COMBINING BIOINFORMATIC AND EXPERIMENTAL APPROACHES TO MAP A NEUTRALIZING EPITOPE ON THE *Loxosceles intermedia* PROTEIN 1 (LiD1)

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Bites of the spider *Loxosceles sp* lead to dermonecrotic and systemic effects in humans. The group of dermonecrotic factors is responsible for their toxic activity. The monoclonal Limab7 was able to neutralize dermonecrotic activity. We combined bioinformatics and biological experiments to identify the epitopic region of the *Loxosceles intermedia* dermonecrotic factor (LiD1) bound by Limab7. To that end, sets of immobilized 15- mer overlapping peptides covering the complete amino acid sequence of LiD1 were synthesized and their reactivity with Limab7 measured. No reactivity was observed. By using a peptide phage-display technology, we selected four different peptides (mimotopes) able to bind to Limab7. They, however, showed no apparent similarity with the LiD1 sequence, indicating that epitope residues are non contiguous. The mimotopes sequences were then analysed by MIMOP. This analysis disclosed nine amino acids at the surface of LiD1 as likely candidates for the epitopic region. Two residues belong to the active site of LiD1, which is consistent with the neutralizing properties of Limab7. In order to validate this epitope prediction, we are now performing site-directed mutagenesis of six different amino acids of the LiD1 protein.