

A method of treating and preventing gastrointestinal disorders

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Unmet Need

Gastrointestinal disorders such as inflammatory bowel disease, constipation, and intestinal pseudo-obstruction have been estimated to affect more than 40% of adults worldwide. These disorders are often associated with alterations in gut microbiota, which are essential for breaking down nutrients and maintaining intestinal homeostasis. Treatments available for these disorders, especially inflammatory bowel disease, do not work well for all patients or offer undesired side effects. There is a need for alternative therapies that treat gastrointestinal disorders to cover a wider range of patients.

Technology

Duke inventors have reported a method of treating or preventing gastrointestinal disorders. Specifically, dosing with microbial catabolites of the amino acid tryptophan activates the Trpa1 channel on epithelial sensory enteroendocrine cells that leads to increased motility through serotonin (5-HT) secretion. The inventors have demonstrated this technology in zebrafish models, and have also shown that indole, a tryptophan catabolite, was able to significantly induce serotonin secretion using fresh tissue sections from human and mouse small intestines.

Advantages

- Offers a new class of therapies for gastrointestinal disorders
- Has been demonstrated with multiple animal models as well as with human tissues

Publications

- [Enteroendocrine cells sense bacterial tryptophan catabolites to activate enteric and vagal neuronal pathways \(Cell Host Microbe, 2021\)](#)



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Inventor(s)

- Rawls, John
- Jabba, Venkata
- Jordt, Sven-Eric
- Liddle, Rodger
- Ye, Lihua

Links

- [From the lab of Dr. John Rawls](#)

College

School of Medicine (SOM)

For more information please contact

Ferguson, Christy
919-681-7581
christy.ferguson@duke.edu