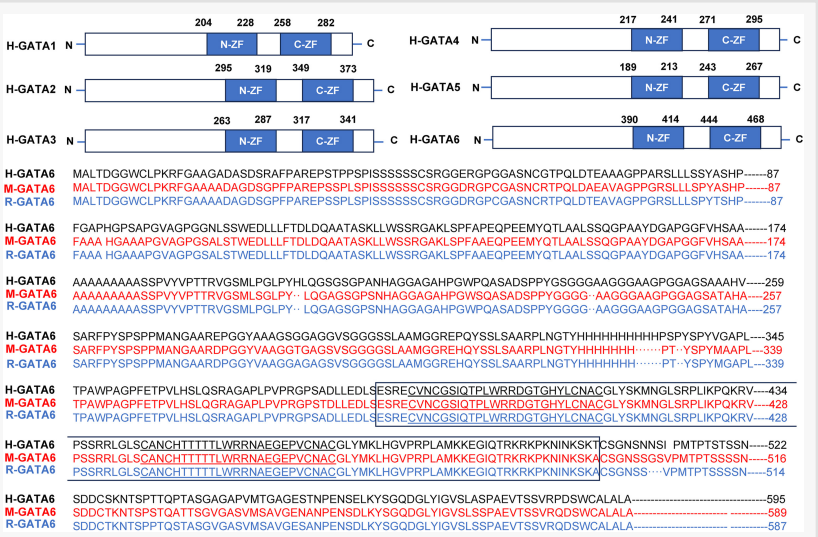
GATA6 Identified as a Key Factor in Pancreatic Cancer and a Potential Therapeutic Target

This new review article highlights the crucial role of GATA6, a transcription factor, in pancreatic ductal adenocarcinoma (PDA).

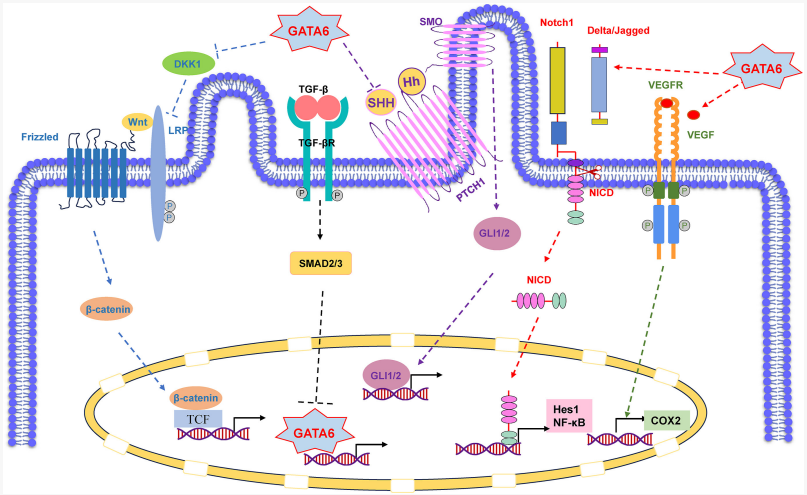
SHANNON, CLARE, IRELAND, February 23, 2025 /EINPresswire.com/ -- This new review article highlights the crucial role of GATA6, a transcription factor, in pancreatic ductal adenocarcinoma (PDA). The article explores GATA6's dual role in cancer progression and its potential as a biomarker and treatment target.

Pancreatic cancer remains one of the deadliest malignancies, with a five-year survival rate of only 5%. This study finds that higher GATA6 expression correlates with better tumor differentiation and improved patient outcomes, while low GATA6 levels are linked to aggressive basal-like PDA, a chemotherapy-resistant subtype.

It is also revealed that GATA6 influences multiple cancer-related pathways—including Wnt, Notch, Hedgehog, TGF-β, and VEGFR—helping to regulate tumor development. While GATA6 overexpression can promote cancer growth, it also helps maintain epithelial differentiation, preventing tumor dedifferentiation and metastasis.



The GATA proteins with different Zinc finger domains, and the sequence comparison of GATA6 from different species.



Major signaling pathways associated with GATA6 and pancreas. Wnt antagonist dickkopf1 (DKK1) is a target gene of GATA6, and GATA6 can promote the development and carcinogenesis of the pancreas by activating the Wnt pathway via repressing of DKK1.

The authors suggest that GATA6 could serve as a biomarker for distinguishing PDA subtypes. Patients with low GATA6 expression are more likely to have treatment-resistant basal-like PDA, indicating a need for alternative therapies.

Notably, the findings suggest that GATA6-deficient tumors respond poorly to chemotherapy (such as FOLFIRINOX) but may benefit from targeted therapies involving the EGFR pathway. These insights could lead to more personalized treatment strategies, improving survival rates.

With pancreatic cancer accounting for 7% of all cancer-related deaths, this research advances the understanding of PDA progression and treatment response. The study underscores the need for further clinical trials to validate GATA6's potential as a predictive biomarker and treatment target, paving the way for more effective precision medicine approaches.

Reference
Muyuan Ma, Jianhong An, Tingting Jiang, Keping Xie, GATA6 in pancreatic cancer initiation and progression, Genes & Diseases, Volume 12, Issue 2, 2025, 101353. DOI https://doi.org/10.1016/j.gendis.2024.101353

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