NCG

Strain Name: NOD/ShiLtJGpt-Prkdc ^{em26Cd52} Il2rg ^{em26Cd22} /Gpt

Strain Type: Knock-out

Strain ID: T001475

Background: NOD/ShiLtJGpt

Description

Severe immune-deficient strain NCG is established by GRISPR/Cas9 technology. Prkdc(Protein kinase, DNA activated, catalytic polypeptide)and Il2rg(Common gamma chain receptor)genes are knocked out on NOD/ShiltJGpt background. The genetic background of NOD/ShiltJNju makes this line have natural immunodeficiency, such as complement system and macrophage defects [1]. At the same time, the Sirpa on NOD/ShiltJNju has high affinity with human CD47, making it more suitable for colonization of human grafts (e.g. tumors and human cells) than other strains[2]. Loss of Prkdc gene leads to the inability of V(D)J recombination to occur, resulting in the inability of T cells and B cells to mature. Il2rg is a common subunit of various interleukin cytokine receptors, and the inactivation of Il2rg leads to the loss of six different cytokine signaling pathways[3], resulting in NK cell defects[4].Therefore, NCG is the most thorough mouse

Application

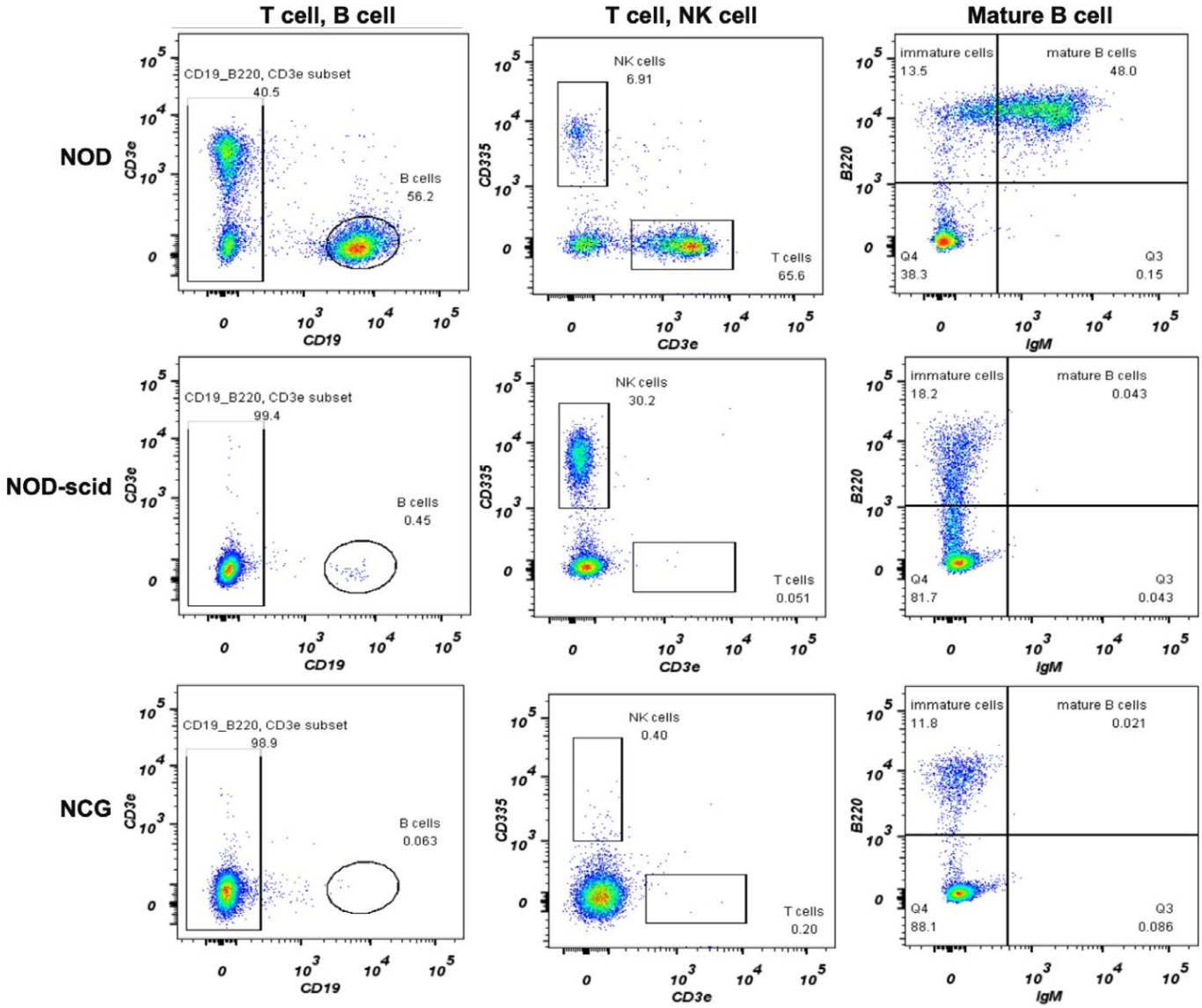
1. Humanized immune system reconstitution
2. Preclinical anti-tumor efficacy with CDX and PDX model
3. Immuno-oncology therapy
4. CAR-T therapy
5. Stem cell research

Next generation of NCG for human immune reconstitution

Strain Name	Type
NCG-SGM3	Promote the development of myeloid lineages and lymphoid cells
NCG-hIL15	Promote the development of NK cells
NCG-mTSLP	Restore Lymph node (LN) development and T, B cells development
NCG-hIL6	Enriched CD14+ Monocyte and macrophage differentiation
NCG-hIL7	Promote the development of T cells and B cells
NCG-hBAFF	Promote the development of B cells
NCG-hIL7/hIL15/hBAFF	Promote the development of T cells, B cells, Monocyte and macrophage
NCG-B2M-KO	Relatively resistant to graft versus host disease (GVHD)
NCG-HLA-A2.1	Support the maturation of human T cells

References
1. Shultz LD, Schweitzer PA, Christianson SW, et al. (1995). "Multiple defects in innate and adaptive immunologic function in NOD/LtSz-scid mice". J. Immunol. 154 (1): 180–91.
2. Takenaka K, Prasolava TK, Wang JC, et al. (2007). "Polymorphism in Sirpa modulates engraftment of human hematopoietic stem cells". Nat. Immunol. 8 (12): 1313–23.
3. Cao X, Shores EW, Hu-Li J, et al. (1995). "Defective lymphoid development in mice lacking expression of the common cytokine receptor gamma chain". Immunity. 2 (3): 223–38.
4. Greiner DL, Hesselton RA, Shultz LD (1998). "SCID mouse models of human stem cell engraftment". Stem Cells. 16 (3): 166–177.

Data support
T/B/NK cell ratio assay



Proportion of CD3+ (T cell), CD19+(B cell), CD335+(NK cell) and IgM+ (mature B) cells is in the splenocytes from NOD/ShiLtJGpt, NOD-scid and NCG females was analyzed by flow cytometry after stained with appropriate antibody. The result indicate there was almost no detectable T cell, B cell and NK cell in NCG mouse, confirmed that NCG is the severe immune deficient model.