Abstracts

1225 NCG-SGM3 HUMANIZED MICE – AN IDEAL MODEL FOR HUMAN IMMUNE RECONSTITUTION OF T AND MYELOID CELL LINEAGES

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Background Immunodeficient mice transplanted with human hematopoietic stem cells (HSC) have been extensively used in immuno-oncology studies to evaluate therapeutic agent’s efficacy against cancer cells. However, the lack of human cytokines in these mice provides limited growth support for human immune cells beyond human T cells. Increasing evidence show that myeloid cells, such as macrophages and monocytes, provides critical functions in the immune system’s anti-tumor effect.

Methods We established a mouse model, NCG-SGM3, that can support T and myeloid cells in such a way that the evaluation of agents that require the interplay between these two critical immune cell populations can be evaluated appropriately. This model was genetically engineered on the severe immunodeficient strain NCG and can produce human granulocyte/macrophage colony stimulating factor 2 (GM-CSF, also named as CSF2), interleukin-3 (IL-3) and stem cell factor (SCF, also known as KITLG).

Results Upon human CD34+ HSC cells transplantation, increased myeloid lineage cells, such as granulocytes, monocytes, neutrophils, macrophages, and dendritic cells, were evident in the NCG-SGM3 cohort compared to NCG. The NCG-SGM3 mouse also supports the development of human T cells, and preliminary data showed increased B cells and NK cells as well.

Conclusions The NCG-SGM3 is an appropriate model for studying therapeutic agents that require human T cells and myeloid cells.