

ALDH associated with worse overall survival in patients with pancreatic adenocarcinoma

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Expression of aldehyde dehydrogenase (ALDH) in pancreatic adenocarcinoma is associated with worse overall survival in patients who have undergone resection for early-stage disease, according to a new study published online February 17 in the *Journal of the National Cancer Institute*.

ALDH activity characterizes normal stem cells and [cancer](#) stem cells (CSCs) in several human malignancies, including pancreatic adenocarcinoma; however, the clinical significance of ALDH-expressing cancer [stem cells](#) is unclear.

William Matsui, M.D., of the Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, in Baltimore, and colleagues analyzed ALDH expression by immunohistochemistry in 269 primary surgical specimens of pancreatic adenocarcinoma and its association with survival. Reverse transcription - polymerase chain reaction and in vitro cell invasion assays were used to examine mesenchymal features (the ability to differentiate into a variety of cell types) and the invasive potential of ALDH-positive pancreatic [cancer cells](#) relative to the bulk cell population.

ALDH-positive [tumor cells](#) were detected in 90 of the 269 primary surgical specimens, and their presence was associated with worse survival (median survival for patients with ALDH-positive tumors was 14 months vs 18 months for patients with ALDH-negative tumors). ALDH-positive cells were approximately five- to 11-fold more likely to

proliferate in vitro and in vivo compared with unsorted or ALDH-negative cells. These cells also expressed genes consistent with a mesenchymal state and had in vitro migratory and invasive potentials that were threefold greater than those of unsorted cells.

"These results provide evidence for the clinical relevance of CSCs in pancreatic adenocarcinoma and may explain how the detection of these cells in primary tumors may result in shortened overall survival," the authors write.

Provided by Journal of the National Cancer Institute

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