Gastroenterology research uncovers new route for the development of anti-diarrhoeal drugs

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New gastroenterology research carried out by the RCSI (Royal College of Surgeons in Ireland) in conjunction with Trinity College Dublin and Johns Hopkins University in Baltimore, Maryland has uncovered a new route for the development of anti-diarrhoeal drugs. The new route directly targets cells and molecular processes that control water movement into the intestine and may help with the development of a new class of anti-diarrhoeal medication.

The research found that drugs which act on a protein called Farnesoid X Receptor (FXR) in the tissue of the intestine can stop water moving in to the gut. By switching off the water movement in to the gut, this can prevent diarrhoea occurring.

Dr Stephen Keely, Associate Director of Molecular Medicine, RCSI and lead researcher, said 'Diarrhoeal diseases are common and debilitating but safe and effective drugs for their treatment are still lacking. Our research has found that FXR is an important regulator of intestinal function and has excellent potential for the development of a new class of anti-diarrhoeal drugs."

In Ireland, diarrhoea is the main reason for approximately 40,000 visits to gastroenterology clinics annually. Epidemics of acute infectious diarrhoea are common, and many illnesses such as inflammatory bowel disease, digestive disorders and irritable bowel syndrome cause

disruptions to the normal functioning of the intestine and lead to diarrhoea. These conditions have a large financial burden to society both in terms of healthcare and lost hours of work.

The research found that drugs which target the FXR protein, target the cells lining the intestine, and because of this they may have broader efficacy and fewer side effects than many anti-diarrhoeals currently available on the market.

The research was published in *Gut*, a leading international journal in gastroenterology. These findings support an RCSI patent for treating diarrhoeal diseases recently granted by the European Patent Office. The research was a collaborative research project between the Department of Molecular Medicine, RCSI; the Division of Gastroenterology, Department of Medicine, Johns Hopkins University School of Medicine in Baltimore, Maryland, USA and the Trinity Biomedical Sciences Institute.

Provided by Royal College of Surgeons in Ireland (RCSI)