Food and antibiotics may change microorganisms in gut, causing IBS

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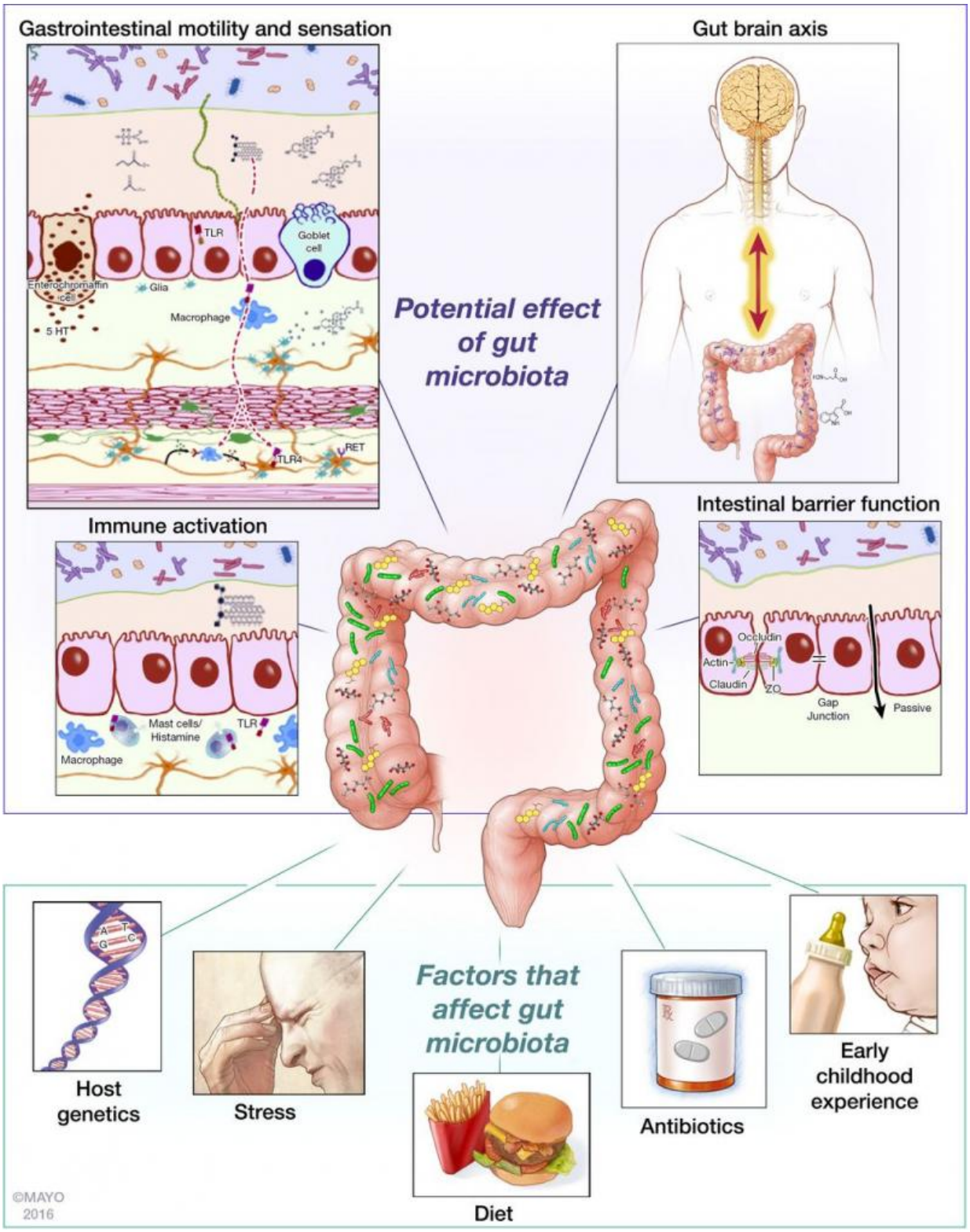
Gastrointestinal motility and sensation
TLR
Goblet cell
Enterochromaffin cell
Glia
Macrophage
5 HT
TLR4
RET
Gut brain axis
Potential effect of gut microbiota
Immune activation
Mast cells/ Histamine
TLR
Macrophage
Intestinal barrier function
Occludin
Actin
Claudin
ZO
Gap Junction
Passive
Factors that affect gut microbiota
Host genetics
Stress
Diet
Antibiotics
Early childhood experience
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A recent review of research suggests that changes to the microorganisms (microbiota) in the gastrointestinal (GI) tract may be a cause of irritable bowel syndrome (IBS). The review article is published in the *American Journal of Physiology—Gastrointestinal and Liver Physiology*.

IBS is common—up to 20 percent of middle-aged North Americans suffer from IBS and chronic bowel disorder characterized by abdominal pain, gas, diarrhea or constipation or both. The disorder has been thought to be caused primarily by a combination of emotional stress, environmental factors and genetics.

A research team from the Mayo Clinic in Rochester, Minn., analyzed studies about gut microbiota and IBS. This review led the team to make new observations about the development of the disease. Among the findings:

- Diet can change the makeup of bacteria in the GI tract, potentially contributing to symptoms in patients with IBS;
- Antibiotic use, which can disrupt gut microbiota is associated with IBS;
- Changes in the gut microbiota may influence the ability of the GI tract to contract to move waste through the system; and
- Changes in the gut microbiota can impair communication networks between the immune, nervous and endocrine systems, predisposing people to IBS symptoms.

The researchers also highlight data suggesting that emotional stress can change the shape and function of microorganisms in the GI tract. The correlation between physiological function of the digestive system and the risk of developing IBS is important because it allows for new treatment options in the future. "Overall, the outlook is optimistic, and

we now have the necessary tools and the knowledge as we embark on developing effective microbiota targeted therapies for IBS," wrote the authors.

More information: Yogesh Bhattarai et al. Irritable bowel syndrome: a gut microbiota-related disorder?, *American Journal of Physiology - Gastrointestinal and Liver Physiology* (2017). DOI: 10.1152/ajpgi.00338.2016

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