Osteopontin but not osteonectin favors the metastatic growth of pancreatic cancer cell lines.

Abstract:
Pancreatic ductal adenocarcinoma (PDAC) is the fourth leading cause of cancer-related death in western countries and among the malignancies with the worst prognosis. Osteonectin and osteopontin, two proteins of the extracellular matrix, have been found to be upregulated in PDAC. In the present study the expression of osteopontin mRNA as determined in a panel of 14 human pancreatic cancer cell lines was significantly related to the growth of these cell lines in the liver of nude rats ($p = 0.001$); whereas osteonectin showed a trend of being negatively related to pancreatic cancer cell growth in vivo ($p = 0.10$). In an in vitro co-culture model of human Suit2-007 and rat AsML PDAC cells with rat hepatocytes, a clearly increased expression of OPN mRNA was found in the tumor cells. In addition, both downregulation of osteopontin with specific antisense oligonucleotides and treatment with exogenous rh-osteonectin were associated with reduced cell proliferation. In accordance with the latter finding downregulation of osteonectin was coupled with increased proliferation. This evidence supports a protumorigenic role of osteopontin and points to an antitumorigenic role of osteonectin in PDAC.