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Perspective

The Gut Microbiome and the Protein Function Which Effects the Gut Inflammation

Varone Howard*

Department of Medical and Surgical Sciences, Magna Greacia University of Catanzaro, Italy

INTRODUCTION

The microorganisms that dwell in the digestive systems of humans and other animals, including insects, are known as gut microbiota. They include bacteria, archaea, and microscopic eukaryotes.

The microbiome refers to the population of microorganisms that live in the intestine of a person. In our gut, there are around 100 trillion distinct microbial organisms, which is ten times the number of human cells in the body. The intestinal microbiota plays a critical role in our overall health [1].

Various microbial communities can be found in and on practically every region of the human body, including the skin, nose, and stomach. These bacteria live in a symbiotic relationship with the host and are required for the proper functioning of our bodies. No two people have the same microbiome. Our gut microbiome evolves throughout time and is mostly influenced by the bacteria we inherit from our parents and our food [2].

Short-chain fatty acids and secondary bile acids are the two types of molecules. Only when particular microorganisms are given the correct conditions to grow in the microbiome do both chemicals exist in healthy proportions in the gut. These microorganisms help digestion of meal components including fibre and green leafy vegetables. The findings add to a growing body of evidence that suggests a person's microbiome, and thus their overall health, is strongly tied to their food [3].

The intestinal microbiome varies from person to person, but a healthy bowel is known to be linked to an optimum mix of essential microorganisms. Dietary changes have the potential to upset this equilibrium. A western diet high in simple sugars and fats and low in plant-based protein, in particular, has been linked to a reduction in the number of bacteria in the gut that create short-chain fatty acids and secondary bile acids.

Endocannabinoids, which are chemically identical to cannabis but produced by the human body, are important for controlling inflammation in the gut.

The anti-inflammatory P-gp route is active in the absence of infection to control needless inflammation, while the pro-inflammatory pathway is poised to unleash an immune response to defend against intestinal infection. This balance is disrupted in inflammatory illnesses like inflammatory bowel disease [4].

Inflammatory bowel disease is linked to genetics and environmental factors such as nutrition, exercise, lifestyle, and antibiotic use, among others. The most common kind of inflammatory bowel disease in the world, ulcerative colitis, is a chronic, severe condition with no cure. Abdominal pain, severe cramps, prolonged diarrhoea or constipation, weight loss, and severe intestinal inflammation are some of the symptoms. While existing medicines can help with inflammation and symptoms, there is currently no treatment for the disease itself [5].

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***Correspondence to:** Varone Howard, Department of Medical and Surgical Sciences, Magna Greacia University of Catanzaro, Italy, E-mail: varone.howard @edu.it

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