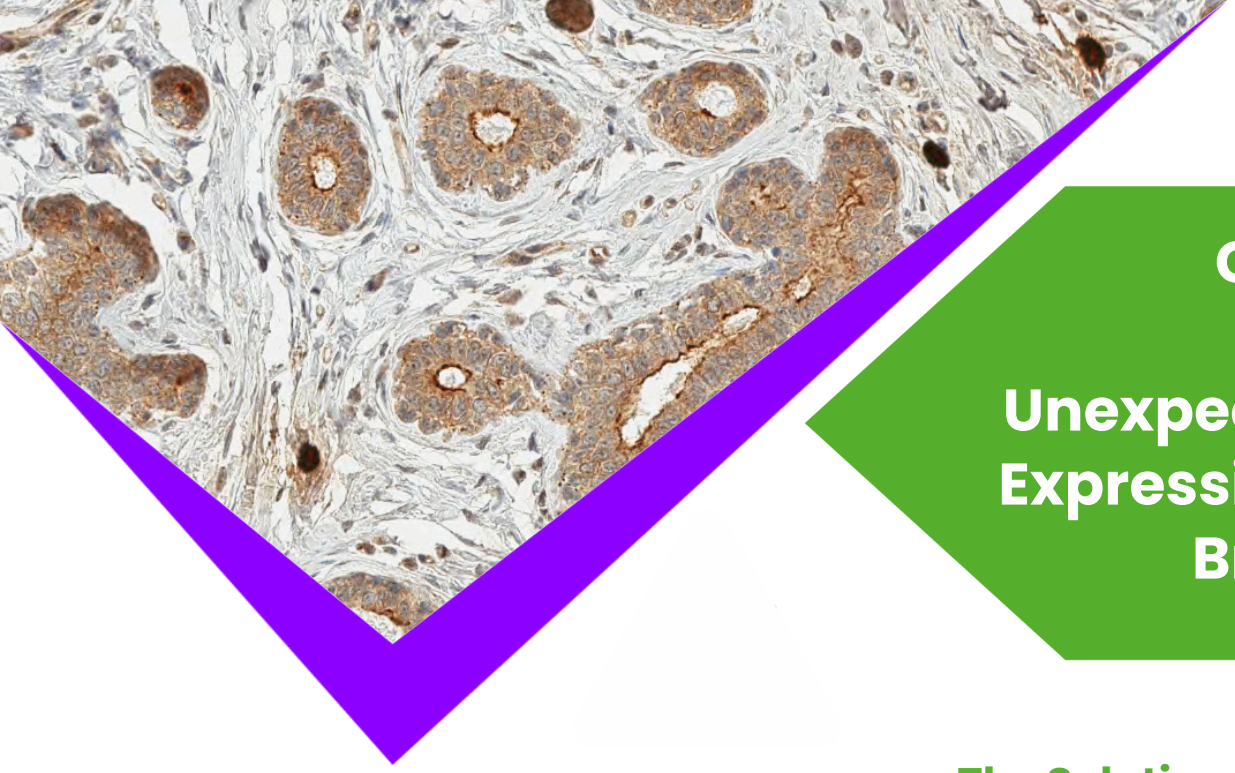

CASE STUDY: Validating Unexpected Protein Expression in BRCA1 Breast Tissue

Executive Summary

HistoSpring partnered with an academic research group to investigate an unexpected expression pattern of secreted proteins in normal breast tissues from women with BRCA1 mutations. Using digital slide scanning and - HALO® AI –driven image analysis, HistoSpring confirmed that the students' surprising findings were biologically valid, enabling the client to move forward confidently with publication.

The Client

An academic professor of molecular genetics whose undergraduate students were studying the expression of specific secreted proteins in women carrying BRCA1 mutations

The Challange

When the students manually scored the IHC slides, their results contradicted expectations: the protein appeared more abundant within epithelial cells from BRCA1 mutation carriers. The professor needed to determine whether the discrepancy stemmed from biological reality or from scoring errors—particularly whether epithelial ducts had been misidentified as endothelial venules during manual evaluation by the students.

The Solution

HistoSpring digitized the slides using the Aperio whole-slide scanner and analyzed them in HALO® using an AI-based tissue classifier trained to distinguish epithelial structures from surrounding vasculature. Instead of relying on subjective Allred scoring, the team generated objective, quantitative measurements of epithelial-specific staining intensity, eliminating concerns about scorer variability.

The Results

The AI-driven analysis confirmed that the students' observations were correct: intracellular protein levels were indeed higher in BRCA1-mutant tissues. This finding suggested that the difference may lie in secretion rather than production of the protein. With validated, quantitative data in hand, the professor gained confidence to advance the work toward publication.

HistoSpring.com

info@histospring.com
413-794-0523

3601 Main St., Springfield, MA 01199