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BIOENGINEERING

PRESENTS

Brain Signatures of Chronic Visceral Pain

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2101 ENGINEERING V

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ABSTRACT:

Chronic visceral pain is the cardinal symptom in common functional gastrointestinal and urological disorders, such as irritable bowel syndrome and chronic pelvic pain. Affected patients often report comorbid symptoms of pain and discomfort in other body regions. Using multimodal brain imaging techniques combined with detailed assessment of behavioral and biological measures (including the gut microbiome), we have identified alterations in brain signatures, some of which are correlated with non- brain measures. These brain signatures include structural and functional alterations in somatosensory brain regions, in regions of the emotional arousal and salience networks. Based on these findings, we propose a model of chronic visceral pain which is based on the bidirectional interactions of the brain with the viscera, and which can best be understood in systems biological terms.

BIOGRAPHY:

Dr. Mayer is the director of the Oppenheimer Center for Neurobiology of Stress and Resilience, and co-Director of the CURE: Digestive Diseases Research Center at UCLA. He has a career long interest in clinical and research aspects of brain body interactions, and is recognized as one of the leading investigators in the world of chronic visceral pain and of the brain gut axis. He has been continuously funded by the National Institutes of Health since 1989. He is PI of several NIH grants, including a NIH Center grant on sex differences in functional GI disorders, a consortium grant of brain bladder interactions, and on two RO1 grant, one on brain gut interactions in IBS, and one on the effects of cognitive behavioral therapy on the brain. He has published 330 peer reviewed articles in the leading GI and Neuroscience journals, including 100 reviews and book chapters and has co-edited three books. He is currently working on a lay book on the interactions between the gut micro biome and the brain, and has recently given a TEDx talk on the same topic.