Lecture 6. S. **Frédérique Brenière** (IRD-MIVEGEC, France)

Chagas disease: why wild populations of *Triatoma infestans* are dangerous for the health?

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Introduction: Recently, the epidemiological role of wild populations of Triatoma infestans was questioned in term of re-infestation reported in several Andean and non-Andean regions despite successful campaigns of the INCOSUR.

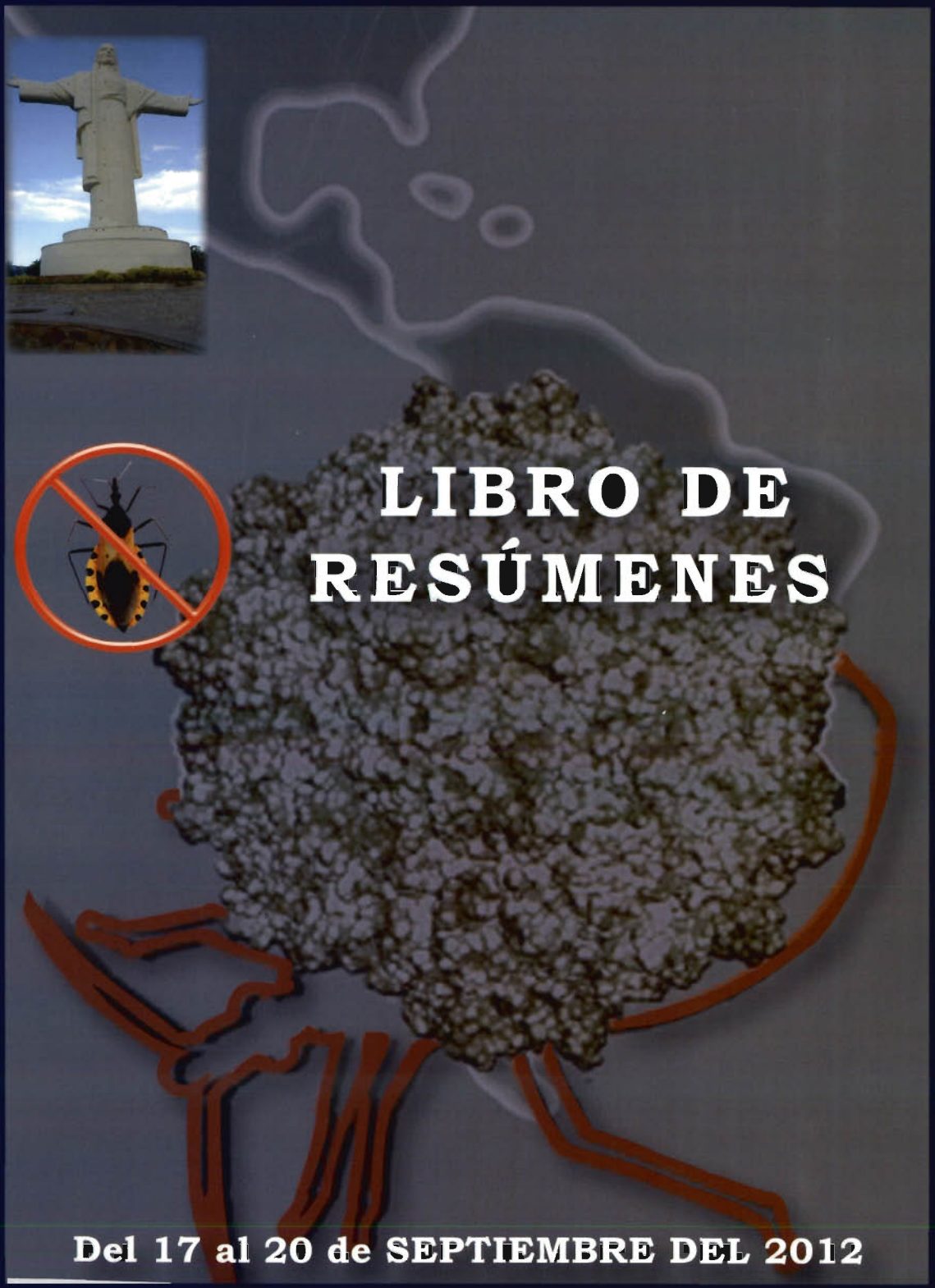
Objectives: The program TiBo (founded by ANR, 2008-2011, No 3624) developed by a consortium of French-Bolivian researchers from IRD, INLASA and IIBISMED institutions, was aimed to define the geographic distribution of wild populations of T. infestans, evaluate their role in the re-infestations of the human habitat and assess the degree of man-vector contacts.

Methodology: It was based on (i) entomological surveys throughout the endemic area of T. infestans in Bolivia and (ii) molecular analysis by gene sequencing of the vectors (ITS-2 and Cyt b), their food sources (Cyt b) and parasites (PCR multiplex mini-exon gene and Gpi).

Results: New data concerning the wild populations of T. infestans were (i) a broad distribution in two ecoregions "Inter Andean Dry Forests" (Andes) and "Gran Chaco" (GC, lowlands), (ii) populations very often close to human habitat, (iii) a high rate of infection by Trypanosoma cruzi in the Andes, and lower in GC, (iv) significant movements of T. infestans between wild and domestic biotopes in the Andes, (v) hight rate of human food sources of bugs (vi) resistance to insecticides of some Andean populations.

Conclusions: The Southern Cone countries are in front of a new paradigm in the fight against Chagas disease that must take into account the wild populations of T. infestans because its distribution is much more extensive than initially observed. Also, the re-infestation of the human habitat in the Andes by wild populations is more likely probable. Furthermore, these wild populations are dangerous because they are highly infected with T. cruzi, they can also bite the man in wild biotopes; moreover, some populations are resistant to deltamethrin. In the Gran Chaco, wild populations are not involved in the re-infestation, rather, phenomena of deltamethrin resistance and other factors are responsible.

II WORKSHOP INTERNACIONAL DE LA ENFERMEDAD DE CHAGAS, VECTORES TRIATOMINOS, *Trypanosoma cruzi* Y TRIATOMA VIRUS



LIBRO DE RESÚMENES

Del 17 al 20 de SEPTIEMBRE DEL 2012

COCHABAMBA - BOLIVIA

II International Workshop on Chagas Disease, triatomine vectors, *Trypanosoma cruzi*, and Triatoma virus

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In memoriam of Dr François Noireau

Facultad de Medicina, IIBISMED-CUMETROP, Universidad Mayor de San Simón, Cochabamba, Bolivia

September 17-20, 2012

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Workshop objectives

• To inform interested stakeholders about the current Chagas disease burden and control strategies.

• To discuss current and future methods and technologies oriented to control triatomines and other insect vectors.

• To get feedback from associations, industry sector, and research organizations about using *Triatoma* virus as biological control agent.

• To assess research needs and cooperation opportunities between scientists working on human and animal trypanosomiasis, insect vectors and viruses.

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