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Functional Medicine

QUOTE GM #09

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Title

Created

ABOUT THE METAGENOME, OR GENES CARRIED BY OUR MICROBES

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Recent advances in gut immunology.

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Abstract

In recent years there have been significant advances in our understanding of the mucosal immune system. In addition to unravelling some of the complexities of this system, including the discovery of completely new cells types, further insights into the three way interactions between mucosal immune cells, the intestinal epithelium and the microbial communities colonizing the GI tract, promises to redefine our understanding of how intestinal homeostasis is maintained, but also how dysregulation of these highly integrated interactions conspires to cause disease. In this review we will discuss major recent advances in the role of key immune players in the gut, including innate lymphoid cells (ILCs), mucosa associated invariant T cells (MAIT cells) and cells of the mononuclear phagocyte system (MPS), including how these cells interact with the intestinal epithelial their crosstalk with components of the intestinal microbiota, and how these interactions shape host health. This article is protected by copyright. All rights reserved.

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“THE INTESTINAL MICROBIOTA”

“Culture independent technologies, including next generation sequencing, have revolutionised our understanding of the microbial colonies populating the gastrointestinal tract and the functional contribution of these communities to host health.

The **metagenome (genes carried by our colonizing microbes)** profoundly impacts wide ranging aspects of the host phenotype, including metabolic, endocrine, neurological and immunological factors. **Remarkably, cumulatively as a species, humans possess an additional 10 million genes contributed by intestinal bacteria.**

Intestinal microbial communities are diverse and although there are hundreds of different bacterial species colonizing the human gut the community structure differs across human populations according to age, diet, geographic distribution and host genetics.

Crucially, **significant perturbation of the community structure of intestinal bacteria, or dysbiosis,** is linked to important alterations in host immunity and susceptibility to immune-mediated diseases both within and beyond the gut.”