

# Role of intestinal dendritic cells and macrophages in inflammatory bowel disease

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## Introduction/Objectives:

Inflammatory bowel disease (IBD), including Crohn's disease and ulcerative colitis, is a complex immune-mediated disease of the gastrointestinal tract that increases morbidity and negatively impacts the quality of life. Mononuclear phagocytes (MNPs) have a crucial role in maintaining epithelial barrier integrity while controlling pathogen invasion by activating an appropriate immune response. However, in genetically predisposed individuals, uncontrolled immune system activation to gut microbiota induces epithelial barrier injury and chronic inflammation, which ultimately results in IBD. Nonetheless, despite their crucial role in maintaining intestinal homeostasis, specific functions of human MNP subsets are poorly understood. Thus, our objectives are to decipher the complexity of intestinal MNP subsets in homeostasis and their alterations in IBD patients.

## Materials/Patients and methods:

Intestinal tissue samples are acquired during surgery of IBD patients or colorectal cancer patients (non-tumoral tissue used as control). Intestinal cells are analysed by flow cytometry, ELISA and qPCR. Healthy human blood monocytes are cultured with intestinal cell supernatants and analysed by NanoString Technologies.

## Results:

The frequency and number of intestinal newly recruited monocytes were higher in IBD patients compared to controls. On the contrary, the frequency of both cDC1 and cDC2 among intestinal cells were not altered in IBD patients. In addition, newly recruited monocytes from IBD patients more highly expressed the receptor TREM-1, which amplifies inflammatory responses. Furthermore, an anti-TREM-1 antibody treatment can dampen secretion of proinflammatory cytokines from intestinal cells. Finally, to pursue we are analyzing the intracellular pathway of TREM-1 in blood monocytes, the role of intestinal cell supernatants on it as well as the blocking effect of anti-TREM-1 antibody treatment.

## Conclusion:

This study opens the possibility for a new treatment for IBD patients using an anti-TREM-1 therapy.

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Keywords : IBD, intestine, dendritic cells, macrophages, TREM-1

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