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Press Release

### **Stressed out Memories: Beyond the Gut in Irritable Bowel Syndrome**

Memory impairment in irritable bowel syndrome is a neglected but key component of this common gastrointestinal disorder. That's the take home message from a new study by UCC scientists, based in the Alimentary Pharmabiotic Centre, who have shown that people with irritable bowel syndrome (IBS) have more stress-related memory problems. Their findings are published in the current issue of *Psychological Medicine*, a leading international psychiatry and psychology journal.

IBS is normally associated with symptoms in the gut such as pain, bloating and problematic bowel habits. However, research over recent years has shown that changes in how the gut and brain interact, along what is known as the *brain-gut axis*, may be an underlying cause of this complex condition. While many studies have focused on gut problems, very little is understood about how fundamental brain processes such as cognition are affected in IBS.

This research shows that when patients with IBS are asked to perform a test measuring visuospatial memory (the type of memory that cab drivers use to navigate around busy city streets), they display poorer performance than people without IBS. The Cork scientists also found that levels of the stress hormone cortisol were related to poor memory performance. While stress has long been known to affect gut symptoms, this is the first study showing that stress also impacts on cognition in IBS.

*"This is the most detailed assessment of cognitive function in IBS to date and given that IBS is very common among young women of college-going age, the implications of impaired memory performance are clear. We must emphasise the memory fault we have identified in IBS is subtle, and not on the magnitude seen in patients with mild cognitive impairment. If these memory deficits prove to be a stable feature of IBS it will vastly improve our understanding of this condition and may pave the way for therapies aimed at reducing the impact of stress in IBS, while also helping to alleviate the negative impact on cognition in this debilitating condition"*, said Dr Gerard Clarke, a lecturer in the Department of Psychiatry and Faculty Investigator in the APC.

The research, which was funded by Science Foundation Ireland and the Health Research Board, was led by Professors Ted Dinan and John F Cryan and Dr Gerard Clarke in collaboration with Professor John Groeger, Professor Eamonn Quigley and Professor Fergus Shanahan, and was carried out by Mr Paul Kennedy and Ms Ann O'Neill, at the Alimentary Pharmabiotic Centre in UCC. The study was also supported by funding from the American Neurogastroenterology and Motility Society and UCC's strategic research fund.

This research is published in the journal *Psychological Medicine* "PJ Kennedy, G Clarke, A O'Neill, JA Groeger, EMM Quigley, F Shanahan, JF Cryan, TG Dinan Cognitive Performance in Irritable Bowel Syndrome: Evidence of a Stress-Related Impairment in Visuospatial Memory"

<http://journals.cambridge.org/psm/kennedy> (journalists)

<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8992510&fulltextType=RA&fileId=S0033291713002171>

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### **About APC**

The Alimentary Pharmabiotic Centre (<http://apc.ucc.ie>) was established in 2003 and is a national centre for food and medicine recently receiving €50m funding from government and 12 industry partners through Science Foundation Ireland's (SFI; [www.sfi.ie](http://www.sfi.ie)) Research Centres' programme. The APC represents a seamless collaboration between UCC, Teagasc (Ireland's Agriculture & Food Development Authority), and CIT. It is widely recognised that the gut microbiota plays an important role in human health and has become one of the most dynamic, complex and exciting areas of research in both food and pharmaceutical arenas. Over the last decade the APC has established itself as one of the leading global centres in gut microbiota research. The APC has made several landmark discoveries and has published over 1000 research articles in peer-reviewed journals, generating many journal covers and associated editorials.

The independent international ratings agency Thomson Reuters Science Watch global analysis, has ranked University College Cork at number 2 in the world for probiotics research, due primarily to publications from researchers in the Alimentary Pharmabiotic Centre (<http://sciencewatch.com/ana/st/probiotics/institution/>)

### **About HRB**

The Health Research Board (HRB; [www.hrb.ie](http://www.hrb.ie)) was established in 1986. For the last 25 years it has been Ireland's lead agency in supporting and funding health research. The HRB's mission is to improve people's health, patient care and health service through leading and supporting research and generating knowledge and promoting its application in policy and practice. The HRB has supported research which has played a key role in innovation in Ireland's health system and its economic development.