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Apo10 - a new biomarker for early detection of disorders of cell proliferation and solid tumours

The early detection of cancer and its precursors decisively improves the chances of healing. Until now there are only a limited number of diagnostic tests available for the early detection of various types of cancer and of relapses in the context of follow-up. Thanks to the blood based EDIM-technology (epitope detection in monocytes), a new immunological-diagnostic method, tumours can be identified much earlier than present methods allow and can be characterized more exactly based on the engulfment (phagocytosis) of tumour cells by macrophages. Two protein markers have been determined using the method so far: Apo10 and TKTL1.

The marker Apo10 is highly specifically expressed in tumour cells irrespective of the tumour entity and is accumulated in case of disorders of apoptosis. The detection of the Apo10 antigen in macrophages makes it now possible to measure disorders of apoptosis and thus to obtain an early indication of proliferative disorders and tumours. TKTL1 is indicative of a more malignant tumor cell phenotype with invasive growth, metastasis and therapy resistance. The important role of TKTL1 has been described in breast cancer, cervix cancer, endometrial cancer and ovarian cancer. TKTL1 in combination with the marker Apo10 allows characterization of malignancy of detected tumors regarding their ability for invasive growth, metastasis and presence of therapy resistance.

Methods: In a routine gynecological practice we have tested more than 150 women with breast cancer for a period for up to 3 years with EDIM-technology. The results were compared to clinical observations and laboratory data.

Conclusion: The observed correlation of Apo10 for proliferative abnormalities and TKTL1 for breast cancer are promising results worth to be further validated. The combination of the markers Apo10 and TKTL1 with EDIM-technology could be a useful tool in daily gynaecological practice and give answers to different oncological questions from early detection to follow-up.