# COMPREHENSIVE IMMUNODEFICIENT SUITE











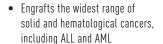
Name & Stock Number

NOD.Cg-Prkdc<sup>scid</sup> Il2rg<sup>tm1Wjl</sup>/SzJ (005557)

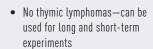
NOD.Cg-Rag1<sup>tm1Mom</sup> Il2rg<sup>tm1Wjl</sup>/SzJ (007799) NOD.Cg-Prkdc<sup>scid</sup> Il2rg<sup>tm/Wjl</sup> Tg(CMV-IL3,CSF2,KITLG)1Eav/ MloySzJ (013062)

Mature B cells			
Mature T cells			
Dendritic Cells			
Macrophages			
Natural killer cells			
Complement			
Leakiness			
rradiation tolerance			
ymphoma incidence			

Absent	Absent	Absent
Absent	Absent	Absent
Defective	Defective	Defective
Defective	Defective	Defective
Absent	Absent	Absent
Absent	Absent	Absent
Very low	Absent	Absent
Low	High	Low
Low	Low	Low

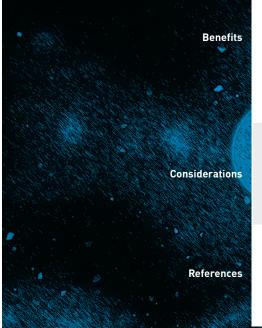


- Most sensitive host for cancer stem cells when compared to NOD scid or nude mice
- Longer lifespan than NOD scid; supports long-term engraftment studies and capabilities; >89 weeks median survival
- Long-term multilineage hematopoietic stem cell repopulation similar to NSG™ mice
- Engrafts human PBMC without irradiation similar to NSG™
- Engrafts a wide range of solid and hematological cancers
- Increased CD4+ FoxP3+ regulatory T cell population
- Enhanced human myelopoiesis and terminal differentiation,
- Increased efficiency of engrafting human acute myeloid leukemia (AML)



- Sensitive to irradiation
- No thymic lymphomas—can be used for long-term experiments
- Requires higher dose of irradiation to obtain human HSC engraftment
- Compromised human stem cell regeneration
- Suppression of human erythropoiesis
- Reduction of human B-lymphopoiesis

Ishikawa et al. 2005 (PMID: 15920010 Shultz et al. 2005 (PMID: 15879151) Pearson et al. 2008 (PMID: 18785974) Brehm et al. 2010 (PMID: 20096637) Maykel et al. 2014 (PMID: 24798995) Nicolini et al. 2004 (PMID: 14628073) Wunderlich et al. 2010 (PMID: 20686503) Billerbeck et al. 2015 (PMID: 21252091)











### NOD scid

### BALB scid

# B6 Rag1

## Outbred and **Inbred Nude**

NOD.CB17- <i>Prkdc<sup>scid</sup>/</i> J (001303)	CBySmn.CB17- <i>Prkdc</i> scid/J (001803)	B6.129S7- <i>Rag1</i> <sup>tm1Mom</sup> /J (002216)	J:NU (007850) NU:J (002019)
Absent	Absent	Absent	Present
Absent	Absent	Absent	Absent
Defective	Present	Present	Present
Defective	Present	Present	Present
Defective	Present	Present	Present
Absent	Present	Present	Present
Very low	Very low	Absent	N/A
Low	Low	High	High
High (thymic lymphoma)	High (thymic lymphoma)	Low	Low

- Higher take-rates for slowgrowing cancer cell lines than BALB *scid* or nude xenograft models
- Xenotransplantation of some solid human tumors
- Adoptive transfer from strains on NOD background enables study of cell function & track cell movement
- Develops thymic lymphomas by 8-9 months—best used in short-term experiments
- Sensitive to irradiation

- Allows allogeneic and xenogeneic cancer cell lines & tissues
- Engrafts hematopoietic cancer cell lines, some primary cells
- Improvements in engraftment efficiency over nude models for some cancer cell lines
- engraftment
- Sensitive to irradiation

- Radiation resistant, providing an alternative to *scid* mutants
- Adoptive transfer from strains on B6 background permits to study cell function and track cell movement
- Engraftment of human & mouse tumor cell lines
- Easy assessment of subcutaneous tumor growth due to lack of fur

- Innate immunity intact
- NK cell activity limits
- Innate immunity intact
- Poor host for primary cell transplantation
- Innate immunity intact
- Little engraftment of hematopoietic cancer cells
- Not suitable for primary cell transplantation

Shultz et al.1995 (PMID: 7995938)

Nonoyama et al. 1993 (PMID: 8473734)

Mombaerts et al. 1992 (PMID: 1547488)