HTLV-1 study in Hemotherapy Center of Ribeirão Preto

1,2Evanda Strazza Rodrigues, 1,2Maurício Cristiano Rocha Junior, 1,2Kátia Kaori Otaguiri, 1,2Marina Tomazini Pinto, 1Virgínia Mara de Deus Wagatsuma, 1Mayra Dorigan de Macedo, 1,2Maristela Delgado Orellana, 1,2Rodrigo Haddad, 3Osvaldo Massaíti Takayanagi, 1,2Dimas Tadeu Covas, 1Simone Kashima.

Authors’ affiliations: 1- Regional Blood Center of Ribeirão Preto, University of São Paulo (USP); 2- Faculty of Pharmaceutical Sciences of Ribeirão Preto, USP; 3- Faculty of Medicine of Ribeirão Preto, USP, Brazil. E-mail: evanda@hemocentro.fmrp.usp.br

INTRODUCTION

Since 1991, the Hemotherapy Center of Ribeirão Preto has been concerned with the studies regarding the human retroviruses among healthy blood donors and patients from the Clinical Hospital. Molecular diagnostic techniques for blood-transmitted viruses like HIV-1 and HTLV-1/2 have been developed and improved in our lab. Moreover, there are several researches investigating the immune and molecular mechanisms involved in the transmission and development of HTLV-symptomatic disease.

OBJECTIVES

In 2009, our group decided to develop a molecular platform using the real time PCR for confirmatory and discriminatory diagnosis of HTLV-1/2. Suitable viral genomic region was chosen for the primers and probes and internal amplification controls (IC) was developed. Finally, all assay validation processes were carried out. This platform has been developed in partnership with Gene ID S/A company working with DNA analysis. The objective is to develop of diagnostic commercial kit HTLV-1/2 diagnosis.

Besides, microRNAs (miRNAs) functional studies have also been developed because of the fact miRNAs could be involved in HTLV-1 pathogenesis. Differently expressed miRNAs from T CD4+ lymphocytes of HTLV-1 infected asymptomatic and symptomatic individuals were compared. The results of this work will contribute to clarify the viral latency mechanisms in infected cells and the factors promoting the development of disease.

In addition, other studies have been performed for evaluation of the immunosuppression mechanisms of human mesenchymal stromal cells (MSC) on HTLV-1 infected lymphocytes and investigation of the HTLV-1 dissemination in infected individual. MSCs have a central role in hematopoiesis and powerful immunomodulation effects that control the immune cells proliferation. Therefore, we are evaluating if MSCs can be infected HTLV-1 and the functional and physiological changes that this retrovirus causes on these cells. Besides that, we are studying the gene networks involved in HTLV-1 gene modulation by MSCs.

CONCLUSION

These results can help in the treatment of the HTLV-1 infection because will allow the identification of biomarkers and therapeutic targets of the virus. The data of these studies will be useful for understanding of the involvement of the immune system in HTLV-1 infection and will contribute to examine the clinical course of the disease.

Financial support: CTC, INCTC, FAPESP, FUNDHERP and CNPq.