

High Sensitivity Detection of Tumor Cells in Peripheral Blood of Testicular, Breast and Colorectal Cancer Patients by a Reverse Transcription PCR Method

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Occurrence of tumor cells in the peripheral blood of individuals suffering from cancer may serve as an early indication that the primary tumor has evaded from its tissue of origin. Despite defence mechanisms of the organism individual cancer cells may attach in distant regions and form colonies as an initial step of metastasis formation.

Hence, early detection of metastatic potential can be estimated by detecting tumor cells in the blood circulation. Sensitivity and specificity are the main objectives for any method applied for this purpose. Most highly sensitive techniques described, however, encounter an increasing problem of specificity due to background signalling from illegitimate transcriptions.

AdnaGen established a method of tumor cell selection and their specific identification and analysis with a sensitivity up to 2 tumor cells in 5 mL blood. To achieve this we combined the pre-selection of tumor cells with a specifically designed antibody mix with RT-multiplex PCR techniques for the detection of mRNAs encoding for tumor specific markers.

Preliminary results of case studies showed occurrence of tumor cells in blood of carcinoma patients indicating a tumor relapse, in some cases several months prior to an elevation of serum tumor markers.

AdnaGen provides a sensitive and specific method to detect testicular, breast and colorectal carcinoma cells at an early stage of tumor progression. This innovative method is an option for clinicians as a predictive tool with respect to metastasis formation and may result in an appropriate selection of patients for adjuvant therapy.