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## TITLE

### Antibody-Proteases: Predictive and Preventive Tools

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Most of autoimmune diseases are preceded by a subclinical (symptom-free) stage in which the patients or persons at-risks could be identified by the presence of autoantibodies (autoAbs). Ab-proteases hydrolyze the antigenic (Ag) substrate in a specific manner while occurring in organ-related autoimmunity conditions.

Anti-MBP autoAbs from MS patients and mice with experimental autoimmune encephalitis (EAE) were found to exhibit sequence-specific cleavage of MBP. The activity of Ab-proteases markedly differs: (i) between MS patients and healthy controls, (ii) among MS patients with different types of the clinical course and (iii) among MS patients with different scales of disability. Bursts of the Ab-associated proteolytic activity have been confirmed at the pre-early stages of the exacerbation to predict the latter, or prior to changing type of the clinical course, i.e., from a remitting type into the progradient one.

The pattern of Ab-mediated proteolysis of MBP illustrates six sites of preferential proteolysis to be located predominantly within the immunodominant regions of the targeted MBP; two of those sites falling into the highly encephalitogenic sequence that proved to be a specific inducer of EAE. 28% of the direct relatives are seropositive for Ab-proteases. 50% of the seropositive relatives have been demonstrating stable growth of the Ab-associated proteolytic activity to reach levels close to the patients' one when the first (pre-early onset) MRI-manifestations had been identified.

Ab-proteases may serve as biopredictors to monitor subclinical stages of MS to predict the outcome and as a promising target for newer therapeutic tools to produce preventive therapeutic effects at subclinical stages of MS.

#### Biography

Dr Sergey Suchkov, male, professor in immunology, graduated from the Astrakhan State Medical University, Russia, in 1980. He worked for Inst for Med Enzymology in 1983-1988, Inst of Developmental Biology, Russian Academy of Sciences in 1988-1989, Helmholtz Inst of Eye Diseases in 1989-1995, and for Moscow Regional Clinical Research Inst in 1995-2004. Since 2005, he has been Prof. of I.M.Sechenov First Moscow State Medical Univ and Moscow State Medical & Dentistry Univ. He has published more than 500 papers and got 3 awards for science from Russian Academy of Sciences, American Biographical Inst and International Biographical Centre. He is known as a co-author of concepts of: (i) post-infectious and cancer-associated clinical and immune-mediated syndromes, (ii) catalytic antibodies and their impact in autoimmunity, and (i) Predictive and Preventive Medicine.