TEMPUS | LIFE SCIENCES

CASE STUDY

# Using Molecular Signatures of Pancreatic Ductal Adenocarcinoma (PDAC) for Targeting Discovery

**In this case study, we examine how the Tempus multimodal database can support drug development through target discovery in subtypes of pancreatic cancer.**

Translational Medicine and Biomarker Discovery teams within a large pharmaceutical organization were interested in analysis of PDAC de-identified patient records, to understand if molecular and clinical data analysis could assist in genetic marker-based target discovery.

The Tempus team included Alliance Management working in close collaboration with our Outsights team.

## QUERY

Pharma Company A ("Company") sought to answer this question to accelerate its target identification program:

**Can integrative analysis of real-world molecular data, DNA and RNA sequencing, and clinical data guide target discovery in pancreatic cancer subtypes?**

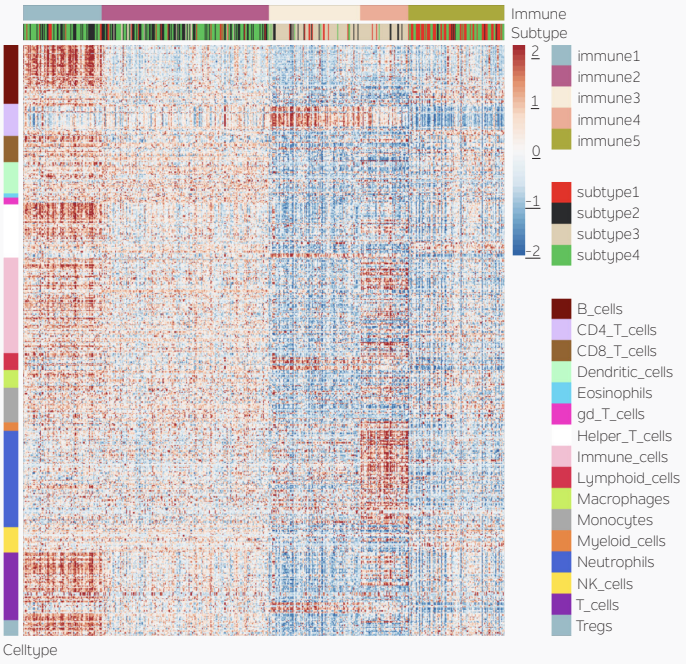
## RESULTS + ANALYSIS

The Company targeted a real-world dataset in pancreatic cancer of over 2,000 records with a diagnosis of PDAC. After filtering these cases for the following criteria, a population of 942 samples was selected for analysis:

- Patients diagnosed with primary/metastatic pancreatic cancer between 2015 and 2020
- Treated and treatment-naive patient cohorts
- Matched molecular (DNA + RNA) and clinical data

The collaborative analysis between the company and the Tempus team identified a number of select subtype-specific surfaceome gene targets that were highly expressed in pancreatic cancer samples, but lowly expressed in normal tissue (GTEx) for further assessment.

**Figure 1** Molecular subtyping of Tempus PDAC pancreatic samples with whole transcriptome RNA sequencing data.




## OUTCOMES

Several hundred potential targets for drug discovery were identified through this analysis. These targets are currently being assessed using antibody databases, cell-type analyses, immune infiltration, and biological mechanisms and pathways as guiding principles. Validated targets may then become candidate genes for future drug development.

This case study demonstrated how molecular and clinical data analyses of records in the Tempus database can identify disease subtypes, powering target discovery approaches to identify novel therapeutic opportunities.

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