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## Loxosceles spider bites envenomation immunotherapy

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**L**oxoscelism is the condition resulting from the bite of “brown spiders” from the *Loxosceles* genus. Clinical manifestations of Loxoscelism include dermonecrosis, with gravitational spreading at and near the bite site, and to a lesser extent with systemic involvement, such as acute renal failure, intravascular hemolysis, thrombocytopenia and disseminated intravascular coagulation. The spiders of the *Loxosceles* genus have a worldwide distribution and accidents have been described on all continents. The spider species *Loxosceles intermedia*, *Loxosceles laeta* and *Loxosceles gaucho* are a group of arachnids with medical importance in the South and South-east of Brazil. The number of human accidents caused by spiders of *Loxosceles* genus in Brazil amounts to almost 7000 annually. Several protocols for the treatment of *Loxosceles* envenomation have been proposed and tested. However, the use of antivenom, which requires the use of innumerable animals for production and test, is the only treatment available that can effectively neutralize the action of the venom. The aim of this work is to find alternatives to antivenom production. Alternatively to the use of the whole venom, our group showed that effective anti-*Loxosceles* antivenom could be produced by immunization with a recombinant SMase-D toxin (rLiD1), the major dermonecrotic toxin from this venom. Moreover, we observed that linear and conformational epitopes mapped from rLiD1 from *L. intermedia* venom induced antibody responses that efficiently neutralize the toxic effects of these venoms. In addition, our group produced a neutralizing monoclonal antibody able to recognize the venoms of three major medically important species of *Loxosceles* spiders in Brazil. These results show the potential usefulness of monoclonal antibodies for future therapeutic approaches and also open up the perspective of utilization of these antibodies for immunodiagnostic assays in loxoscelism.

### Biography

Liza Felicori is Associate Professor at Federal University of Minas Gerais (UFMG), in Brazil. She has experience in immunology, toxicology, structural biology, bioinformatics, design and synthesis of peptides to diagnosis and therapy and in pathways modeling and artificial systems generation (systems and synthetic biology). She is the Head of Synthetic Biology Laboratory at Biochemistry Department of UFMG and has published more than 20 papers in reputed journals.

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