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Research Models and Services
Oncology – GEMS Mice

B-NDG hIL15 Mice (hIL15)

MODEL	NOMENCLATURE	HAIR	T CELLS	B CELLS	NK CELLS
B-NDG hIL15	NOD.CB17-*Prkdc*^{scid}*Il2rg*^{tm1}*Il15*$^{tm1(IL15)}$/BcgenHsd	Yes	No	No	No

MODEL CHARACTERISTICS

The B-NDG hIL15 model is a single knockout mouse with an ultra-immunodeficient phenotype. The model was generated by Biocytogen by deleting the *IL2rg* gene from NOD-*scid* mice. *Prkdc* (protein kinase DNA-activated catalytic) null *scid* mutation is characterized by significantly deficient of functional T cells and B cells.

The common gamma chain gene (*IL2RG*) deletion results in a lack of functional receptors for IL-2, IL-4, IL-7, IL-9, IL-15, and IL-21, which results in the lack of functional NK cells.

The human *IL15* gene was inserted after the 5'UTR of the mouse IL15, so that this mouse expresses the human IL15 cytokine. This mouse combines a B-NDG mouse background and expresses human IL15 cytokine. It will become a suitable animal model to investigate development and function of human NK cells.

Envigo licensed the mouse model from Biocytogen in 2019, where the model had been maintained. Envigo was acquired by Inotiv in 2021. The model is albino.

RESEARCH USES

- Oncology research
- Immunology
- Infectious disease
- Humanization applications
- NK cell role in tumorigenesis
- Antibody drug efficacy evaluation

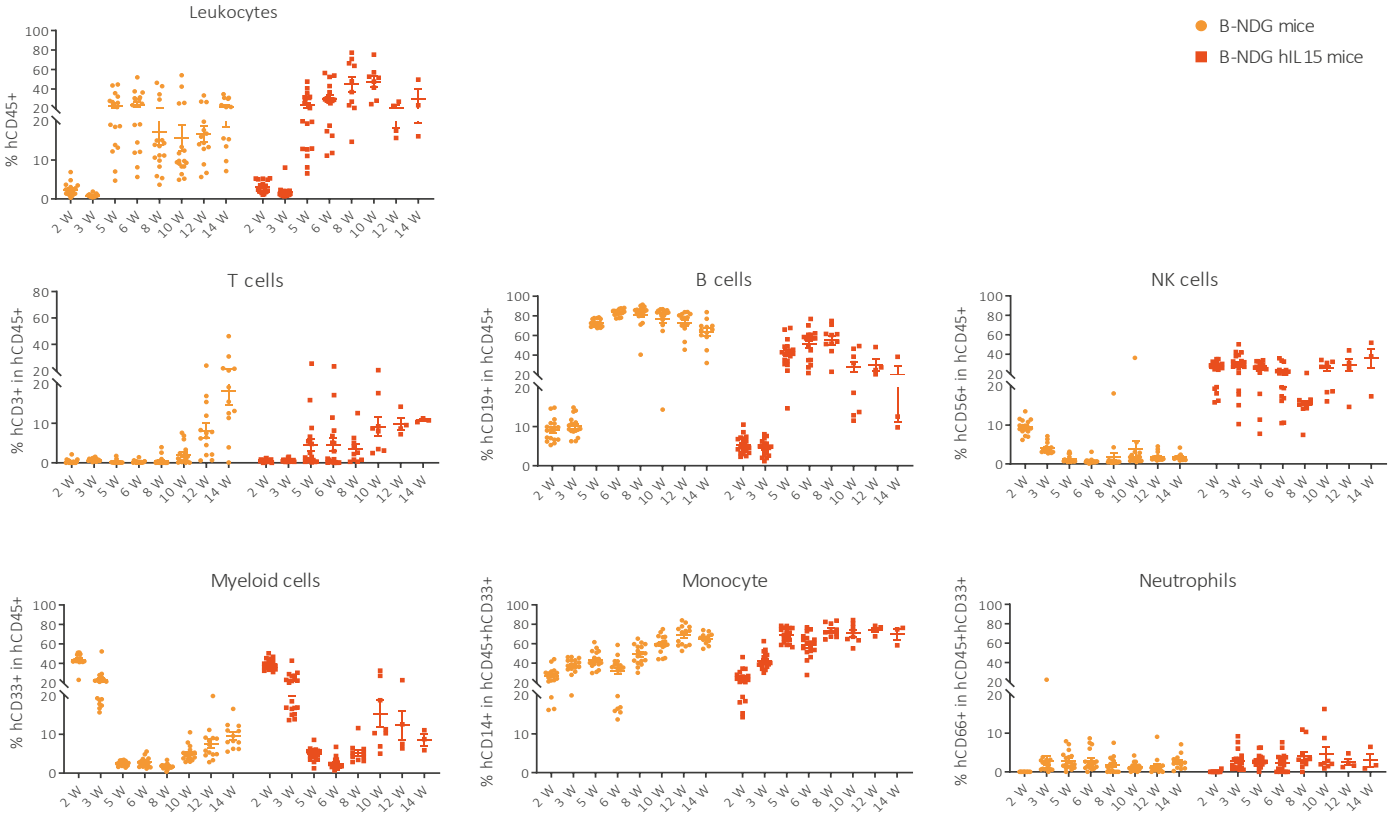
FEATURES AND ADVANTAGES

B-NDG hIL15 mice have several special features that translate into unique benefits as compared to other immunodeficient models.

FEATURES	ADVANTAGES
Severe Immunodeficiency • Deficient in T cells • Deficient in B cells • Lacks NK cells	• Ultra-immunodeficient phenotype enhances tumor cell acceptance
Expresses human IL15 cytokine	• Ability to investigate the development and function of human NK cells.
High humanization capability	• Ability to more effectively evaluate therapeutics due to higher human NK cell engraftment

HSC HUMAN IMMUNE SYSTEM ENGRAFTMENT

Human immune cell phenotyping in B-NDG hIL15 mice engrafted with human HSC. Human CD34+ cells (0.15 M) were intravenously injected into homozygote B-NDG hIL15 (female, 6 week-old, n=19) and B-NDG mice (female, 6 week-old, n=17). All mice were treated with 1.6 Gy irradiation. Representative flow cytometric analysis of peripheral blood lymphocyte from mice after engraftment with human CD34+ cells. B-NDG hIL15 show a higher percentage of human NK cells compared with B-NDG. The results suggest that human NK, T, and B cells in reconstituted B-NDG hIL15 mice were successfully propagated.



Schedule a meeting with one of our experts to find out more.