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Cytochrome 4Z1 Expression is Associated with Unfavorable Survival in Triple-Negative Breast Cancers

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Abstract

Purpose: Triple-negative breast cancer (TNBC) is characterized by high mortality rate, and its clinical management is difficult and complex. Therefore, there is a need for extensive efforts aimed at accelerating the discovery of novel therapies for TNBC. CYP4Z1 has been implicated in the development of breast cancer. The current study aimed at characterizing the expression of CYP4Z1 on TNBC.

Materials and Methods: Using immunohistochemistry, CYP4Z1 expression was evaluated on 122 TNBC samples, four samples of breast cancers expressing ER, PR, and HER-2, and four samples of normal breast tissues. The association between the enzyme and various histopathological features and survival of patients were determined.

Results: CYP4Z1 was strongly expressed in 83.3% of various histopathological subtypes of TNBC, when compared to negative expression in normal breast tissues. Interestingly, there were marked variations in CYP4Z1 expression with respect to histopathology subtype, histological grade, histological stage and tumor diameter. There was a high incidence of CYP4Z1 expression in patients with advanced grades, late stages and larger tumor sizes. Importantly, CYP4Z1 expression was correlated with the survival of TNBC patients, but it was an independent determinant of the poor prognosis of TNBC ($p < 0.05$).

Conclusion: CYP4ZI may be a potential biomarker or target for evolving new CYP4Z1-targeted treatments.

Keywords: triple-negative breast cancer, cytochrome P450, immunohistochemistry.

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Biography

I am a 5th year MD student who is enthusiastic about research and medical education. I have started pursuing research during the end of my 2nd year and participated in several research projects which have lead to 2 publications so far. During that period I have learned serveral research skills such as: academic writing, statistical analysis, tissue processing, immunohistochemistry and bacterial culturing. In addition to that, I have since the first day -at medical school- been keen at sharing medical knowledge with my coleagues and thus I have held lectures and wrote handouts that help students understand the various curricula (organic chemistry, physiology, pathology, etc...). Also, I have founded an open-access medical library that currenlty contains about 100 medical books that the most recent editions, are of students' interest and compaltable with the faculty curriculum.

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