

360° MODEL RANGE



NOD-SCID mouse Immunodeficient

- **Strain name:** NOD.CB17-*Prkdc^{scid/scid}*/Rj
- **Type:** Mutant congenic mouse
- **Origin:** INSERM Saint Vincent de Paul (Paris, France, via CDTA, Orléans) - 2010
- **Colour and related genotype:** Albino mouse, *A/A, Tyr^c/Tyr^c* - MHC : Haplotype *H2⁹⁷*

PRESENTATION OF THE MODEL

The scid (Severe Combined Immunodeficiency) mutation was discovered by Dr. M.J. Bosma and his team in the 1980s at the Fox Chase Cancer Center (Philadelphia, PA). It appeared in a colony of inbred BALB/c-Ighb (CB-17/Icr mice, BALB/c congenic background with Ighb-Cb allele from the C57BL/Ka strain). This recessive autosomal mutation is characterized by an absence of B cells and functional T cells, a lymphopenia, a hypogammaglobulinemia and a normal hematopoietic environment. On a NOD background, antigen-presenting cells' (APC), myeloid cells' and the NK cell functions are impaired.

Most homozygotes do not have any detectable IgM, IgG1, IgG2a, IgG2b, IgG3, or IgA. However, some NOD-*prkdc^{scid}* mice can spontaneously develop a partial immune reactivity: the "leaky" mouse. The presence of the *prkdc^{scid}* mutation does not allow for the phenotypical expression of the type I diabetes that characterizes the NOD background (Non Obese Diabetic).

This model can survive up to 8 to 9 months due to the spontaneous development of thymic lymphoma.

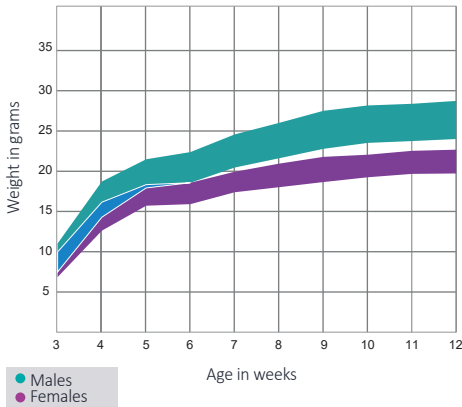
Main application and research fields

- ✕ Monoclonal antibodies: study and production
- ✕ Immunology
- ✕ Experimental infections
- ✕ Inflammation
- ✕ Oncology
- ✕ Transplantation: xenograft and allograft

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GROWTH CURVE AND REPRODUCTIVE DATA

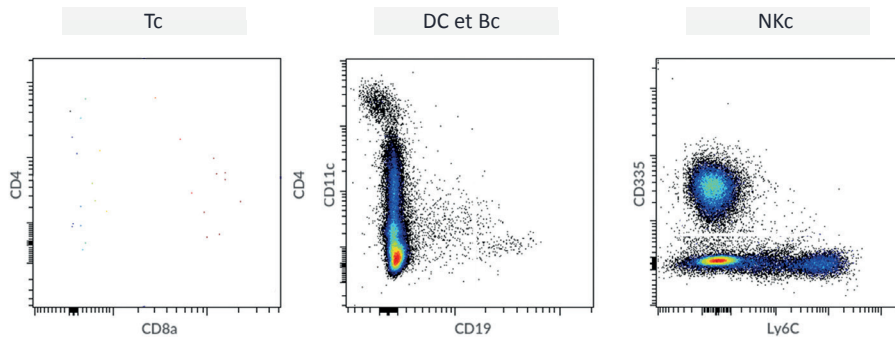
■ Growth curve



■ Haematological parameters

| | | | | Mean | Standard deviation |
|---------------|---|--------------|---|-------|--------------------|
| Concentration | Hemoglobin | Blood (g/dL) | F | 15 | 0 |
| | | | M | 14 | 3 |
| | Mean corpuscular hemoglobin concentration | Blood (g/dL) | F | 31 | 0 |
| | | | M | 32 | 2 |
| | Platelet absolute count | Blood (K/uL) | F | 1,172 | 92 |
| | | | M | 1,193 | 76 |
| | Red blood cell absolute count | Blood (M/uL) | F | 9 | 0 |
| | | | M | 9 | 4 |
| Frequencies | Hematocrite | Blood (%) | F | 49 | 1 |
| | | | M | 45 | 13 |
| | High fluorescence ratio reticulocyte | Blood (%) | F | 47 | 4 |
| | | | M | 49 | 5 |
| | Immature reticulocyte fraction | Blood (%) | F | 64 | 2 |
| | | | M | 67 | 5 |
| | Low fluorescence ratio reticulocyte | Blood (%) | F | 36 | 2 |
| | | | M | 33 | 5 |
| | Medium fluorescence ratio reticulocyte | Blood (%) | F | 16 | 2 |
| | | | M | 17 | 4 |
| | Platelet larger cell ratio | Blood (%) | F | 4 | 1 |
| | | | M | 6 | 3 |
| | Plateletcrit | Blood (%) | F | 1 | 0 |
| | | | M | 1 | 0 |
| | Reticulocyte absolute count | Blood (%) | F | 7 | 0 |
| | | | M | 13 | 15 |
| Quantity | Mean corpuscular hemoglobin | Blood (pg) | F | 16 | 0 |
| | | | M | 17 | 4 |
| | Mean corpuscular volume | Blood (fl) | F | 53 | 2 |
| | | | M | 54 | 9 |

FLOW CYTOMETRY ANALYSIS, SPLEEN



All lymphoid organs of our models were analysed.



PHENOTYPIC CHARACTERISATION

This model has been entirely characterized. The immunological and hematological parameters were characterized by Center of Immunophenomics (Ciphe, Marseille, France).

| Background | Breeding | Coat | T Lymphocytes | B Lymphocytes | Leakiness | NK cells | Dendritic cells |
|---------------|------------|-----------------------|---------------|------------------|------------------|-------------------|-----------------|
| NOD | Inbred | Albino | Absent | Absent | Medium | Dysfunctional | Low |
| Macrophages | Complement | Irradiation tolerance | Life span | Humoral immunity | Lymphoma outcome | Genes of interest | |
| Dysfunctional | - | Low | 36 Wk. | Absent | High | Scid (Prkdc) | |

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