

Scientists edge closer towards first pancreatitis treatment

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Scientists have for the first time provided proof of principle for a drug-based treatment of acute pancreatitis – a disease for which currently there is no treatment.

Each year around 20,000 people in the UK are admitted to hospital with acute pancreatitis. One in five of these cases are severe, resulting in around 1000 deaths annually.

Published today in the *PNAS* journal*, findings reveal that tests undertaken by scientists at Cardiff University, using an existing [calcium](#) channel-blocking compound developed by GlaxoSmithKline, have succeeded in markedly reducing the flow of calcium into isolated [pancreatic cells](#) and stopping the root cause of the disease in its tracks.

"The aim of the research was to block excessive calcium entry caused by agents inducing pancreatitis and then test whether this would protect the pancreatic cells from self-digestion and death," explains Senior Author of the research and Director of Cardiff University's School of Biosciences, MRC Professor Ole Petersen FRS.

"Our research shows that the [calcium channel](#) inhibiting compound offers unique and effective protection against inappropriate activation inside the cells of digestive enzymes, which would cannibalise the [pancreas](#) and the surrounding tissue.

"This breakthrough shows huge potential to radically change and

improve the outcome for patients suffering from severe pancreatitis. The publication of these findings will open the way for further research involving animals and humans – and, if successful, we shall for the first time be able to treat this often fatal disease."

The research was funded by a £2.3M Medical Research Council (MRC) Programme grant.

Dr Joe McNamara Population and Systems Medicine Board Chair at the Medical Research Council who funded the study, said: "While further research will be needed to show that the success seen here in cells can be replicated in animal and then human trials, this is clearly an interesting study which takes an innovative first step towards drug development for acute pancreatitis, an increasingly common condition for which new treatment options are sorely needed."

Repeated attacks of acute pancreatitis can lead to chronic pancreatitis, which manifestly increases the risk of developing pancreatic cancer; currently one of the top four cancer killers in the UK. A treatment driven by this compound may also reduce the risk of patients developing pancreatic cancer.

Previous research by Professor Petersen and his team has determined that processes inside isolated pancreatic cells leading to pancreatitis can be induced by the combination of alcohol and fat.

When alcohol and fatty acids mix inside the pancreas, a massive release of calcium stored inside the pancreatic cells is triggered. The emptying of these calcium stores then sets in motion the opening of special channels in the cell membrane that allow calcium to enter the cells.

The intrusion of this calcium causes activation of normally inactive [digestive enzymes](#) inside the cells, which in turn start digesting the

pancreas and everything around it.

More information: www.pnas.org/content/early/recent

Provided by Cardiff University

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