# SERUM LONG NON-CODING RNA MALAT1 AS POTENTIAL BIOMARKER FOR BREAST CANCER IN EGYPTIAN FEMALE PATIENTS

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## INTRODUCTION

Breast cancer (BC) is the most frequent type of tumors among females. Until a palpable or visible lump develops within the breast, there are no symptoms or indicators correlated with BC. The main issue with serum markers in BC is finding one that is both specific and sensitive for women with tiny or early lesions. Techniques based on lncRNAs are expected to have great sensitivity making them useful in therapeutic settings. As a result, MALAT-1 could be investigated as a novel biomarker in the diagnosis, prognosis, metastasis, and the prediction of treatment responses in solid tumours. Also many trace elements such as selenium has been shown to play a substantial role in a variety of biological processes. As a consequnce, it is reasonable to expect that these trace elements will have an effect on carcinogenic development.

## AIM OF THE WORK

- Evaluate the possible significance of circulating MALAT1 as potential biomarker for BC in Egyptian female patients.
- Assess the possible relation of serum selenium concentration and MALAT1 expression in BC patients.

## SUBJECTS AND METHODS

**Subjects:**

**Group I**: includes fourty female patients diagnosed as BC whom will be allocated into two subgroups:
**Group Ia:** Twenty female patients without metastasis.
**Group Ib:** Twenty female patients with metastasis.

**Group II**: includes ten healthy females as a control group.

**Methods:**

Determination of circulating MALAT1 using quantitative real-time reverse transcriptase-polymerase chain reaction (qRT-PCR).
Determination of serum selenium level using atomic absorption spectrophotometry.

## RESULTS

The relative expression of serum MALAT1 was statistically significantly higher in patients with late stages and early stages BC compared to healthy subjects. In addition, it was significantly higher in patients with early stages BC than late stages.
In addition, the level of serum selenium was statistically significantly lower in BC patients compared to healthy subjects. Selenium level was also significantly lower in patients with late stages of BC than patients with early stages of BC.

**Table :** Diagnostic performance of non-metastasis and control group with MALAT1, CEA

| Criterion | MALAT1 | CEA | Combined MALAT1, CEA |
|---|---|---|---|
| Accuracy | 85% | 75% | 93% |
| p | 0.0001** | 0.0002** | 0.99 |
| Cut off | >1.58 | >1.10 | >1.58 – >1.10 |
| Sensitivity | 95% | 85% | 95% |
| Specificity | 90% | 90% | 90% |
| PPV | 95% | 94% | 95% |
| NPV | 90% | 75% | 90% |
| AUC | 94.2% | 82% | 92.5% |
| 95% CI | 0.855 – 1.03 | 0.827 –1.013 | 0.815 - 1 |

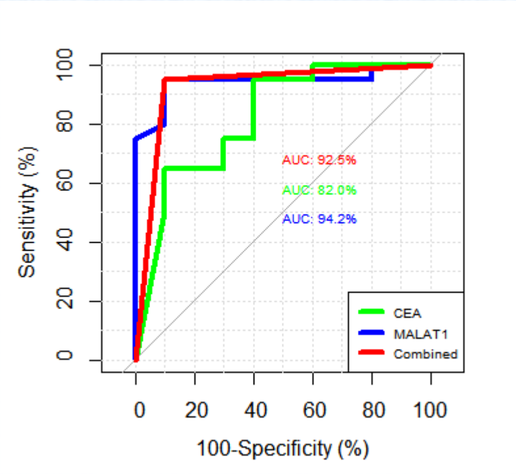


**Figure:** ROC curve of CEA and MALAT1 for non-metastasis cases and control group

## CONCLUSION

- Serum MALAT1 expression level in combination with CEA is a promising serological diagnostic for detecting BC.
- MALAT1 can be used as a useful additional indicator for screening of BC among patients with high risk.