

**Support for the  
Committee for Aid and Education in Neurochemistry (CAEN)  
Report**

**CATEGORY 1B: Research supplies for use in the applicant's home laboratory**

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**Current Position:** Senior Researcher

The aim of the proposed investigation was to study the effects of crude *MLO* venom in a rat model of Alzheimer's disease, as well as the molecular mechanism was investigated. Histochemical, electrophysiological examination was utilized to investigate the neuroprotection effects of crude *MLO* venom. In addition, western blot, PCR was applied to elucidate the mechanism of crude *MLO* venom. The rats are injected with A $\beta$  25-35 amyloid intracerebroventricular (ICV) A $\beta$  25-35 in combination with the intramuscular injection of *MLO* venom (5 % solution of LD 50 dose, 50 ml, per animal seven times at intervals of 1 day). The phosphatase activity has sharply dropped in the A $\beta$  -induced rats in the hippocampus. The most vulnerable neurons have been in the field of the CA1 and CA3. The results of the study have shown that systemic administration of small doses of viper's *MLO* venom has had positive changes in the structural properties of neurons, increased metabolism, enhanced Ca<sup>2+</sup> -dependent phosphorylation processes, also the density of neurons were increased in the CA1 and CA2 fields which determines cell survival. *MLO* venom increases the rate of TD-PTP responses after high frequency tetanic stimulation of ipsilateral entorhinal cortex. Overall increase in firing rate of hippocampal neurons can contribute to recovery processes after A $\beta$  -induced neurodegeneration in hippocampus. Thus, *MLO* venom could reduce neuronal cell death and afford neuroprotection to rat brain.

The fund was spent on the obtaining the following chemicals:

- Chemicals for the histochemical and electrophysiological experiments
- Protease inhibitor cocktail (Roche)
- 1% Triton X- 100
- NuPAGE reducing agent (Invitrogen)
- NuPAGE LDS Sample buffer (Invitrogen)
- 4-12% NuPAGE Novex Bis-Tris Mini Gels (Invitrogen)
- ColorPlus prestained protein ladder (BioLabs)
- Nitrocellulose membrane (NC) (GE Healthcare, 0.45  $\mu\text{m}$ )
- Pierce Western Blot signal enhancer (Thermo Scientific)
- Casein (Roche)
- Chemiluminescent HRP substrate (Millipore)
- A $\beta$  25-35 amyloid protein fragment
- Primary and secondary antibodies

The main purchase was PerfectBlue Tank Electro Blotter Web S Western Blot (PEQLAB, Germany).