C 57 Exp. Hemat, 1981, 9, Suppl. 9. Réunion de Munich, 1981.

MONDAY 1015 - 1130

THYMIC NURSE CELLS : A SITE FOR THE INTERACTION BETWEEN RADIATION LEUKEMIA VIRUS AND THYMUS IMMATURE LYMPHOID TARGET CELLS.

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In the C57 BL/Ka strain of mice, the inoculation of Radiation Leukemia virus (Rad LV) results in the development of lymphomas wich are selectively located in the thymus. Target cells susceptible to productive infection by Rad LV belong to a restricted subpopulation of immature lymphoid cells corresponding probably to transitional forms between T cell precursors and subpopular blast cell population (Boniver et al. submitted). Therefore the possible relationship between Rad LV and Thymic Nurse Cells was investigated : TNCs are those peculiar lymphoepithelial complexes recently described by Wekerle and Ketelsen (Nature 1980 283 : 402-404) wich are supposed to sustain the first step of intrathymic proliferation and differentiation of the immature T cells precursors. By using a selective method for staining the thymus subcapsular zone with fluorescein isothiocyanate (Scollay et al. J. Immunol. 1980 124 2841-2844) it was demonstrated that more than 50 % of TNCs belong to the 10 outer cell layers of the thymus cortex. TNC lymphoid cells were recovered from TNCs after a short in vitro incubation, treated with $\alpha$ Thy 1, $\alpha$ Ly 1, $\alpha$ Ly 2 monoclonal antibodies and a 2nd step FITC conjugated serum and then analysed with a FACS IV : their cell surface phenotype was similar to that of cortical thymocytes. Next, TNCs were analysed during the first few days after intrathymic inoculation of Rad LV. On day 2, very scarce virus producing cells could be detected in the thymus. Using an in vitro infectious center detection assay, it was shown that only 1 in 30.000 thymocytes could produce Rad LV. Most of them were located in TNCs :indeed these complexes contained 300 x more virus producing lymphoid cells than the whole thymus cell population. 13

Electron microscopical examination of these TNCs demonstrated that, among lymphoid cells, C type particles were budding only from the surface of blast cells. It is concluded that target cells start sustaining viral replication when they are engulfed in TNCs located in the subcapsular zone. These date are in agreement with the previous observation that Rad LV act specifically on a subpopulation of immature lymphoid cells located in the thymus subcapsular zone. It is suggested that the susceptibility to productive infection by Rad LV could be related to the phenotypic reorganisation occuring in T cell precursors under the influence of the TNC microenvironment.

QUANTITATIVE DETERMINATION OF SURFACE ANTIGENS OF NORMAL MURINE STEM CELLS.

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The expression of surface antigens on the pluripotent hemopoietic stem cells of the mouse was investigated in a cell sorter using monoclonal antibodies. The antigens studies were a 100 K glycoprotein, T200, a glycolipid and ThB defined by monoclonal antibodies (MCA) 142/5.1, 13/2, 44/7.2 and 53/9.2. Mouse bone marrow (BM) cells were stained by an indirect immunofluorescence procedure using FITC-labelled anti-rat Ig. The presence of antigens on the stem cells was determined by the toxicity of this immunofluorescence procedure as determined by a decrease in the number of spleen colonies (CFU-S). The antigen density was determined by measuring the fluorescence intensity of the different cell types in BM in a FACS II cell sorter. The BM cells were separated in various fractions according to fluorescence intensity and light-scatter properties (Visser et al., Blood Cells 6, 1980, 391). The stem cells in the fractions were quantified with the spleen colony assay (CFU-S). In this way the antigen density on the stem cells was compared with the density on the other BM cells. 14

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