

Liposome and bee venom interactions

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Liposomes increase the therapeutic index, decrease toxicity and side effects of encapsulated drugs. In addition, in vaccine formulations they have been used as adjuvants. Venom immunotherapy could profit from bee venom encapsulation within liposomes. However, bee venom mellitin and phospholipase destroy phospholipid membranes. Our central idea[®] was to inhibit these enzymatic activities (with pbb, para-bromo-phenacyl bromide and/or NBS - N-bromosuccinimide) to make possible their encapsulation. Strong indications that this formulation will be immunogenic and non-toxic are available. We have characterized the modified bee venom interaction with liposomes. The enzymatic activities were measured indirectly by changes in turbidity at 400 nm. Liposomal membranes containing pbb as a component were shown to be protected from aggregation and fusion. Membranes containing pbb maintained the same turbidity value (100%) even after incubation with modified venom and the venom hemolytic activity was completely inhibited after venom modification with pbb and NBS. In contrast pbb free membranes showed a 15% of size decrease. This size decrease taken together with a 50% Rhodamine leak out was a good indication for membrane degradation. The use of modified bee venom within liposomes presents good perspectives for an increase in venom immunotherapy efficacy. **Grants:** FAPESP (02/07293-9, 05/04514-2, 06/04088-6, 04/10067-6) and CAPES.