

## **PROGNOSTIC SIGNIFICANCE OF REACTIVATION OF TELOMERASE IN BREAST CORE BIOPSY SPECIMENS**

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**Background:** Telomerase is an enzyme that maintains the length of telomeres, the protective cap that prevents loss from chromosomal ends during DNA replication. While not expressed in somatic tissues, telomerase is activated in approximately 90% of solid tissue tumors. Telomerase activity has been demonstrated in breast carcinoma using RTPCR. hTERT, the reverse transcriptase portion of telomerase, can be detected with immunohistochemical (IHC) techniques, and has recently been shown to have prognostic significance in colorectal cancer. We sought to determine whether activation of telomerase, as demonstrated by positive staining with a monoclonal antibody for hTERT, held prognostic significance in core breast biopsy specimens.

**Methods:** We identified 20 women with atypical ductal hyperplasia (ADH) as diagnosed by core biopsy who later proceeded to open surgical biopsy. 10 of these women were later found to have ADH, while 10 were found to have cancer. Adequate tissue specimens for further analysis were available for 17 women. IHC staining with a monoclonal antibody against hTERT was performed on each biopsy specimen. A pathologist evaluated each slide for the degree of staining at the site of the lesion: no staining, < 50% staining, and > 50% staining.

**Results:** Of the 10 women who had ADH on open biopsy, 7 (70%) specimens demonstrated > 50% staining with the hTERT antibody. Among the women diagnosed with cancer on open biopsy, 6 (86%) had > 50% staining with the hTERT antibody. The difference was not statistically significant ( $p = 0.43$ ).

**Conclusions:** Our study suggests telomerase may be activated early in the pathogenesis of breast cancer, as many non-cancerous lesions demonstrated positive staining. IHC evaluating expression of hTERT may not adequately discriminate between those patients with ADH on core biopsy that are likely to have cancer, and those who do not.