Breast Cancer Biomarker

Long non-coding RNA, ZNFX1AS

Researchers at the University of Queensland (UQ) have discovered that the human long non coding antisense RNA, *ZNFX1AS*, is involved in mammary gland development and is significantly downregulated in breast cancer. There is an opportunity to commercially exploit this discovery through the development of new therapeutics and molecular diagnostics and/or prognostics.

Technology and Proof of Concept

- Expression of the mouse homolog, *Znfx1as*, is lower in mammary gland during pregnancy demonstrating differential expression in highly proliferating cells
- In vitro knock-down of *Znfx1as* by RNAi results in an increase in the proliferation of the murine mammary gland cell line, HC11
- Analysis of deep sequencing data shows a significant decrease of *ZNFX1AS* in breast cancer tissues compared to normal tissues
- Microdissection and isolation of RNA from epithelial cells of human invasive ductal carcinoma (IDC) breast tissue samples showed that the expression of *ZNFX1AS* is approximately 2-fold lower compared to normal breast tissue

Proof of concept studies demonstrated that *ZNFX1AS* modulates cell proliferation and has a role in breast cancer.

Applications

- Cancer diagnostics and prognostics
- Treatment of cancer through activation of *ZNFX1AS*

ZNFX1AS is found in a number of tissues; similar results are anticipated for other cancers – particularly other epithelial cell-derived cancers of alveolar tissues such as the lung.

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