Immune system protein could explain pancreatitis

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It is likely that the protein is also highly significant for other inflammatory diseases.

The research results have been published in the American journal *Gastroenterology*.

Excessive alcohol intake and gall stones are known risk factors for acute pancreatitis. However, as yet no explanation has been found for what actually happens in the body in cases of acute pancreatitis.

Current research shows that calcium-sensitive proteins found in the body, for example calcineurin, promote inflammation, but it is not known exactly how.

Henrik Thorlacius and Maria Gomez at the University's Department of Clinical Sciences in Malmö have investigated this in more detail. The focus is on a family of proteins linked to calcineurin, called NFAT, the role of which in acute pancreatitis has not previously been studied.

"The protein has an unexpectedly major role in the development of inflammation in the pancreas. Now there is a clear target for the development of drugs and treatments", says Henrik Thorlacius, Professor of Surgery at Lund University and a doctor at Skåne University Hospital.

In experiments on mice, the researchers found a number of links

between NFAT and acute pancreatitis. NFAT, and especially the variant NFATc3, were found to regulate the activity of trypsinogen (a precursor form of the digestive enzyme trypsin), which can affect the risk of acute pancreatitis. The activation of NFATc3 was also found to encourage inflammation and tissue damage in the pancreas in various other ways.

"In our study, we saw that the aorta, spleen and lungs were also affected. The results therefore suggest that the NFAT protein plays a part in the development of inflammatory diseases on a more general level", says Henrik Thorlacius.

The findings open up new opportunities for research on treatment and drugs, both for acute pancreatitis and for other acute inflammatory diseases, such as blood poisoning and inflammatory bowel disease.

"An effective drug needs to contain a substance that stops the activation of NFATc3 without producing serious side-effects", says Professor Thorlacius.

The NFAT proteins function as transcription factors, which means that they can be bound to the body's DNA and regulate the expression of specific genes in different cells. They have so far primarily been associated with immune cells.

More information: 'NFATc3 Regulates Trypsinogen Activation, Neutrophil Recruitment, and Tissue Damage in Acute Pancreatitis in Mice' Published in: *Gastroenterology*

Provided by Lund University