ImmunoTools *multiplex* Award 2014

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Identification of cytokine-signatures in multiple sclerosis: early diagnosis and prediction of progression

Multiple sclerosis (MS) is a chronic inflammatory, demyelinating disorder of the central nervous system and the leading cause of neurological disability in young adults with a high socio-economic impact. MS causes physical symptoms like mobility limitations, vision problems, cognitive dysfunction, fatigue, pain and problems with coordination.

It is characterized by a heterogenic and complex pathophysiology with various types of disease manifestation and individual progression of disease. In most cases but not all the clinically isolated syndrome (CIS) as the first single clinical event preludes a clinically definite MS (CDMS).

MS results from a complex interaction between environmental factors, the genetic background that defines individual susceptibility, and the immunological and physiological setting of the individual. This makes the MS scenario unique for each patient with many molecular pathways involved leading to a multitude of pathological phenotypes. Defining clinical endpoints like disease manifestation, progression and recovery is rather difficult. Thus, diagnosis and prognosis are time consuming and challenging. But an early diagnosis of MS and the correct prediction of CIS turning into CDMS are most important for an optimal treatment and therapy-outcome. So, there is an urgent need for research regarding the identification of biomarkers supporting diagnosis and prognosis.

A promising approach in defining biomarker panels for disease manifestation and progression is the closer investigation of cytokines. In most previous studies only single cytokines were analyzed for their potential as biomarkers. I think that the parallel assignment of global cytokines will help to identify signatures specific for MS and the individual prognosis of the patient.

Hence, I want to analyze plasma (easy availability) and liquor (close proximity to the CNS-lesions) samples of CIS patients with the help of the *multiplex array* for human cytokines to identify protein-signatures specific for the disease to support physicians in diagnosis and therapy-decision.

ImmunoTools *multiplex* AWARD for **Brit Fitzner**

includes free analysis of samples on several antibody arrays with large range of antibodies against human CDs, human cytokines, and others ...