Effect of STAT inhibitor on the murine chronic graft-versus-host disease (GVHD) scleroderma model using an X-ray irradiation device

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Systemic sclerosis (SSc: scleroderma) is an autoimmune disorder characterized by progressive dermal fibrosis with diffusion to multiple organs which could be fatal. SSc could be initiated by anti-cancer therapy or graft-versus-host disease (GVHD) after bone marrow transplantation. However, the current treatment methods for SSc are only conservative. Therefore the novel agents which make fundamental treatment possible are waited. The murine chronic GVHD model induced by allogenic cell transplantation from B10.D2 mice (donner) to BALB/c mice (recipient) is known as one of the experimental scleroderma models. The aim of this study is to confirm the pathologic state of the chronic GVHD scleroderma model and evaluate the effects of STAT inhibitor. We validated the model by inspection of skin score, skin hydroxyproline (HYP) content and histopathologic examinations. The skin score and skin HYP content increased in all cell transplanted groups compared to control group. Thus, it was indicated that the SSc-like symptoms with dermal fibrosis developed on model animals. Effects of STAT inhibitor were evaluated on this model. The results indicate usefulness of the chronic GVHD scleroderma model in evaluating the anti-fibrosis effect of therapeutic agents, which leads to fundamental treatment of SSc.