

## The trypanosoma cruzi infection in humans and experimental animals: Parasite-free chagas heart disease in the chicken model

**Antonio Teixeira**  
University of Brasilia, Brazil

The Trypanosoma cruzi autochthonous in America is now present in all Continents. The human acute T. cruzi infections can be asymptomatic but chronically infected individuals die of Chagas disease. The parasite mitochondrial kDNA minicircle transfer to the genome of chagasics can explain the pathogenesis of the disease; in Chagas cases with evident cardiomyopathy the kDNA minicircles integrate mainly in retrotransposons at several chromosomes, but the minicircles are detected also in coding regions of genes that regulate cell growth, differentiation, and immune responses. An accurate evaluation of the role played by the genotype alterations in the autoimmune rejection of self-tissues in Chagas disease is achieved in the crosskingdom chicken model system refractory to the T. cruzi infections. The inoculation of T. cruzi in embryonated eggs prior to incubation generates parasite-free chicks, which retain the kDNA minicircle sequence mainly in the macrochromosomes coding genes. The crossbreeding transfers the kDNA mutations to the chicken progeny. The kDNA-mutated chickens develop severe cardiomyopathy in adult life and die of heart failure. The phenotyping of the lesions reveals cytotoxic CD45, CD8 $\gamma\delta$ , CD8 $\alpha$  T-lymphocytes carry out rejection of the chicken heart. These results suggest that the inflammatory cardiomyopathy of Chagas disease is a genetically driven autoimmune disease.

### Biography

Antonio R. L. Teixeira received his MD degree from the Faculty of Medicine of the Federal University of Bahia, Brazil. From 1971 to 1974 he was a Research Fellow in Pathology at the New York Hospital, Cornell University Medical College. He trained at the L' Institut d'Imunogénétique et Cancerologie in Villejuif, France, and received his PhD Degree in Pathology from the Federal University of Minas Gerais, Brazil. Dr. Teixeira conducted Post-Doctoral studies at the National Institutes of Health, USA. His main research interest is epidemiology, clinics, and pathogenesis of the human Chagas disease. Dr. Teixeira is the founder of the genetically driven autoimmune theory in Chagas disease.

[ateixeir@unb.br](mailto:ateixeir@unb.br)