



MEETING ABSTRACT

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# HTLV-1 propels thymic human T cell development in “human immune system” Rag2<sup>-/-</sup> IL-2R $\gamma$ c<sup>-/-</sup> Mice

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Alteration of early haematopoietic development is thought to be responsible for the onset of immature leukemias and lymphomas. We have previously shown that HTLV-1 (Human T cell Leukemia Virus type 1) is able not only to infect immature thymocytes *in vitro* but also, through Tax expression, to alter the  $\beta$ -selection checkpoint critical for early T cell development. To further clarify the role of the natural HTLV-1 infection on human T-cell development, we developed an *in vivo* model by transplanting immunocompromised Rag2<sup>-/-</sup>  $\gamma$ c<sup>-/-</sup> newborn mice with human cord blood CD34<sup>+</sup> cells to obtain Human Immune System (HIS) mice. In these mice the development of human T cells in the thymus is fully developed within two months after human cell transplantation. Lethally irradiated HTLV-1 producing cells were then injected into these HIS mice. Herein we observed in the thymus of the infected animals an enlarged population of mature T cells when compared with the mock-infected mice. Furthermore, we noted an increased number of CD4<sup>+</sup> cells expressing CD25. Infected animals also developed, several weeks after the infection, pathological features such as splenomegaly, adenopathy, thymomas, lymphomas and leukemias in which predominate human T cells, with a large proportion of CD25<sup>+</sup> activated cells. Tax expression especially in the lymphomas and thymomas correlated with an up-regulation of NF- $\kappa$ B regulated genes. Altogether, these results underline that this HIS Rag2<sup>-/-</sup>  $\gamma$ c<sup>-/-</sup> model might be of great interest to study the

leukemogenic process induced by HTLV-1 as well as to validate new therapeutic approaches of ATL.

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