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Bacterial and host factors involved in chronic infection with Crohn's disease-associated *E. coli*

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Crohn's disease (CD) is a chronic inflammatory condition in the gastrointestinal tract where the local bacterial community plays an active role in disease. Adherent-invasive *E. coli* (AIEC) are associated with human CD, however their role in intestinal immunopathology is unclear due to a lack of an animal model compatible with chronic timescales. We have developed a model of chronic AIEC infection in five conventional mouse lines to study the host response and intestinal immunopathology following chronic AIEC colonization. Using this model, we have characterized the long-term consequences of AIEC colonization on a host, and quantified the immune response that develops over time. In addition, we have identified bacterial proteins that allow AIEC to subvert the host immune response following infection, which appears to be required for long-term colonization. Our findings provide the first evidence for chronic gut immunopathology associated with this organism similar to that seen in human CD. With this new model, research into the host and bacterial genetics associated with long-term AIEC colonization and immunopathology is now widely accessible.

Biography

Brian K. Coombes is an Associate Processor at McMaster University and holds the Canada Research Chair in Infectious Disease Pathogenesis His research interests are in the areas of infectious diseases and public health. His scientific contributions have earned him several prestigious honours including the Most Promising Scientist Merit Award from the Public Health Agency of Canada, the Agency's highest honour for outstanding contributions to the protection and promotion of health in Canada. Recently he was awarded the Fisher Scientific Prize and was inducted into Canada's Top 40 under 40 for outstanding leadership in research.

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