

Allostimulatory efficiency of splenic dendritic cells from pregnant and non pregnant mice

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Abstract

Introduction: Mammalian reproduction looks like an immunological paradox, because fetal alloantigens encoded by father genes should induce cell mediated immune responses leading to fetal loss. Maternal immune system, in addition to local modulation, undergoes systemic modulations during pregnancy. Dendritic cells (DCs), as professional antigen presenting cells, play a key role in initiation and control of immune response and it seems that functional changes in these cells during pregnancy may contribute to the systemic immune tolerance. To address this issue, in this study we isolated and purified DCs from pregnant mice and evaluated their stimulatory potential to induce proliferative response of allogenic T cells in unidirectional mixed leukocyte reaction (MLR).

Materials and Methods: Following collagenase digestion of splenic tissue, using density gradient centrifugation (13% Nycodenz) and adherence properties of DCs to the bottom of tissue culture dish, 7×10^5 DCs were isolated from each spleen with more than 95 percent purity. Allogenic T cells were isolated by nylon wool column, using their non-adhesive character to nylon wool. After radiation, isolated dendritic cells from pregnant and non-pregnant Balb/c mice were used in mixed leukocyte culture with C57BL/6 mice T lymphocytes. T lymphocyte proliferation was measured after 72 hours by ^3H - thymidine incorporation.

Results: 7×10^5 dendritic cells with the purity of >95% were isolated from each spleen. Also the yield of T- lymphocyte form Inguinal and Brachial lymph nodes was about $3-5 \times 10^5$ with the purity of %85-90. The results showed that there is no statistical difference between stimulatory potential of DCs form pregnant (cpm=33000) and non- pregnant (cpm=35000) mice in induction of allogenic T-Cell proliferation.

Conclusion: These findings can result from low concentration of immune suppressor factors in circulatory system of pregnant mice or due to separation of dendritic cells from pregnancy microenvironment and their maturity in vitro in the absence of the immune suppressor factors.

Key Words: Dendritic cells, Spleen, Pregnancy, Mixed leukocyte culture, and Allogenic response.

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