Proteomic Analysis of Human plasma protein. High expression of haptoglobin using two dimensional gel electrophoresis in Infiltrating Ductal Carcinomas of the Breast.

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Breast cancer is the most diagnosed cancer in women, accounting for approximately 40,000 deaths annually in the USA. In Tunisia, the incidence of breast cancer is approximately 19 new cases per 100,000 women per year. Significant advances have been made in the areas of detection and treatment, but a significant number of breast cancers are detected late. The enormous progress in proteomics, enabled by recent advances in two dimensional gel electrophoresis (2-DE), has brought protein analysis back into the limelight of breast cancer research, reviving old areas as well as opening new fields of study. In breast cancer, the identification of markers for either early diagnosis, treatment response or for survival of breast cancer is of critical importance. The plasma carries an archive of important histological information whose determination may help to improve early disease detection. Using two dimensional gel electrophoresis and protein sequencing we investigated the changes in protein expression profiles derived from analysis of plasma from healthy Tunisian women and patients with breast carcinoma. In this study, we have found a high expression of haptoglobin which may display a clinical usefulness as potential diagnostic markers and provide a means for a better understanding of the molecular mechanisms underlying breast cancer development.