transient donor type chimerism and subsequent recovery of autologous hematopoiesis. We used flowcytometric analyses to investigate relationships between donor and host type hematopoiesis after BMT in mice and rats. After myeloablative treatment with total body irradiation (mice) or busulfan and cyclophosphamide (rats) graded numbers of either unmanipulated or T-cell-depleted bone marrow cells were injected. Fifty days (systems without lethal GVHD) or 10 days (systems with lethal GVHD) after BMT animals were killed and spleens were removed. After depletion from macrophages via plastic adherence and two-step staining with FITC-labeled goat anti-mouse-IgG antibody as a secondary antibody, flowcytometric analysis was performed. Using MOABs against MHC-allotypes ($H2^b$, $H2^d$, $H2^k$, RT-1^c) quantitative analysis was possible after 1) MHC-mismatched, fully allogeneic BMT (C57 → Balb/c, C3H → Balb/c, CAP → Lewis), 2) MHC-mismatched, identical background BMT (Balb/k → Balb/c, Balb/c → Balb/k) and 3) MHC-mismatched, semi-allogeneic BMT ((C57 × Balb/c)F1 → Balb/c, (C3H × Balb/c)F1 → Balb/c, (CAP × Lewis)F1 → Lewis). Using MOABs against polymorphic lymphocyte antigens (Lyt 1.2, Lyt 1.1) a semiquantitative analysis after MHC-identical, allogeneic BMT was possible (C3H → Balb/k, Balb/k → C3H, DBA → Balb/c). Thus, we are now able to investigate factors influencing the development of donor-type chimerism in a variety of experimental settings; e.g. we have demonstrated quantitatively a major impact of the cell number transplanted but not of GVH reactivity or T cell content of grafts on long term donor-type chimerism.

Dept. of Immunology, Medical School, University, 2300 Kiel, Germany

M.7 Transplantation of diabetic patients with xenogeneic pancreatic islets has to consider natural xenophile antibodies (NXA) in patients' sera as a major obstacle to success

V. Eckstein, K. Ulrichs, G. Meincke, and W. Müller-Ruchholtz

Xenotransplantation of porcine pancreatic islets is considered a promising alternative therapy for diabetic patients. NXA, responsible for hyperacute and acute graft rejection, are considered a major obstacle to successful xenografting. Therefore, we analyzed NXA in 50 sera of diabetic patients and in 34 normal human sera against the various pancreatic cell types from 7 different pig races. Immunofluorescence and -peroxidase histology were performed on pancreatic cryostat sections using goat anti-human Ig, IgG and IgM secondary antibodies. Results: (1) All 50 diabetic sera and all 34 human control sera contain some NXA against the various pancreatic cell types, i.e., against vascular endothelial (VE), ductal epithelial (DE), endocrine (EN), and/or exocrine (EX) cells. Both diabetic and normal sera are basically similar in their reaction pattern. (2) Of these NXA-targets, pancreatic islet-VE can be successfully eliminated by short-term cultivation (24 h of isolated pig islets. (3) Most importantly, NXA-reactivity against islet cells differs, (a) strongly among the 7 pig races and (b) considerably among individuals of one race. (4) Moreover, with regard to certain pigs, a distinct number of sera is negative for NXA against islet cells. (5) NXA are of IgG and rarely of IgM isotypes. Conclusions: (I) An important prerequisite for successful porcine islet transplantation appears to consist in screening for NXA against islet cells. (II) Based upon the above data and the availability of a variety of pig races, it may become possible to select NXA-negative donor/recipient combinations, which are suitable for islet xenotransplantation.