

Major breakthrough in the diagnosis of parasitic diseases

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Montreal, April 27, 2010 - Chagas disease is one of the most deadly parasitic diseases in the world. It affects more than 10 million people, primarily in the Americas. In South America alone it kills 50 000 people each year. A reliable and rapid diagnosis is the key in the battle against infection but until now, this has been next to impossible. Dr. Momar Ndao and his team at the Research Institute of the MUHC have developed a new diagnostic approach that will help in the fight against Chagas disease. Their results were recently published in the *Journal of Clinical Microbiology*.

Endemic in South America, the American trypanosomiasis, or Chagas disease, is transmitted to humans via the parasite *Trypanosoma cruzi*. The disease is usually transmitted through the bite of an infected insect or 'kissing bug'. The symptoms are variable, but as the disease progresses serious chronic symptoms can appear, such as heart disease and malformation of the intestines. Most people affected may remain without symptoms for years, making diagnosis difficult.

Chagas disease is also transmitted from mother to unborn child and can be passed on for as many as four generations without symptoms. "In other words, a person born in North America by a mother who was infected can transmit the disease to offspring without having traveled," says Dr. Ndao, Laboratory Director of the National Reference Center for Parasitology (NRCP) of the Research Institute. There is an urgent need for action on this disease as it is under-diagnosed and there is no effective treatment.

This situation raises some serious public health concerns with respect to blood transfusions and organ transplants, because many people may be silent carriers of the disease. "The aim of our study was to find new approaches to improve reliability of diagnosis and screening of blood banks," says Dr. Ndao, who is also a researcher at the Centre for

Host Parasite Interactions at McGill University.

The researchers have validated a reliable screening technique using mass spectrometry technology that identifies common biological markers - or biomarkers - between the interaction of host (humans) and the parasite. They found that in 99% of cases, the parasites left very specific markers. "It's as if the parasite left his own signature in the infected person, which could help to diagnose Chagas disease" says Dr. Ndao.

"The use of these biomarkers is a revolution in diagnostic confidence and protection of possible contamination of blood banks," says Dr. Ndao "Moreover, these biomarkers have potential therapeutic effects of paving the way for the development of vaccines for Chagas, which could be extended to other parasitic diseases."

Provided by McGill University

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