Researcher Profile

Dr. W. Conrad Liles

Translational Research in Immunity & Inflammation

As a clinician-scientist, Dr. Liles' goal is to investigate disease pathogenesis in the laboratory and rapidly apply that knowledge to the treatment of patients. At the McLaughlin-Rotman Centre for Global Health in collaboration with Dr. Kevin Kain, Dr. Liles' research focuses on the molecular immunopathogenesis of malaria. In 2007, Dr. Liles and colleagues published a study led by Dr. Fiona Lovegrove that assessed brain transcriptional responses in cerebral malaria by comparing genetically resistant and susceptible inbred mouse strains that were infected with *Plasmodium berghei* strain ANKA. This study, which used the UHNMAC Affymetrix service, found that the differentially expressed genes in susceptible mice were often associated with immune-related gene ontology categories and suggested that both interferon-regulated processes and apoptosis played a central role in the pathogenesis of cerebral malaria. Most recently, Dr. Liles and his colleagues reported on a phase I/II clinical trial that used the peroxisome proliferator-activated receptor gamma agonist (rosiglitazone) for the treatment of *P. falciparum* malaria. This study found that patients who received rosiglitazone, in addition to standard antimalarial therapy, had better parasite clearance times and decreased levels of inflammatory biomarkers associated with adverse malaria outcomes.

Dr. Liles and his colleagues also study the molecular/cellular immonopathogenesis of sepsis and acute lung injury, the regulation of myeloid development, the molecular basis of inherited neutrophil disorders, granulocyte transfusion therapy, mobilisation of CD34+ hematopoeitic stem cells, and the modulation of neutrophil function by colony-stimulating factors. More recent investigation by his team has concentrated on the role of the Fas (CD95)/Fas-ligand system in both spontaneous phagocyte apoptosis and phagocyte-mediated tissue injury and inflammation. His team is currently examining the role of this system in acute respiratory distress syndrome, atherosclerosis, sepsis, and multiple organ failure. His other clinical interests include primary (congenital) immunodeficiency disorders, fungal infections, zoonoses, and travel/tropical medicine.

Dr. Liles is a Professor and Vice-Chair of Medicine at the University of Toronto, the Director of the Division of Infectious Diseases at the University Health Network, a Senior Scientist at the Toronto General Research Institute, and an Affiliate Professor of Medicine at the University of Washington (Seattle). Dr. Liles holds a Canada Research Chair in Inflammation and Infectious Disease.

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