to affection as neurons and the glia cells which are responsible for neurons 
trophies, conduction of nervous impulse, processes of irritation and inhibition 
of neurons. This autoimmune reaction entailed by destruction of axon 
membrane and glia cells producing myelin. Many patients in all studied 
groups were sensitized to Gal-C.1. It defined an involvement of external 
membranes of myelin and olygodendrocytes where galactocerebrosides are 
localizing in pathological process.

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The cerebroprotective effects of Semax and Selank in primates at 
different types of neurosis

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t It is known that at stresses, the immune system and its interactions with 
nervous and endocrine systems are disturbed (Leonard 2000). At present the 
great role of brain function disturbances correction belongs to biologically 
active peptides such as Selank (Sel) and Semax (Sem). The newly obtained 
data show that Sel has immunomodulatory features (Myasoedov 2007). It has 
been shown, that the application of Sem and Sel exerts positive therapeutic 
effect in different neurological diseases. There are no data on cerebroprotective 
effects of Sem and Sel in primates. The present work is devoted to the 
study of Sem and Sel role in the compensation of mentally disturbed (mnestic, 
cognitive) and vegetative functions in primates (Macaca mulatta).

The experiments were performed in two series. The first series was made with 
freely moving animals, while the second one used monkeys placed into 
primatological chair with multiparametrical registration of objective (EEG, 
vegetative and motor) components of Higher Nervous Activity. It has been 
established that in monkeys the compensatory effects of drugs are dose 
dependent, being more effective with intranasal administration and having 
differential effects at various types of neurosis. It has been shown that the 

In conclusion, the results demonstrate high efficacy of IT+AHSCT in MS 
patients. Further studies should be done to establish the best timing for 
transplantation and to validate treatment regimens.

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Immunosuppressive therapy (IT) with autologous hematopoietic stem 
cell transplantation (AHSCT) as a new treatment modality in 
multiple sclerosis (MS)

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It is well known that stressful life events trigger neurotransmitter changes 
in the brain providing biological links between stress and the changes in 
endocrine, immune and neurotransmitter system. But the link of immune 
system with cognitive disorders in the development of various mental 
disorders is still not clear. Based on investigation of parameters of the immune 
system, the results of psychological study and multifractal ECG analysis, we 
try to point some biological peculiarities of patient with progressive forms of 

schizophrenia and schizotypic disorders.

An immunological investigation was carried out with 54 schizophrenic 
patients. Distribution in groups according to the disease forms of the ICD-10 
was as follows: paranoid schizophrenia (F 20.0) — 22 patients, simple form of 

schizophrenia (F 20.6) — 15 patients, schizotypal disorder (F 21) — 11 
patients, and schizoaffactive disorders (F 25) — 6 patients. The control group 
was constituted by patients’ relatives — 22 persons.

In previous study it was shown that the multifractal analysis of 1/ f
EG rhythms fluctuations may be a very effective and promising method for the 
clinical evaluation of schizophrenia and schizophrenic disorders. So we 
supposed that other biological markers could correspond to this item.

The immunological status evaluation was performed over the following 
parameters: 1) number (in percent) of subsets of lymphoid cells — CD3; CD4; 
CD8; CD20; immunoregulatory ratio (CD4/CD8); 2) concentration of immu

noglobulins of classes A, G, M; 3) activity of neutrophils-cells — NBT-test 4) degree of 
lymphocytes sensitization to neuropspecific antigens (S-100 protein, neuronal 
membranes protein, myelin basic protein, galactocerebrosides of C-1 type).

Schizophrenia is characterised by neuroimmune disturbances including both 
general disturbances and those characteristics of the corresponding form of 
schizophrenia. General alterations characteristics can comprise: by 
pathology of biological membranes (neuronal membranes, external mem

branes of myelin and olygodendrocytes, sheaths of axons and glial cells), redox 
processes disbalance in neutrophyles, global change of immunity (cellular and 

humoral branches), trophic function of neurons, afferent conductivity and 

During the last decade IT+AHSCT has been used with increasing frequency 
as a therapeutic option for MS patients. The goal of our research was to study 
long-term treatment outcomes in MS patients after IT+AHSCT.

Fifty-six patients with different types of MS (secondary progressive SP — 27,
primary progressive PP — 10, progressive-relapsing PR — 1, relapsing-
remitting RR — 18) were included in this study (mean age — 32.0, range: 17–
51; male/female — 22/34). Median EDSS at base-line was 6.0 (range 1.5–8.0).

The median follow-up duration was 18 months (range 6–84 months).

Neurological evaluation was performed at baseline, at discharge, at 3, 6, 9,
12 months, and every 6 months thereafter following IT+AHSCT: MRI 
examinations — at baseline, at 6, 12 months, and at the end of follow-up. 

No transplant-related deaths or unpredictable severe adverse events were 
observed. All of 45 patients included in the efficacy analysis experienced 

improvement (n = 26) or clinical stabilization (n = 17). Among the patients with 

improvement there were 15 SPMS, 4 PPMS, 8 RRMS, and 1 PRMS. Among the 

patients with stabilization there were 9 SPMS, 4 PPMS, and 4 RRMS. Two 
patients (SPMS and PPMS) deteriorated to a worse score after 18 months of 

stabilization; 2 others (SPMM and RRMS) progressed after 12 and 30 months 
of improvement. Results of MRI scans were available in 37 patients. Sixteen 
patients (43.3%) had active lesions at baseline and all turned to inactive status 
except two cases. Of the 21 patients without active lesions pretransplant 20 
remained inactive; one patient showed disease activity after transplantation.

No active, new or enlarging lesions were registered in patients without 
disease progression. All the patients without disease progression were off 
therapy throughout the post-transplant period.

In conclusion, the results demonstrate high efficacy of IT+AHSCT in MS 
patients. Further studies should be done to establish the best timing for 
transplantation and to validate treatment regimens.

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