TOXICOLOGICAL EVALUATION OF ANTIMICROBIAL MARINE PROTEIN FROM *Pseudoalteromonas* sp

Ruth López, *, Víctor Monteón, Rolando García, Oscar Hernández; Centro de Investigaciones Biomédicas, Universidad Autónoma de Campeche. Campeche, México 24090; dzinup@hotmail.com

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Introduction. The bacterial genus *Pseudoalteromonas*, produce marine compounds that comprise a great variety of chemical pharmaceuticals such as antimicrobial, antitumor, cytotoxic and anti-inflammatory agents. Some of them may be proteins of low or high molecular weight (1). The early toxicological assessment of chemical pharmaceutical prospects is becoming a critical need in the development of new drugs (2). The ability of test chemicals in order to increase or maintain efficacy while reducing the potential toxic effects can provide greater efficiency and safety in the therapeutic management of drugs.

A study was performed to investigate the cytotoxic and neurotoxic effect of a marine antimicrobialprotein from *Pseudoalteromonas* bacterium.

Methods. Antimicrobial protein from crude extract of marine bacterium *Pseudoalteromonas* sp was purified by ion exchange chromatography. Minimum inhibitory concentration (MIC) and potency against *Staphylococcus aureus* ATCC 25923 were determined by micro dilution method. Assays of cytotoxicity *in vitro* was performed in HeLa and Vero cell cultures in the presence of 1 mg/L of antimicrobial protein at 24, 48 and 72h by diphenyltetrazolium bromide reduction. Neurotoxicity assay. It was performed in anesthetized mice sterotaxically implanted with stainless steel electrodes. Visual evoked potentials of the cerebellum and visual cortex was recorded in treated animals with antimicrobial purified protein and controls in free-behavior. The protein administration was performed via intra peritoneal.

Results. MICs are used as a research tool to determine the "*in vitro*" activity of new antimicrobials. In this study the MIC of marine antimicrobial protein was 0.1 mg/L similar to vancomycin although less potency (Fig. 1). In the cytotoxic assays on Vero and HeLa cell cultures the purified antimicrobial protein did not affect rate of growth, viability and cell morphology.

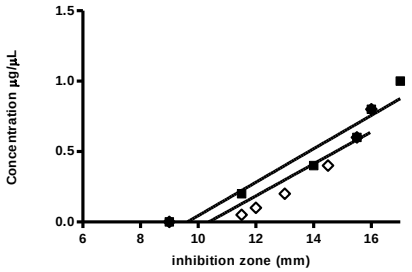

Fig. 1. Antimicrobial potency ■ Antimicrobial marine protein ◊ Vancomycin.

On the other hand, visual evoked potentials showed differences in the amplitudes, but latencies did not (Table 1). This probably suggests no toxicological effect of antimicrobial protein on information processing. Even though, the amplitude could be involved in the process of transmitting information.

Table 1. Visual evoked potentials of the cerebellum and visual cortex from mice.

Structure n=9	**Latency pre-inyec (mseg ±ee)**	**Latency post-injec**	**Amp. pre-injec (µV ±ee)**	**Amp. post-injec**
Cerebellum	96.49 ± 2.71	91.76 ± 2.03	20.01 ± 1.19	16.09 ± 0.82[a]
				p<0.001
Visual cortex	89.37 ± 2.14	86.30 ± 1.93	18.16 ± 1.00	13.74 ± 0.84[b]
				p<0.003

Conclusions. The purified protein did not show cytotoxicity or neurological alteration.

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