

Diabetes mellitus and pancreatic cancer: Investigation of causal pathways

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A new article [published](#) in *BIO Integration* investigates the association between diabetes mellitus and susceptibility to pancreatic cancer by using Mendelian randomization (MR) methods and an extensive human

genome-wide association study (GWAS) dataset.

The publicly accessible MR Base database was used to obtain the complete genome, relevant research findings, and summary data pertaining to diabetes mellitus and [pancreatic cancer](#). Genetic variables, specifically single-nucleotide polymorphisms closely associated with diabetes mellitus, were selected for analysis.

Four methods—inverse variance weighted (IVW) analysis, weighted median analysis, weighted mode, and MR-Egger regression—were used. Statistical analysis was conducted to explore the potential association between diabetes mellitus and susceptibility to pancreatic cancer.

The results of the IVW analysis (OR = 11.56519319, 95% CI 1.275068624–104.8992116, $P = 0.0296$) indicated a significant causal relationship between diabetes and elevated pancreatitis risk.

Furthermore, the absence of horizontal pleiotropic effects (Egger intercept = 0.29, $P = 0.384$) and heterogeneity ($P = 0.126$) suggested that the observed association was not influenced by confounding factors. Sensitivity analysis and other [statistical methods](#) also supported the conclusion that genetic pleiotropy did not introduce bias to the findings.

A causal relationship exists between diabetes mellitus and the occurrence of pancreatic cancer. People with [diabetes mellitus](#) are at high risk of pancreatic cancer and should receive early screening. The IGF signaling pathway may be a key mediator of the effects of diabetes on pancreatic cancer pathogenesis.

More information: Zuliang Deng et al, Diabetes Mellitus and Pancreatic Cancer: Investigation of Causal Pathways Through Mendelian Randomization Analysis, *BIO Integration* (2023). [DOI: 10.15212/bioi-2023-0014](https://doi.org/10.15212/bioi-2023-0014)

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