

AIT Austrian Institute of Technology, the Austrian research institute with a European format which focuses on the key infrastructure issues of the future, is looking to strengthen its team with the immediate appointment of two

Diploma Theses “Protein-chip-technology for improving breast cancer diagnostic testing”

Aim of this project is to identify tumor autoantibody signatures and to develop a test which enables early identification of breast cancer patients. In cancer-patients tumor-autoantibodies (TAA), - autoantibodies against the cancerous tissue-, are present in serum. TAA profiles are highly potential markers for early diagnosis of cancer. However until today technical prerequisites performing an efficient marker screen were lacking.

Within recent work we have developed protein-microarray technology for defining tumor-markers. We will produce protein-chips using 16000 human cDNA expression clones and SEREX clones to perform a candidate marker screen for identifying TAA profiles suitable for unequivocal distinction of healthy, malign and benign breast tumors. In parallel antigenic peptides will be elucidated by phage-display and used for peptide-microarray array generation. Targeted protein and peptide micro-arrays will be used for validation of markers in a retrospective study setting and then clinically validated using serum samples of 1200 consecutive patients, suspected suffering from breast cancer.

Work description :

- Thesis 1: Subcloning of immunogenic Serex-derived cDNA clones and recombinant E.coli protein expression and isolation for protein chip generation, clone sequencing & annotation, & protein micorarray techniques
- Thesis 2: improving protein-chip technology, protein-microarray production and processing & standard molecular-biological techniques

Requirements:

- Biotechnology, molecular biology (and related) students
- Experience in laboratory working

We are pleased to invite interested persons who wish to contribute their knowledge and their ideas to the field of applied research. Please attach meaningful application documents, including certificates and photos.

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