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Abstract

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Title: Alteration of CD83 Expression and sCD83 Secretion in the Course of Pregnancy.

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Introduction: CD83, a highly conserved 4045 kDa transmembrane molecule and activation marker on dendritic cells, has been postulated to be involved in the modulation of immune response during pregnancy. Its expression on the surface of immune cells is linked to immunosuppressive effects: B cells overexpressing CD83 show a high expression of the antiinflammatory Interleukin 10 and simultaneously a lower secretion of antibodies. The membranebound form of CD83 generates a soluble protein (sCD83), which inhibits the antitumorresponse of the immune system. Since antiinflammatory properties of CD83 have previously been described, we investigated the role of CD83 in murine pregnancy.

Methods: The expression of CD83 molecule was studied in different immune cells in the course of pregnancy. C57Bl/6 female mice were paired allogenically to BALB/c males and then sacrificed on days 7, 14 or 18 of pregnancy. Non pregnant C57Bl/6 females were used as control. Lymphocytes from Spleen, Thymus and Lymph nodes were isolated, and the CD83 expression was measured using flowcytometry. Additionally, the CD83 expression was measured after stimulation of the lymphocytes with LPS, PMA and Ionomycin for 48h. The supernatants were collected and the amount of sCD83 was examined by ELISA.

Results: No significant changes in CD83 expression in Band Tcells from Thymus, Inguinalor Paraaortal lymph nodes were observed. We were able to detect an upregulation of CD83 molecule on splenic B and Tcells in the middle of pregnancy. However, the highest percentage of CD83 positive splenic Bcells as well as their subtypes (Marginal and Follicular Zone B cells) was observed at the end of pregnancy (day 18). Remarkably, lymphocytes from day 18 of pregnancy showed a significantly higher release of sCD83 after invitro stimulation with LPS, PMA and Ionomycin compared to nonpregnant mice. Additionally, stimulated B cells from day 18 of pregnancy revealed the strongest upregulation of the membranebound form of CD83.

Conclusions: Our data demonstrates an alteration of CD83 expression during pregnancy, supporting our thesis of the involvement of CD83 in immunological adaptions to pregnancy. We hypothesize that the higher sCD83 release after lymphocyte stimulation might protect the fetus from an inadequate immune response to different pathogens.