

3rd International Conference on Biomarkers & Clinical Research

July 2-4, 2012 Embassy Suites Las Vegas, USA

Monitoring soluble HER2 extracellular domain in the serum of breast cancer patients using a refined ELISA assay

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Approximately 15-30% of breast cancers over-express the HER2/neu receptor. Historically, over-expression of HER2/neu has been identified using IHC or FISH, both of which are invasive approaches requiring tissue samples. Patients with positive IHC/FISH tests can have the option of receiving HER2/neu targeted treatment. However, recent evidence has shown that some tumors identified as “negative” using these methods also respond to HER2/neu targeted therapy. Shedding of the extracellular domain (ECD) of the receptor into the circulation has led to the development of serum test of HER2 ECD as an additional approach to probe HER2/neu overexpression. Yet more than 10 years after the first serum HER2 ECD test was approved by the FDA, serum HER2 testing has yet to be widely used in clinical practice. We have developed an assay to reduce serum interference that commonly occurs in practice and discourages the use of ELISA type of assay. Using this refined assay, we are able to accurately correlate serum HER2 ECD levels with tissue HER2/neu status. With this test, we can monitor HER2 ECD as a biomarker over the course of disease progression and treatment. It will also help screen patients who have no available tissue samples for HER2/neu targeted therapies.

Biography

Dr. Hongtao Zhang has been a Research Assistant Professor in the Department of Pathology and Laboratory Medicine at the University of Pennsylvania Perelman School of Medicine since 2007. He graduated from University of Pennsylvania in 1999 with a Ph.D. degree in Pharmacology. Currently he focuses on the ErbB receptor- targeted therapies using antibodies, antibody-like proteins, or small molecules. He is also devoted to the identification of serum biomarkers that can help the diagnosis and provide therapeutic guidance for breast cancer and melanoma. He has published more than 50 papers and serves as an editorial board member for several journals.

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