Evidence for a dual function of monocyte-derived mononuclear phagocytes during chronic intestinal inflammation

Mononuclear phagocytes derived from tissue-infiltrating monocytes play diverse roles in immunity, ranging from pathogen killing to immune regulation. We and others showed that, upon recruitment to the intestinal mucosa, the differentiation of Ly6Chi monocytes into phagocytes with anti- versus pro-inflammatory phenotypes can be shaped by the steady state versus inflammatory local tissue environment. However, the in vivo functions of these monocyte-derived phagocytes (MDP) remain poorly understood. Using the T cell transfer colitis model, we now show that MDP represent more than 85% of the total antigen presenting cells pool in the inflamed intestinal mucosa. However, surprisingly, mice deficient for the chemokine receptor CCR2, which exhibit highly decreased amounts of intestinal MDP, develop an intestinal pathology similar to their wild type littermates. Preliminary experiments using the anti-CD40 colitis model suggest a dual and time-restricted contribution of MDP during the development and healing phases of the disease.

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