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## The role of pancreatic stellate cells in pancreatic disorders

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Normally quiescent pancreatic stellate cells (PSC) become activated in chronic pancreatitis (CP) and pancreatic cancer (PC). PC is characterized by an excessive desmoplastic reaction and a hypoxic microenvironment within the solid tumour mass. The most common form of PC is pancreatic ductal adenocarcinoma. CP patients are at significant risk of developing PC. Activation of PSCs during pancreatic injury induces proliferation as well as secretion of extracellular matrix components, thereby playing an important role in the fibrosis that occurs in CP and PC. Our new data show that PSCs cells in their normal microenvironment (isolated mouse pancreatic lobules) are far from quiescent and capable of generating substantial $Ca^2$+ signals. We have found that bradykinin (BK), at slightly above physiological plasma levels, consistently elicited substantial $Ca^2$+ signals in PSCs, but never in neighboring PACs. The BK-induced $Ca^2$+ signals were mediated by bradykinin type 2 (B2) receptors, while B2 receptor blockade protected against PAC necrosis evoked by agents causing acute pancreatitis. The initial BK-induced $Ca^2$+ rise in PSCs was due to $Ca^2$+ release from the internal stores, whereas the sustained phase was fully depended on external $Ca^2$+ entry through store-operated (CRAC) channels. CRAC channel blockers inhibited $Ca^2$+ signal generation in PSCs and therefore should be particularly beneficial in acute pancreatitis development and treatment. Our work indicates that combined treatment with inhibitors of CRAC channel and B2 receptor could be potentially useful against progression to PC.

### Biography

Oleg V Gerasimenko has completed his PhD in 1991 from Bogomoletz Institute of Physiology, Kiev, Ukraine. Currently, he is a Reader in Cardiff School of Biosciences, Cardiff University, UK. He has published 68 papers in reputed journals and has been serving as an Editorial Board Member of P*flugers Archiv*. He is a Member of Faculty of 1000 students (Gastro-intestinal Physiology), The Physiological Society (UK), British Society for Cell Biology and European Calcium Society.

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