A221 · Integrative in silico analysis of tumor-associated extracellular vesicles reveal markers related to THY-1 in basal-like breast cancer.

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Breast cancer is a major cause of cancer-related mortality worldwide, and its molecular heterogeneity highlights the need for improved characterization of aggressive subtypes. CD90, encoded by THY-1, has been associated with aggressive disease, metastasis, and poor survival, while extracellular vesicles (EVs) represent a promising source of tumor-associated molecular biomarkers. This study aimed to characterize THY-1 expression and identify differentially expressed mRNAs and miRNAs in plasma-derived EVs, focusing on basal-like breast cancer. Publicly available datasets were obtained from ExoRBase and NCBI. ExoRBase included 242 breast cancer and 243 healthy individuals with mRNA quantified as TPM. Breast cancer samples were classified into Luminal A, Luminal B, HER2-enriched, and basal-like subtypes using PAM50. THY-1 expression and differential expression were assessed using limma package, with log2FC > 1 and adjusted p.value < 0.01. An independent dataset, GSE270497, comprising 120 healthy and 60 breast cancer individuals, was analyzed for miRNA expression using DESeq2, applying log2FC > 1.5 and adjusted p.value < 0.01. THY-1 showed the highest median expression in basal-like EVs. Among 122 differentially expressed genes, GJA4 was overexpressed and associated with epithelial-mesenchymal transition, closely related with THY-1 molecular function in triple negative breast cancer, as previously demonstrated by our group. OncoDB revealed a positive correlation between GJA4 and THY-1 (R = 0.5281, p = 1.65 × 10-82). Among 66 differentially expressed miRNAs, miR-29a, miR-34a, and miR-210 were downregulated and identified as validated THY-1 regulators. These findings support plasma-derived EVs as a promising source for investigating THY-1-associated mechanisms and biomarkers in basal-like breast cancer.

Integrative *in silico* analysis of tumor-associated extracellular vesicles reveal markers related to *THY-1* in basal-like breast cancer.

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Keywords: Extracellular vesicles; Basal-like breast cancer, biomarkers, liquid biopsy, THY-1