huHSC-NCG

Strain: huCD34+HSC-NOD/ShiLtJGpt-*Prkdc*^{em26Cd52}*Il2rg*^{em26Cd22}/Gpt

Product name: huHSC-NCG

Strain type: Immune reconstitution

Strain code: T037620

Background: NOD/ShiLtJGpt

Description

Human immune NCG mice are generated by implanting hematopoietic stem cells (HSC). huPBMC-NCG and huHSC-NCG mice are promising tools for human immune system related in-vivo study. The lifespan of huHSC-NCG is more than 1 year. The T cells, B cells, NK cells and myeloid cells could be constituted. HSC humanized mice are the powerful models for assessment of new drugs based on immune modulation. These models establish human immune system by engraftment of human hematopoietic stem cells (HSC) into severe immunodeficient mice(e.g. NCG). With long survival cycle and stable reconstituted human immune system, the model could be used for long-term in vivo studies for drug effectiveness ,which make it the ideal platform for preclinical drug evaluation.

Strategy

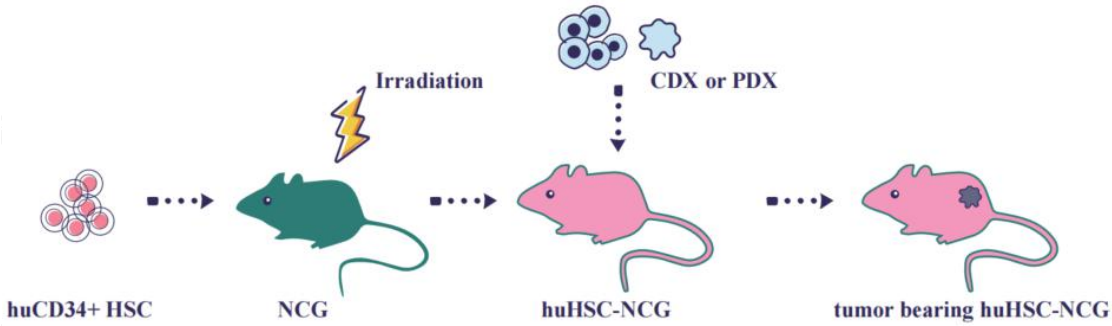

Fig.1 The establishment of huHSC-NCG mice

Application

1. Immuno-oncology therapy
2. Infectious disease research (e.g. HIV)
3. Study of human hematopoietic development

Validation

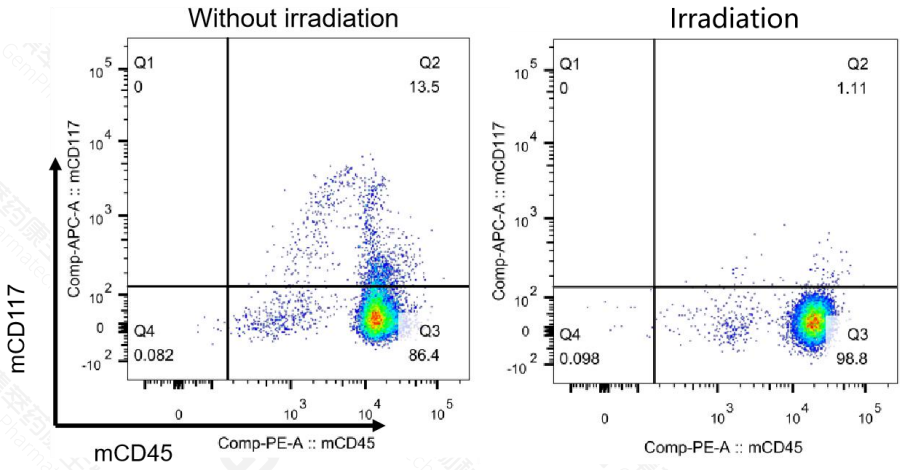

Fig 2 Detection of the effect of marrow clearing in NCG mice

Irradiation can eliminate the hematopoietic stem cells in the bone marrow of mice, thereby improving the level of reconstruction after transplantation of human HSC, The result showed that the proportion of mCD45+mCD117+ cell population after irradiation was 1.11%, which was significantly lower than the non-irradiated group (13.5%).

