

## Project #18

**Title:** Validation of the expression of genes within a unique 30-gene signature in triple negative breast cancer cell lines

**Description:** Triple negative breast cancer (TNBC) is associated with poor prognosis and limited treatment options due to the lack of established markers. TNBC displays characteristics that makes it an ideal candidate for immunotherapy, particularly immune checkpoint blockade (ICB), which include being immunogenic with higher levels of tumor-infiltrating lymphocytes that are associated with survival benefits and expression of programmed cell death-ligand 1 (PD-L1) on the tumor and immune cells as compared to other breast cancer subtypes. Several biomarkers have been approved for use to determine patients' eligibility for ICB/immunotherapy, however only a small proportion of patients respond, highlighting the need for more reliable predictive biomarkers to identify patients who would benefit from such therapy. Our team conducted a silico analysis and identified a unique 30-gene signature associated with survival in TNBC patients that may serve as a predictive biomarker. This 'summer research project' aims to validate the expression of several genes within the unique 30-gene TNBC cell lines. The project will involve hands-on culturing and treatment of cell lines, followed by molecular analysis such as quantitative real time PCR and western blotting.

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### Illustration:

