in higher concentrations (>10 microM) had the cell damaging effect in both UN- and RA- SHSY5Y cells. This study indicates that agonists of mGluRs II/III have potential to attenuate cell death evoked by staurosporine - a well recognized inducer of apoptosis.
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SI-P15
Zinc as early neurotoxic signal in cholinergic SN56 neuroblastoma cells

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Preferential loss of septal cholinergic neurons is a main cause of cognitive deficits in various encephalopathies. Zinc excess is one of multiple pathologic signals contributing to mechanisms of Alzheimer's and other neurodegenerative diseases. We suggest that zinc may be involved in early excitotoxic phase of neuronal injury. In homogenates of SN56 cholinergic neuroblastoma cells, Zn caused instant inhibition of pyruvate dehydrogenase (PDH), aconitase, isocitrate dehydrogenase (IDH) and ketoglutarate dehydrogenase (KDH) activities with Ki values equal to 0.08, 0.008, 0.005 and 0.005 mM, respectively. Short term, 30 minute exposition to Zn caused a concentration dependent increase in mortality of cAMP/retinoic acid differentiated SN56 cholinergic cells (DC) that was two times higher than that of differentiated ones (NC). Zn also decreased cytoplasmic acetyl-CoA as well as ACh content and inhibited its release. Exposition of DC and NC to increasing concentrations of Zn yielded concave up non saturable accumulation plots that reached level of 60 nmol/mg protein at 0,15 mM extracellular concentration of a cation. In these conditions no change in whole cell Ca level was observed. However the level of intramitochondrial Ca was decreased by 30%, at 100 % increase of cytoplasmic Ca. Significant, direct correlation between Zn accumulation and cytoplasmic Ca concentration ($r=0.97$, $p=0.028$) and the inverse one with mitochondrial Ca ($r=-0.96$, $p=0.028$) were found, respectively. On the other hand, 24 h cell exposition to 0,15 mM Zn increased its intracellular content from 1.4 to about 6 nmol/mg protein at simultaneous 40% decrease of whole cell Ca level. Zn caused no significant changes in the density of ZnT1 and ZnT4 transporter proteins in the cells. Presented data indicate the coexistence in SN56 cell plasma membranes low density - high-affinity and high density - low affinity Zn-transporting sites. Inhibition of mitochondrial Na-Ca exchanger by accumulated Zn might cause depletion of Ca in mitochondria. In addition chronic exposition to Zn apparently induced adaptative mechanisms eliminating excess of the metal from the cells. These changes may directly inhibit intramitochondrial acetyl-CoA synthesis and its transport to cytoplasmic compartment, yielding impairment of cell viability and suppression their transmitter functions.

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SI-P16
Biochemical changes in the brain of rats with different resistance to hypoxia exposed to cadmium toxicity

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Individual resistance to hypoxia is one of the cardinal features of the mammalian body. This resistance is closely related with different enzymatic activity system of metabolizing xenobiotics, in particular, the activity of cytochrome P450 and microsomal oxidation system of liver. Low and high resistance to hypoxia may be an important criterion in the individual approach to the pharmacotherapy of diseases associated with conditions of hypoxia, and can also be used to predict and prevent early and long-term complications of drug therapy. The goal of the study was to estimate the effect of cadmium (II) chloride intoxication, on the activity of some metabolic enzymes (alanine transaminase ALT, aspartate transaminase AST, lactate dehydrogenase LDH and succinate dehydrogenase SDH), and the levels of lipid and protein oxidation processes in the brain of male rats with different resistance to hypoxia. The results suggest that the activity of metabolic enzymes (AST, LDH, SDH) is higher in animals presenting low resistance to hypoxia in the control group, and thus can serve as a compensatory reserve mechanism under unfavorable environmental conditions. However, rats with high resistance to hypoxia display an increased tension of regulatory mechanisms and a decreased ability of antioxidant system, which results in the activation of lipid and protein oxidation precesses under cadmium intoxication. Conclude, the cadmium intoxication decreases the activity of ALT in rats with high resistance to hypoxia, whereas the activity of AST and LDH is higher in the brains of cadmium-exposed rats with low resistance to hypoxia.

SI-P17
The group III metabotropic glutamate receptor agonists attenuate neuronal cell death in primary cortical cultures exposed to oxygen-glucose deprivation

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Oxygen-glucose deprivation (OGD) induces excitotoxic cell death mediated primarily by excessive release of glutamate. A growing body of evidence suggests that metabotropic glutamate (mGlu) receptors can modulate glutamatergic transmission, so these receptors are regarded as potential targets for neuroprotective drugs. Group III mGluRs (mGlu4, mGlu6, mGlu7 and mGlu8) agonists are known to reduce glutamatergic neurotransmission by inhibiting