

## CCSIP Collaborative Event: Combining Canada and California Expertise in Biomedical Photonics to Improve the Diagnosis and Treatment of Infectious Disease

In developing countries, malaria kills one million children every year; 9.5 million people are in immediate need of life-saving AIDS drugs; and tuberculosis remains the seventh leading cause of death worldwide.

Despite international efforts, these diseases continue to present a significant threat to global health. Biophotonics (which combine photons or tiny units of light and biological materials) have played an essential role in making medical technologies more efficient, cost-effective and less invasive. They also have the potential to develop diagnostic and therapeutic innovations for these and other life-threatening diseases.

With support from CCSIP, researchers at the Center for Biophotonics Science and Technology at the University of California Davis, and the Canadian Institute for Photonic Innovations at Laval University, together with the University of Toronto and the University Health Network, aim to seize this opportunity.

The bilateral research team will host a symposium to explore collaborative R&D approaches for light-based tools and techniques that improve the characterization, diagnosis and treatment of infectious disease. Initial areas of R&D focus include 'photodynamic therapy', a non-invasive and low-cost method that could be used to neutralize malaria directly in red blood cells and laser trap-assisted 3D video microscopy, a potential new research platform to study HIV transmission between immune cells.

The event will bring together researchers from different disciplines, stimulating knowledge exchange and new training opportunities for students.

Longer-term, the team aims to launch a cooperative R&D program for new biotechnologies that accelerate technology transfer and helps emerging Canadian and Californian companies to capitalize on the global biophotonics market valued at \$53 billion.

