Diagnosing cancer, pregnancy complications

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Based on their previous discovery of progesterone-induced blocking factor (PIBF), European scientists have developed a diagnostic assay that could be used to detect pregnancy complications or cancer.

PIBF is a natural protein required for maintaining a normal pregnancy. PIBF levels in the urine and blood of healthy pregnant women increase during pregnancy and decrease rapidly during delivery.

Previous work had shown that PIBF levels in women with pregnancy complications were significantly lower, and demonstrated that PIBF blocks the autoimmune response which normally leads to the killing of

rapidly growing fetal tissue.

Surprisingly, high levels of PIBF have been detected in tumour cells, suggesting that it constitutes an essential marker for their discovery. The EU-funded PIBF proposal planned to develop a novel testing assay to diagnose malignant tumours, monitor tumour therapy and diagnose premature abortion risk.

Project scientists developed and validated an enzyme-linked immuno sorbent assay (ELISA) for measuring PIBF protein in biological fluids. Although the assay presented with limited sensitivity and precision due to the biological diversity of the tested protein, it exhibited great reproducibility, making it ideal for inter-laboratory testing.

GMP grade reagents were also produced for the application of the assay in a clinical setting. Studies on clinical samples confirmed the potential role of PIBF in certain pathological pregnancies, and the elevated expression of PIBF in certain cancer patients.

However, similarly to other marketed tumour marker tests, the PIBF ELISA alone did not provide sufficient specificity and sensitivity to be used as a single screening diagnostic method. The developers of this kit are nonetheless hopeful that in combination with other diagnostic tests, this assay will contribute to the higher diagnostic standards of pathological pregnancies and malignant tumours.

Provided by CORDIS

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