## INFLUENCE OF AZACROWN-ETHER WITH NOOTROPIC ACTIVITY AND PIRACETAM ON PROTEIN METABOLISM IN RAT BRAIN.

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The influence of azacrown ether(amino-acid derivatives of diaza-18-crown-6) and Piracetam on protein metabolism in different parts of rats brain according to the intensities of the inclusion of labelled H-leucine and S-methionine amino acids was studied. In previous experiments was shown that azacrown-ether (CEAA) provokes a stimulating effect on learning and memory and has antiamnestic activity. CEAA (25 mg/kg) and Piracetam (400 mg/kg) were administered peroraly to the rats during 7 days. It was found that administration of CEAA resulted in the increase of the specific content of proteins in the majority of the studied brain regions while Piracetam statistically increased the total protein content only in hippocampal formation. Under the effect of CEAA and Piracetam the increase of S-methionine into the proteins of cerebral neocortex and hippocampal structure are observed. The activating effect is mostly expressed by CEAA. The obtained results prove the suggestion that CEAA and Piracetam influence on the indices of protein metabolism in CNS.

## PRECLINICAL STUDY OF PICAMILON AND BENZAFLAVINE

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One of trends in search of new pharmaceutical agents based on vitamins is chemical modification of well-known vitamins. New drugs differ from vitamins by new, various pharmacological properties, that have no connection with vitamin action. Exhibiting cerebrovascular and nootropic activity PICAMILON was synthesized on the base of GABA and nicotine acid. In experiments it influences on cerebral circulation: decreases blood vessels tone and increases intracranial circulation rate. In small doses picamilon prevents negative results of emotional stress. It depresses motivative aggression like diazepam. Its tranquilizing effect hasn't sedative component, but with elements of stimulant action. The drug rehabilitates overstrain working capacity. New original drug BENZAFLAVINE based on vitamin $B_2$ was also synthesized at NPO "Vitamins". It can be kept into organism over a long period of time and it has been metabolized with formation of flavine coenzymes more quickly, than vitamin $B_2$. In experiments Benzaflavine has prolonged $B_2$-action, anticoagulant activity, strongly pronounced antiatherosclerotic hypoglycemic and hepatotropic effects.

## EXPERIMENTAL STUDY THE EFFECTS OF SELECTIVE CATECHOL-O-METYLTRANSFERASE (COMT) INHIBITORS ON LEARNING AND MEMORY.

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The effects of new selective catechol-O-methyltransferase (COMT) inhibitors entacapone (mainly peripherally acting compound) and tolcapone (working both in the peripheri and the brain) on normal and experimentally impaired cognitive functions (learning and memory) were studied in aversively motivated inhibitory avoidanse in young adult rats. Memory was impaired by either scopolamine (1.0 mg/kg) or bilateral lesions to nucleus basalis magnocellularis caused by infusions of ethylcholine aziridinium (AF64A). Entacapone administered once before training (30 mg/kg) or before retention test (10 or 30 ms/kg; 24 h after training) prevented the memory disruption caused by scopolamine. Entacapone also delayed extintion process when gevin before retention test (10 or 30 mg/kg; scopolamine amnesia or after training (30 mg/kg; intact memory). Tolcapone alministered once before training (3 or 10 mg/kg) or before retention test (24 h after training) improved memory disturbed by scopolamine or bilateral nucleus basalis lesion. It improved the memory of the control rats when given after training (10 mg/kg). Tolcapone also delayed memory extinction when given before retention test (3 or 10 mg/kg). The results indicate that entacapone and tolcapone improve cognitive functions at several phases of learning and memory processes such as acguisition, retrieval and delayed extinction. COMT inhibitors had a weak effect on consolidation of disturbed memory

## A NITRIC OXIDE SYNTHASE INHIBITOR IMPAIRS MEMORY STORAGE IN MICE.

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Post-training administration of the competitive inhibitor of nitric-oxide synthase, L- nitro -arginine methyl ester (L-NAME, 3 - 100 mg/kg, ip) impaired 48 h retention, in male Swiss mice, of a one-trial step-through inhibitory shock-avoidance task. The effects were dose-dependent, and were not observed when the D-enantiomer (3 - 100 mg/kg, ip) was injected instead of L-NAME. Retention latencies of mice that had not received a footshock during training were not affected by L-NAME. The memory impairment produced by L-NAME (100 mg/kg, ip) was time-dependent, and was not based on the induction of state-dependency, suggesting an action on memory storage. The effects of L-NAME (100 mg/kg) on memory were overcome by the injection of L- (but not D-) arginine (300 mg/kg, ip) along with the inhibitor. Considered together, these findings suggest that the L-arginine/nitric oxide pathway may be involved in memory storage.