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CHARACTERIZING THE NADPH OXIDASE 1-EVOKED PANCREATIC STELLATE CELL SECRETOME

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Characterizing the NADPH Oxidase 1-Evoked Pancreatic Stellate Cell Secretome

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ABSTRACT

Chronic pancreatitis (CP) is a persistent inflammation of the pancreas that leads to irreversible destruction of its functional tissue. CP is characterized by fibrosis, or scarring of the tissue, which is prominently caused by pancreatic stellate cells (PaSCs). In response to pancreatic inflammation, PaSCs are activated and change their phenotype from quiescent into myofibroblast-like cells, thereby secreting excessive extracellular matrix (ECM) proteins, ultimately causing fibrosis. Activated PaSCs also produce reactive oxygen species (ROS) through NADPH oxidase 1 (Nox1). However, it is unknown the extent to which Nox1-derived ROS in activated PaSCs participate in the secretory process of ECM and other PaSC proteins. This study used mass spectrometry to compare the secretome of PaSCs from Nox1-competent and Nox1-null mice with CP. These results uncover additional protein signaling pathways in CP regulated by Nox1 and may pose Nox1 inhibitors as potential therapeutic measures to impede fibrogenesis.

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