



## Empire Genomics Helps Characterize Overexpression of SOX11 and TFE3 in SPNs

### Background

Solid-pseudopapillary neoplasms (SPNs) are rare, enigmatic tumors with unclear origins and directions of differentiation. SPNs may occur anywhere in the pancreas, and histologic diagnosis is challenging. The exact pathogenesis of SPNs is unknown, but many transcription factors and regulators may be involved, especially those altering the Wnt/ $\beta$ -catenin signaling pathway.

### Objectives

In this study, several analyses were performed, including immunohistochemistry and fluorescence in situ hybridization, to characterize the expression of SOX11 and TFE3 proteins in a number of SPNs as well as other pancreatic tumors serving as controls. Investigation of these proteins was designed to better understand these enigmatic pancreatic tumors as well as to identify possible diagnostic markers.

### Approach

Immunohistochemistry was performed on 31 cases of surgically resected SPNs retrieved and compiled from a database for SOX11, TFE3, and  $\beta$ -catenin. The same analyses were also performed on 31 control cases consisting of neuroendocrine tumors, acinar cell carcinomas, and pancreatoblastomas. In addition, fluorescence in situ hybridization analysis for TFE3 gene rearrangement was performed on 17 SPN cases, using a break-apart probe flanking the genomic regions of TFE3 from Empire Genomics.

### Results

Analyses indicated that nuclear immunoreactivity was detected for most or all of the SPNs for SOX11, TFE3, and  $\beta$ -catenin. The combination of these three markers optimized sensitivity as well as selectivity. Because both SOX11 and TFE3 were overexpressed in SPNs, they may be involved in pathogenesis, with potential to be used as diagnostic markers. Further investigation into the roles of these two proteins is warranted.

*Overexpression of SOX11 and TFE3 in Solid-Pseudopapillary Neoplasms of the Pancreas*

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### Lead Organization

Duke University Medical Center

### Diseases

- Solid-Pseudopapillary Neoplasms of the Pancreas

### Biomarkers Mentioned

- SOX11
- TFE3
- $\beta$ -catenin