes, protein synthesis and gene expression within the cell.

The research team will share experimental approaches to study different pathogens and use whole-genome approaches to investigate common pathogens. This new knowledge base will be particularly valuable in the event that new infectious agents emerge – new strains of existing pathogens, for example, or previously unknown pathogens.

The research project will create new opportunities for the pharmaceutical and biotechnology industries, and will also maintain a rapid response team of highly competent genomics researchers, ready to find scientific solutions for new infectious threats as they arise.