Loss of Periostin Results in Impaired Regeneration and Pancreatic Atrophy after Cerulein-Induced Pancreatitis.

The extracellular matrix molecule periostin (POSTN, encoded by POSTN), which is secreted by activated pancreatic stellate cells, has important functions in chronic pancreatitis and pancreatic cancer. However, the role of POSTN in acute pancreatitis and subsequent regeneration processes has not been addressed so far. We analyzed the function of POSTN in pancreatic exocrine regeneration after the induction of a severe acute pancreatitis. Postn-deficient mice and wild-type control animals received repetitive cerulein injections, and a detailed histologic analysis of pancreatic tissues was performed. Although there was no difference in pancreatitis severity in the acute inflammatory phase, the recovery of the exocrine pancreas was massively impaired in Postn-deficient mice. Loss of Postn expression was accompanied by strong pancreatic atrophy and acinar-to-adipocyte differentiation, which was also reflected in gene expression patterns. Our data suggest that POSTN is a crucial factor for proper exocrine lineage-specific regeneration after severe acute pancreatitis.