

Full wired: Planar cell polarity genes guide gut neurons

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The enteric nervous system (ENS), the "little brain" that resides within the gut wall, governs motility, secretion, and blood flow in the human gastrointestinal tract. Failure of the ENS to develop normally leads to congenital megacolon (Hirschsprung Disease) while loss of normal gut innervation is thought to contribute to debilitating motility disorders, such as irritable bowel syndrome. In order to prevent and treat these conditions, it is necessary to understand the molecular mechanisms that control the formation and function of the ENS.

In this issue of the [Journal of Clinical Investigation](#), Vassilis Pachnis and colleagues at the MRC National Institute for Medical Research in London found that the planar cell polarity (PCP) genes, *Celsr3* and *Fzd3* are required for the formation of the complex neural networks within the guts of mice. Inactivation of these genes resulted in disorganization of neuronal projections, slower gut transit time and abnormal colonic motility, indicating for the first time that improper ENS wiring contributes to gastrointestinal motility disorders.

Future studies will be required to determine if mutations or dysfunction of these genes contributes to human gut motility disorders.

More information: Planar cell polarity genes control the connectivity of enteric neurons, *J Clin Invest.* [doi:10.1172/JCI66759](https://doi.org/10.1172/JCI66759)

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