Towards a systems view of IBS

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Abstract

Despite an extensive body of reported information about peripheral and central mechanisms involved in the pathophysiology of IBS symptoms, no comprehensive disease model has emerged that would guide the development of novel, effective therapies. In this Review, we will first describe novel insights into some key components of brain–gut interactions, starting with the emerging findings of distinct functional and structural brain signatures of IBS. We will then point out emerging correlations between these brain networks and genomic, gastrointestinal, immune and gut-microbiome-related parameters. We will incorporate this new information, as well as the reported extensive literature on various peripheral mechanisms, into a systems-based disease model of IBS, and discuss the implications of such a model for improved understanding of the disorder, and for the development of more-effective treatment approaches in the future.