第４９３回

広島大学医学集談会

（平成17年７月７日）

――学位論文抄録――

1. NOD/*SCID* mice engrafted with human peripheral blood lymphocytes can be a model for investigating B cells responding to blood group A carbohydrate determinant

（ヒト末梢血リンパ球を移植したNOD/*SCID*マウスを用いたＡ型血液型糖鎖抗原反応性Ｂ細胞の研究）

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Human antibodies (Abs) against blood group A or B carbohydrate determinant are a major barrier to ABO-incompatible organ transplantation; however, the phenotype and other properties of B cell types responding to A or B carbohydrate epitopes have not been defined. Studies here, which use fluorescein-labeled synthetic A determinant (GalNAcalpha1-3Fucalpha1-2Gal), demonstrate that B cells bearing surface IgM (sIgM) receptors recognizing blood group A carbohydrate determinant are found exclusively in a small B cell subpopulation, i.e. sIgM+ CD11b+ CD5+ B1 cells, in blood group O human peripheral blood mononuclear cells (PBMC). In order to test anti-A Abs producing capacity of the human PBMC, nonobese diabetic (NOD)/severe combined immune-deficient (SCID) mice that have been treated with rabbit anti-asialo GM1 serum to deplete natural killer cells and with 3 Gy of whole body irradiation were engrafted with blood group O or A human PBMC, followed by sensitization of human blood group A red blood cells. Anti-A-specific human Abs were detected in the sera of the mice that received blood group O human PBMC, whereas they were not detected in the sera of the mice that received blood group A human PBMC, indicating profound tolerance of auto-reactive B cells. The human PBMC-NOD/SCID chimera developed by injection of blood group O human PBMC might be a useful in vivo model to test effects of immunosuppressants or other approaches on human B cells that respond to blood group A antigens.