Identification of differential proteins in maternal serum with Down syndrome

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Prenatal screening for Down syndrome (DS) is still in need of improvement. Perinatal medicine experts have worked hard to find new biomarkers for screening of DS. Dr. Shi he Shao and his co-investigators, from Jiangsu University and Changzhou Woman and Children Health Hospital, report in the May 2012 issue of *Experimental Biology and Medicine* that they have successfully identified twenty-nine differentially expressed proteins in maternal serum from pregnancies carrying DS fetuses with proteomic approaches. These differential proteins offer the possibility of improving the performance of DS screening in the future. The functional roles of these proteins also possibly have a relationship with the development of DS.

Dr. Shao said "To date, a very limited number of studies have been carried out to analyze maternal blood in search for biomarkers of DS." "We have successfully identified the greatest number of potential DS biomarker proteins in maternal serum."

Dr. Yu said "We used the proteomic approaches of two dimensional gel electrophoresis (2-DE) and MALDI mass spectrometry and they proved to be of benefit in identifying potential serum biomarkers to detect DS."

Dr. Qiu wei Wang said "Among 29 proteins, two proteins ceruloplasmin and complement factor B (CP and CFB) were the most notable. Both were significantly increased in DS maternal serum and their functional roles suggest a relationship with the development of DS."

These differential proteins offers the possibility of further improving the performance of DS screening but Dr. Shao concludes that "it still needs clinical verification as a prenatal screen and we will conduct corollary studies to understand how these candidate proteins are related to the etiology and function of DS."

Dr. Steven R. Goodman, Editor-in-Chief of Experimental Biology and Medicine said "Prenatal screening for Down Syndrome has a rate of detection which is at best 75 to 85% with a 5% false positive rate and a lower rate of detection found in developing countries. The proteomic approach of Shao and colleagues offers new biomarkers which could lead to higher rates of detection and lower false positive rates. Further clinical testing of this approach is warranted based on this study."

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