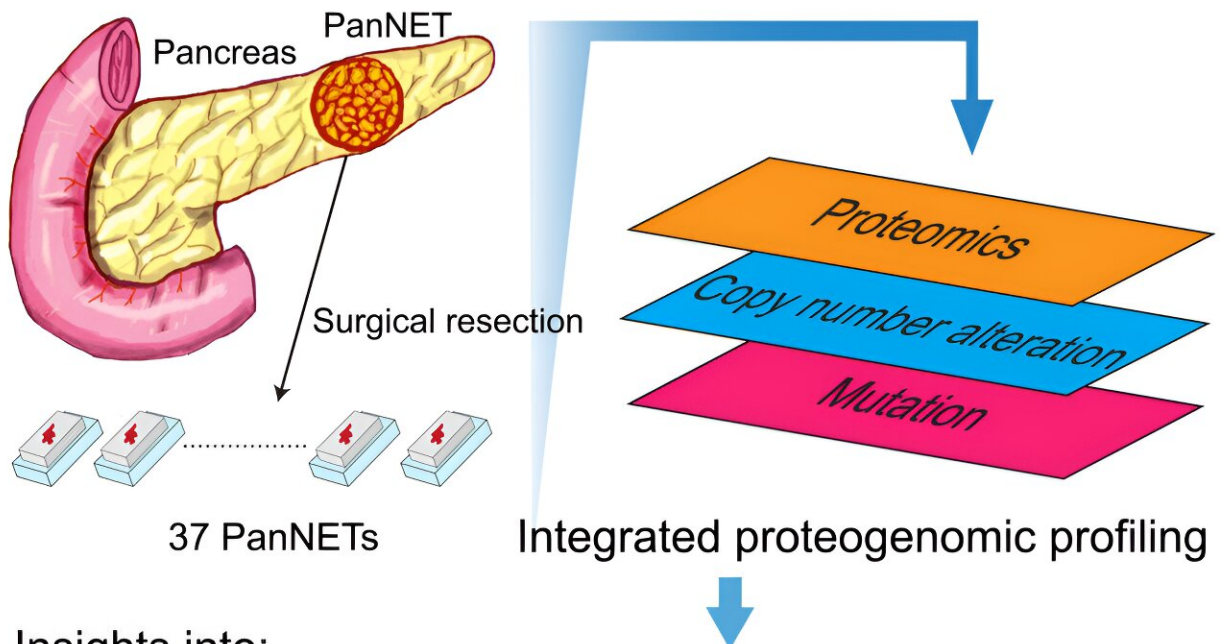



First-of-its-kind proteomic study of pancreatic neuroendocrine tumors may open door to new therapies

August 12 2024, by Jacqueline Mitchell



Insights into:

<p>Proteome-based subtypes</p>  <p>Survival probability</p> <p>Time</p> <ul style="list-style-type: none"> - 2 unfavorable subtypes - 2 favorable subtypes 	<p>Hypoxia signature</p> <ul style="list-style-type: none"> - EMT and metabolic adaptation <p>Immune signature</p> <ul style="list-style-type: none"> - Immune evasion phenotype <p>Therapeutic targets</p> <ul style="list-style-type: none"> - Subtype-specific candidates
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Graphical Abstract. Credit: *iScience* (2024). DOI: 10.1016/j.isci.2024.110544

Pancreatic neuroendocrine tumors (PanNETs) are a rare form of pancreatic cancer for which predicting patient clinical outcomes and providing appropriate patient management remain challenging.

In a first-of-its-kind investigation, scientists at Beth Israel Deaconess Medical Center (BIDMC) used proteogenomics—the integrated large-scale study of genomes and proteomes—to characterize 37 pancreatic neuroendocrine tumors. The research team used the latest-generation protein mass spectrometry.

The research is [published](#) in the journal *iScience*.

The work identified four previously undescribed PanNET subtypes. Two proteomic subtypes showed high recurrence rates, suggesting a previously unrecognized clinical aggressiveness. Hypoxia and [inflammatory pathways](#) were significantly enriched in these clinically aggressive subtypes. Detailed analyses revealed metabolic pathway adaptation and enrichment of immunosuppressive molecules that could potentially serve as therapeutic targets.

Importantly, the researchers add, these proteomic subtypes would not have been discoverable using prior genomics-based approaches to PanNETs or current state-of-the-art clinicopathological PanNET subtyping.

Michael Roehrl, Chief of the Department of Pathology and PI at BIDMC said, "Proteogenomics represents a significant step forward in

understanding pancreatic neuroendocrine tumors, and our publicly available [proteomic](#) PanNET dataset should be of immediate interest to scientists and physicians around the world."

More information: Atsushi Tanaka et al, Proteogenomic characterization of pancreatic neuroendocrine tumors uncovers hypoxia and immune signatures in clinically aggressive subtypes, *iScience* (2024). [DOI: 10.1016/j.isci.2024.110544](https://doi.org/10.1016/j.isci.2024.110544)

Provided by Beth Israel Deaconess Medical Center

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