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## Integrating bioinformatic analyses and omics approaches for cloning and recombinant production of major allergens from *Polybia paulista* venom

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A ccidents by sting of *Polybia paulista* (Hymenoptera: Vespidae) are common on southeastern states of Brazil. After stung, patients could suffer local and or systemic immunologic reactions including anaphylaxis that causes fatal cases. Despite of the great number of native wasp species identified on Brazil, allergy diagnosis is based on the use of crude venom extracts as no recombinant forms of venom allergens from these species are available. Analyses of proteome data from *P. paulista* venom combined with the use of bioinformatic tools and omics approaches were used to clone the three major wasp venom allergens: phospholipase A1 (Poly p 1), hyaluronidase (Poly p 2) and antigen 5 (Poly p 5). Poly p 1 and Poly p 2 were expressed as insoluble but immunological active proteins using *E. coli* system. Further analyses were performed in order to optimize solubilization and purification processes of both proteins. Poly p 2 was also expressed as a soluble allergen using *P. pastoris* system. Immunological assays showed that the purified recombinant forms of Poly p 1 and Poly p 2 recognized sera patients allergic to *P. paulista* venom allergy by decreasing the incidence of cross-reactivity. Also, these results reinforced the validity of combine venom proteome, genome and transcriptome analyses along with the use of bioinformatics tools to finally produce recombinant allergens that can be used on development of component resolved diagnosis.

## Biography

Amilcar Perez-Riverol has completed his BSc at the University of Havana; School of Biology (2007), Cuba. He is a professor at the University of Havana; School of Biology (since 2012) and holds an MSc in Microbiology (2012) degree from the same school in collaboration with the Institute for Tropical Medicine of Havana (WHO Collaborating Center). He is pursuing his PhD at the Sao Paulo State University, Brazil working with molecular characterization of insect venoms and recombinant allergens production. He has published articles in both national and international refereed journals and presented his works in more than 10 international conferences.

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