

DEVELOPMENT AND OPTIMIZATION OF A MONOCLONAL ANTIBODY-BASED SYSTEM FOR QUANTIFICATION OF hBiP

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hBiP (human binding immunoglobulin protein) is one of the most important endoplasmic reticulum (ER) chaperone proteins, which plays a key role in protein folding, export into the ER, assembly, signal transduction and calcium ion homeostasis^[1]. When ER stress occurs during cancer and neurodegenerative illnesses, hBiP appears to be involved in disease progression, tissue damage and autoimmune inflammation^{[2][3]}. Therefore, hBiP could be a potential biomarker for detecting and monitoring these diseases. Monoclonal antibodies are great biotechnological tools for investigation of various proteins and their roles^[4]. Antibodies could be used in the development of immunoassays for the quantification of their targets. In this study, we aim to develop and optimize the assay for hBiP detection and concentration determination while using monoclonal antibodies in the sandwich ELISA method. Test conditions were optimized, such as type of plate, immobilization and blocking solutions and monoclonal antibodies pair. It is important to develop a reliable test for quantification of hBiP to detect and monitor previously mentioned diseases, hence the accuracy of the test was evaluated. When developed, such a test can contribute to improve the understanding of the role of hBiP in disease pathogenesis and facilitate the development of personalized medicine approaches.

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