Epitope Mapping and Mimotopes Obtaining that Reproduce the Immunogenic Response of Neuwiedase Toxin Snake Venom

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Peptides derived from a phage display library may mimic essential features of epitopes (mimotopes), including their immunogenicity. A recombinant peptide library of 12 amino acids displayed on the phage capsid was used to obtain peptides that mimic epitopes of antigens that are reactive to specific polyclonal antibodies anti-neuwiedase (NEU), a toxin from *Bothrops neuwiedi* snake venom. These polyclonal antibodies are protective against NEU activity and were used as target for the peptide library biopannings, resulting in the selection of 80 peptides. Antibody-binding epitopes were obtained by sequence alignment with the primary and tertiary structures of the NEU protein. The immunogenicity of the mimotopes mixture were confirmed by immunization of BALB/c mice and ELISA tests. The NEU toxin is an important antigen that has many common structural regions to several toxic venom metalloproteinases, in which two epitope regions have been detected. The two mapped epitopes were found in primary sequences of several snake venom toxins, thus demonstrating the potential application of these NEU mimotopes as possible antigen components that are toxicity free.

Keywords: Mimotope; Phage display; *Bothrops neuwiedi*; Metalloproteinase.

Support: Capes, Imunoscan, CNPq, UFU