

Researcher examines mechanism underlying abdominal pain in pancreatic cancer

March 1 2013

Erxi Wu, assistant professor of pharmaceutical sciences, co-wrote the article, "Neurotransmitter substance P mediates pancreatic cancer perineural invasion via NK-1R in cancer cells," which was published by *Molecular Cancer Research*, an American Association for Cancer Research journal.

According to the authors, pancreatic cancer significantly affects the quality of life due to the severe abdominal pain. However, the underlying mechanism is not clear. This study aimed to determine the relationship between substance P and pancreatic cancer perineural invasion, as well as mechanism of substance P mediating pancreatic cancer perineural invasion which cause pain in patients with pancreatic cancer.

The authors showed that substance P is not only widely distributed in the neurite outgrowth from newborn rat dorsal root ganglions but also expressed in [pancreatic cells](#). NK-1R is found to be overexpressed in the pancreatic cancer cell lines tested. Substance P induces cancer [cell proliferation](#) and invasion and the expression of MMP-2 in pancreatic [cancer cells](#); and NK-1R antagonists inhibit these effects. Furthermore, substance P is also able to promote neurite outgrowth and the migration of pancreatic cancer cell cluster to the dorsal root ganglions, which is blocked by NK-1R antagonists in the co-culture model.

"Our results suggest that substance P plays an important role in the development of pancreatic [cancer metastasis](#) and perineural invasion, and blocking the substance P /NK-1R signaling system is a novel strategy

for the treatment of pancreatic cancer," Wu said, noting the paper was co-written with Qingyong Ma lab at Xi'an Jiaotong University, China. "Collaborating with Dr. Ma, we together would like to find better [cancer therapeutics](#) and elucidate the mechanisms of the targeted therapy for pancreatic cancer," Wu said.

Wu's research interests include tumor therapeutic targets, drug discovery and biomarkers. For more information about Wu's lab, visit www.ndsu.edu/pharmsci/faculty_staff/erxi_wu.

Provided by North Dakota State University

Citation: Researcher examines mechanism underlying abdominal pain in pancreatic cancer (2013, March 1) retrieved 3 May 2024 from <https://medicalxpress.com/news/2013-03-mechanism-underlying-abdominal-pain-pancreatic.html>

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