Sulfotopes from trypanosoma cruzi major or minor antigenic glycoproteins, are involved in parasite infection and immunopathogenesis of experimental chagas disease

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Statement of the Problem: Chagas Disease (ChD) constitutes a major endemic health problem in Latin America. The presence of sulfate-bearing-glycoproteins has been identified in *trypanosoma cruzi*, they are targets of specific immune responses and subjects chronically infected with *T. Cruzi* mount specific humoral immune responses to sulfated glycoproteins. Cruzipain (Cz), a major antigen. Containing a C-terminal domain (C-T) is responsible for the immunogenicity of the molecule in natural and experimental infection synthetic anionic sugar conjugates containing N-acetyl D glucosamine-6-sulfate (NAcGlc6-SO3) mimics the N-glycan-linked sulfated epitope (sulfotope) displayed in the C-T. IgG2 antibody levels specific for sulfotopes are inversely correlated with chagas disease severity. Another sulfated glycoprotein with serine carboxypeptidase (SCP) activity was studied.

Methodology & Theoretical Orientation: Native SCP co-purifies with Cz from Concanavalin-a affinity columns. The Cz-SCP mixture was desulfated, ascribing the cross-reactivity between both molecules to the presence of sulfated groups. SCP-N-glycosydic chains were analyzed by UV-MALDI-TOF-MS. Immunoblotting of lysates from the different parasite stages were confronted with SO3-specific antibodies; *in vivo* effects of sodium chlorate on Cz-sulfation and tissue damage in C-T-immunized-mice muscle-tissues were evaluated.

Findings: I) The presence of short-sulfated high-mannose-type oligosaccharidic chains was confirmed in SCP II) Sulfotopes participate in trypomastigotes infection of cardiac cells iii) Sulfotopes generate muscle tissue damage in BALB/c mice, in absence of infection iv) sulfotopes from Cz and other Sulfated glycoproteins participate in parasite infection and immunopathogenesis v) Sulfotopes and their specific antibodies are responsible for the ultra-structural abnormalities observed in the outcome of the experimental ChD disease vi) A band with apparent molecular weight similar to SCP was highly recognized in trypomastigotes vi) SCP is a minor antigen recognized by most of chronic-Chagas-disease-patient´s sera.

Conclusion & Significance: The shared sulfotopes between Cz and SCP, and the enhanced presence of sulfotopes in trypomastigotes are involved in parasite-host relationship in immunopathogenic and infection processes.

Biography

Vilma G Duschak, Doctor in Biochemistry (1989) UBA. CONICET Researcher, Argentina since 1994. Post-grade in Medicine Chile University (1990); Cooperation: Instituto-Cs-Biomedicas- San Pablo-University-Brasil (2005) Universite-Jules Verne-Amiens- France (2007) Bernhard Notch Institute of Tropical Medicine, Hamburg, Germany (2010-2011). Editorial Advisory Board Member, Bentham Science Publishers, USA. Awards and distinctions: 6 Publications: more than 40 Assistance to more than 100 National and international congresses. Directed Thesis: 5 Roche Diagnostics International Meeting experts, New York, USA (2016). Evaluator of research projects from ANPCyT, CONICET and UBA (Argentina), OTKA (Hungary) and European Union international projects, Brussels (2018).