

Name of principal applicant and amount requested (1st year)	Derek McKay	\$ \$140,123
Simplified/Lay short title of research Titre concis de la recherche <p style="text-align: center;">Modulation of colitis by worm parasites and macrophages</p>		
Abstract (Suitable for lay readers) / Résumé (formulé en termes usuels) NO ATTACHMENTS TO THIS PAGE <p>The burden of IBD illness continues to increase, with the latest figures showing that at least 200,000 Canadians suffer from either Crohn's disease or ulcerative colitis. Significant progress has been made in the awareness of the processes of inflammation in the gut, and while novel therapeutics have been developed, treatment of IBD still relies heavily on corticosteroids and harsh broad-spectrum immunosuppressive drugs – given the side-effects of each class of drug, this situation is unsatisfactory for patients and their attending physicians.</p> <p>As the intricate workings of the immune system have been revealed, it has become clear that specific types of immune responses can block the development of other (i.e. opposing) immune events. Thus, in theory, the immune reaction activated in response to infection with a helminth (worm) parasite could inhibit the immune response that is responsible for promoting colitis (or at least sub-types of colonic inflammation). The use of mouse models of disease has provided proof-of-principal evidence in support of this concept and a couple of small clinical trials have reported that helminth infection can reduce the severity of IBD.</p> <p>My laboratory has used mice infected with the tapeworm parasite, <i>Hymenolepis diminuta</i>, to determine which components of the immune response exert an anti-inflammatory effect. In the proposed research I will continue to use this model system to assess mechanisms of inflammation and define events (immune cell types or messenger molecules) that exert anti-inflammatory effects and/or promote tissue recovery after injury. Thus far we have identified a specific type of macrophage and the molecule, interleukin (IL)-10, that our preliminary data suggest is involved in preventing colitis. Analysis of the function of this cell and IL-10 is a large portion of the current research proposal.</p> <p>The use of helminth-rodent models is a novel approach to assessing colitis and has yielded information that has been applied to treating IBD. Continued use of this approach will provide data that may be transferable to the development of new treatments for IBD with minimal side-effects as we advance towards finding a cure for IBD.</p>		
Place and date/Lieu et date	Calgary, Oct. 20 th , 2008	Signature