R. GIESELER, K. HOLLMANN, M.J. SCOLARO & J.H. PETERS (2000): **All-*trans*-retinoic acid upregulates CD1a on human monocyte-derived dendritic cells (MoDC): Implications for autologous melanoma-specific tumor vaccination.** IMMUNOBIOLOGY 201:378-9.

Retinoic acid (RA) acts on both early and late stages of cellular immunity. It supports and regulates myeloid and thymocyte development and modulates the activity of differentiated skin-resident immunocytes. Based on these findings, topical RA was proven beneficial in the treatment of myeloid and skin-associated tumors. In the skin, myeloid CD1a+ Langerhans cells (LC) are apparently the most important players in the control of tumors such as malignant melanoma. We therefore sought by flow cytometry whether the RA derivative all-*trans*-RA regulates the expression of CD1a on monocyte-derived dendritic cells (moDC). After six days of culture, 50% of MoDC generated under serum-free conditions by action of GM-CSF, IL-4 and IFN-g expressed CD1a. Since IFN-g induces TNF-a secretion in developing MoDC (Heise *et al.*, 1999), and because TNF-a induces the expression of CD1a, this effect is easily explained. However, when all-trans-RA was additionally present, >75% of autologous MoDC expressed CD1a after the same time of culture. Also, all-*trans*-RA upregulated HLA-DR, CD1c, CD11c and the capacity of the MoDC to act as potent stimulators of antigen-specific immunity, which has likewise been shown with genuine LC (Meunier *et al.*, 1994). Moreover, Halliday et al. (1992) showed that the RA aldehyde, retinal, prevents the reduction in the skin density of LC and Thy-1+ dendritic epidermal cells after ultraviolet irradiation. While retinoids, therefore, appear to generally support LC performance, upregulation of CD1a might serve a special function. Since CD1a expression is a hallmark of surface-resident skin and mucosal LC, and because all molecules encoded by the CD1 gene family may exclusively present lipid antigens, CD1a might be involved in the efficient presentation of unidentified lipophilic tumor antigens. Such antigens may be ignored when CD1a is expressed only insufficiently. Consequently, the application of selected vitamin-A derivatives might let us generate more efficacious MoDC for melanoma-specific tumor vaccination.

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