

MITOGENIC EFFECT OF SCORPION VENOM PURIFIED FRACTIONS:
RELEVANCE FOR HUMAN ISLET TRANSPLANTATION AND DIABETES

Campos-Lisboa ACV¹, Grazioli G¹, Silva J², Santoro MM², KALAPOTHAKIS E² &
Sogayar MC¹

¹Chemistry Institute, University of São Paulo, SP,
²ICB, UFMG

Graft-failure is the main challenge in human pancreatic islet transplantation. The search for compounds that induce beta cells proliferation led us to study *Tityus serrulatus* scorpion venom. We previously demonstrated the mitogenic effect of the *T. bahiensis* venom crude extract in rat pancreatic beta cells (Luca, 2004), which was to be expected from the occurrence of beta cells nesidioblastosis and hyperplasia in pancreas of victims of *Tityus* bites. Our main objective is to find the active(s) principle(s) responsible(s) for induction of beta cells proliferation. The *T. serrulatus* scorpion's venom crude extract (CE) was fractionated in a C-18 reverse phase column by HPLC. Twenty-four fractions were collected and tested by ³H-thymidine incorporation into DNA in rat insulinoma RINm5f. One fraction displayed a two-fold mitogenic activity relative to the control. This fraction was chosen for molecular studies and characterization by mass spectrometry, and, also, for evaluation of its activity in human pancreatic beta cells. Complementary studies showed activity in CE venom after proteolysis with trypsin, therefore, the effective(s) component(s) may be of a protein nature, being activated upon proteolysis. Since the venom constitutes a complex molecular mixture, it is important to identify the active principle(s), which could be used, in the future, to improve the quality of human islet pancreatic transplantation in diabetic patients. FAPESP, CNPq, FINEP