

Nerve Gut Research Laboratory

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Description of current research interests:

The Nerve Gut Research Laboratory aims to improve treatment of digestive diseases by identifying and understanding the interactions between the nervous system and the gastrointestinal (GI) tract, and to promote translational research from single cells through to patients. Several conditions would benefit from treatments that modify signalling of sensory information from the gut to the brain. In functional gastrointestinal disorders, such as irritable bowel syndrome, patients are hypersensitive to the contents of the gut and its movements. In reflux disease there are disordered reflexes from the stomach to the lower oesophageal sphincter that allow backflow of stomach acid into the oesophagus. In diabetes, patients show exaggerated responses of the gut to glucose in the diet, accompanied by profound symptoms. In obesity, they show reduced signalling of nutrient from the gut to the brain.

The group is investigating signalling in sensory pathways in several ways. First, the release of mediators from epithelial and immune cells. Second, the direct action of mediators and nutrients on sensory nerve endings. Third, the function of the nerve ending and how it is modulated by receptors, ion channels and signal transduction pathways. Fourth, the actions of transmitters released by sensory nerves from their endings within the brain and spinal cord.

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