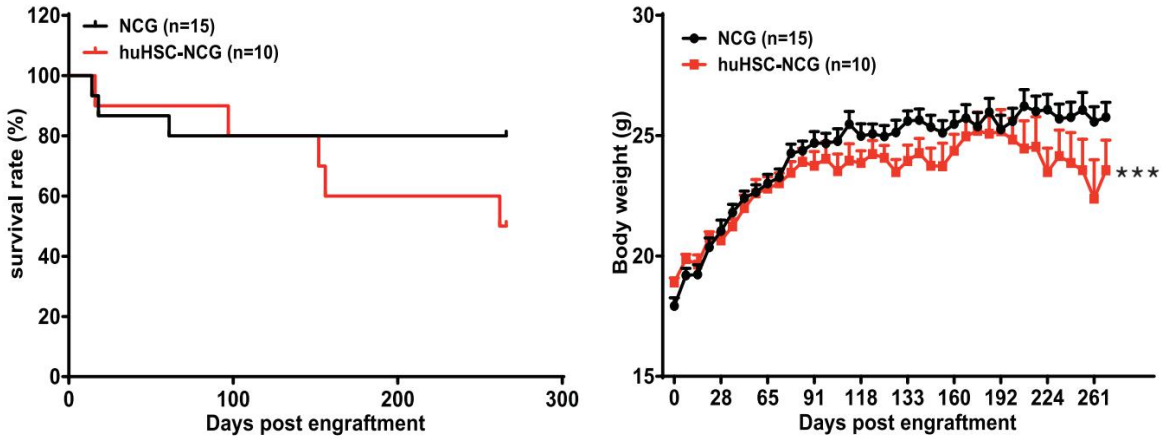

Fig 3 The survival life and the body weight change of the huHSC-NCG

The huHSC-NCG mice could survive more than 37 weeks, with an extensive window period, it's good for long-term research. And There's no significant body weight losing during long-term immune reconstitution.

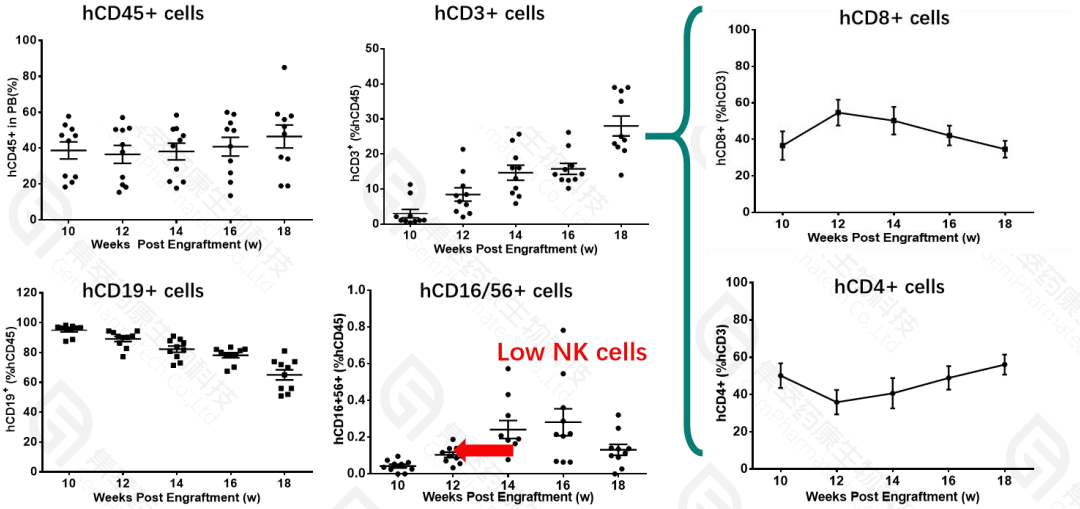

Fig 4 The human immune reconstitution level of the huPBMC-NCG mice

The Human immune cell levels in peripheral blood of huHSC-NCG mice were detected by flow cytometry. The levels of human leukocytes(hCD45+) and T cells were gradually increased, the B cells were decreased, and there's little NK cells.

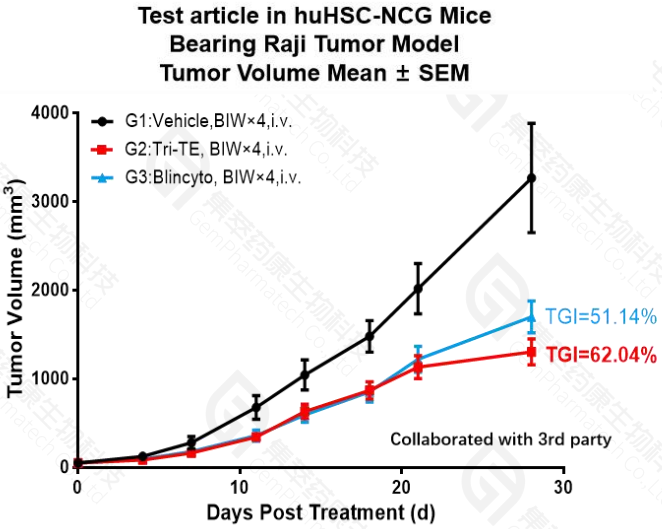

Fig 5 In vivo efficacy study in huHSC-NCG

The huHSC-NCG mice were inoculated subcutaneously with Raji cells. When tumors reached an average volume of 40-50 mm^3, mice were treated with control(black), Tri-TE antibody and Blincyto antibody. Tri-TE antibody and Blincyto antibody had obvious inhibitory effect on tumor growth (TGI=62.04%, TGI=51.14%). Indicating that huHSC-NCG mice are the ideal animal model to evaluate the efficacy of human anti-tumor antibody that based on T cell.

References

1. Shultz, L.D., et al., *Human Lymphoid and Myeloid Cell Development in NOD/LtSz-scid IL2R null Mice Engrafted with Mobilized Human Hemopoietic Stem Cells.* The Journal of Immunology,

2005. 174(10): p. 6477-6489.

2. Seitz, *Establishment of a rhabdomyosarcoma xenograft model in human-adapted mice.* Oncology Reports, 2010.
3. Wege, A.K., et al., *Humanized tumor mice--a new model to study and manipulate the immune response in advanced cancer therapy.* Int J Cancer, 2011. 129(9): p. 2194-206.