Macrophages and microbial metabolites in intestinal diseases

Humans with inflammatory bowel disease, such as Crohn’s disease or eosinophilic esophagitis have an altered gut microbiome. Emerging evidence indicates that microbial metabolites and not only the microorganisms and their structural components modulate mucosal immune responses and metabolism. These microbial metabolites may influence the development of inflammatory bowel disease and eosinophilic esophagitis. Our research group aims to unravel some of the mechanisms how microbial metabolites are recognised by the host in the context of inflammatory bowel disease. We focus on studies, in which we genetically delete metabolite sensing receptors in macrophages and intestinal epithelial cells. Our studies suggest the possibility that microbial metabolites will fuel inflammatory bowel disease and eosinophilic esophagitis.

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Selected Publications

Fig. 1: Microbial metabolites influence immune responses and metabolism in and outside of the gut (for details, please see Herrema and Niess [2020], Diabetologia DOI 10.1007/s00125-020-05268-4).