

# Cathepsin B: a potential prognostic marker for inflammatory breast cancer

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## Abstract

### **BACKGROUND:**

Inflammatory breast cancer (IBC) is the most aggressive form of breast cancer. In non-IBC, the cysteine protease cathepsin B (CTSB) is known to be involved in cancer progression and invasion; however, very little is known about its role in IBC.

### **METHODS:**

In this study, we enrolled 23 IBC and 27 non-IBC patients. All patient tissues used for analysis were from untreated patients. Using immunohistochemistry and immunoblotting, we assessed the levels of expression of CTSB in IBC versus non-IBC patient tissues. Previously, we found that CTSB is localized to caveolar membrane microdomains in cancer cell lines including IBC, and therefore, we also examined the expression of caveolin-1 (cav-1), a structural protein of caveolae in IBC versus non-IBC tissues. In addition, we tested the correlation between the expression of CTSB and cav-1 and the number of positive metastatic lymph nodes in both patient groups.

### **RESULTS:**

Our results revealed that CTSB and cav-1 were overexpressed in IBC as compared to non-IBC tissues. Moreover, there was a significant positive correlation between the expression of CTSB and the number of positive metastatic lymph nodes in IBC.

### **CONCLUSIONS:**

CTSB may initiate proteolytic pathways crucial for IBC invasion. Thus, our data demonstrate that CTSB may be a potential prognostic marker for lymph node metastasis in IBC.

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