



NATURAL IMMUNO-DEFICIENT



MICE
Mutant congenic

GENETICALLY ENGINEERED MODELS (GEM)

CB17-Scid Mouse

Strain name: CB-17/Icr-Prkdc^{scid/scid}/Rj

Type: Mutant congenic mouse

Origin: Institut Pasteur (Lille, France) - 2009

Colour and related genotype:

Albino mouse, Tyr^r/Tyr^r, Tyrp1^b/Tyrp1^b
MHC: Haplotype H2^d

Breeding: Animal easy to rear, strong maternal instinct

Mating scheme:

Homozygous ♂ x homozygous ♀

WILD TYPE

NATURAL MUTANTS



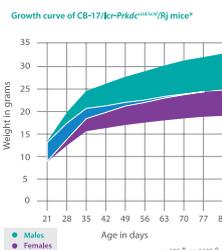
Presentation of the model

The scid (Severe Combined Immunodeficiency) mutation was discovered in a colony of inbred BALB/c-Igh^b (CB-17/Icr, BALB/c congenic background with Igh^b-Cb allele from the C57BL/Ka strain) mice in 1980 by Dr. M.J. Bosma and his team, at the Fox Chase Cancer Center (Philadelphia, PA). This recessive autosomal mutation impairs lymphoid differentiation. These mice are deficient in T and B cells but myelopoiesis is not affected. 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.

Some NOD-prkdc^{scid} mice can become "leaky" from the spontaneous development of functional T and B lymphocytes.

Despite their defect, CB17-SCID mice survive under SOPF conditions for up to a year and are fertile.



| Hematological parameters* of 10-week old CB-17/Icr-Prkdc ^{scid/scid} /Rj mice | | |
|--|-------------|-------------|
| Parameters | Male | Female |
| Erythrocytes (10 ¹² /l) | 9.4 ± 0.4 | 9.6 ± 0.2 |
| Hematocrit (l/l) | 0.48 ± 0.03 | 0.50 ± 0.01 |
| Hemoglobin (g/dl) | 14.8 ± 0.7 | 15.1 ± 0.4 |
| Mean corpuscular volume (fl) | 51 ± 2 | 53 ± 1 |
| Mean corpuscular rate (pg) | 15.9 ± 0.6 | 15.7 ± 0.5 |
| Hemoglobin concentration (g/dl) | 31 ± 2 | 30 ± 1 |
| Blood platelets (10 ⁹ /l) | 881 ± 50 | 724 ± 52 |
| Leukocytes (10 ⁹ /l) | 2.1 ± 0.4 | 2.0 ± 0.3 |
| Neutrophils (10 ⁹ /l) | 1.06 ± 0.33 | 1.00 ± 0.17 |
| Lymphocytes (10 ⁹ /l) | 0.72 ± 0.10 | 0.73 ± 0.14 |
| Eosinophils (10 ⁹ /l) | 0.10 ± 0.02 | 0.12 ± 0.05 |
| Monocytes (10 ⁹ /l) | 0.14 ± 0.04 | 0.09 ± 0.03 |
| Basophils (10 ⁹ /l) | 0.01 ± 0.01 | 0.02 ± 0.00 |

| Reproductive data* | |
|--|------------------------|
| Bigamous mating Homozygous breeders | |
| Litter size at birth | 5.3 |
| Weaning % | 94 |
| Productivity index | 0.65 |
| Gestation time | Between 18 and 20 days |

* JANVIER LABS Data, for an indicative basis.

| Paramètres biochimiques sanguins* des souris CB-17/Icr-Prkdc ^{scid/scid} /Rj 10 semaines | | |
|---|-----------|-----------|
| Parameters | Male | Female |
| Glucose (g/l) | 2.6 ± 0.3 | 2.1 ± 0.2 |
| Urea (g/l) | 0.4 ± 0.0 | 0.4 ± 0.0 |
| AST (ASAT) (U/l) | 100 ± 35 | 150 ± 50 |
| ALT (ALAT) (U/l) | 37 ± 8 | 69 ± 23 |
| Alkaline phosphatase (U/l) | 126 ± 12 | 124 ± 22 |
| Cholesterolaemia (g/l) | 0.9 ± 0.1 | 0.7 ± 0.0 |
| Triglycerides (g/l) | 2.3 ± 0.5 | 1.8 ± 0.2 |
| Creatinine (mg/l) | 4.0 ± 0.0 | 4.0 ± 0.0 |

| Comparison of immunodeficiency and phenotype of Nude and Scid mutant mice | | |
|---|-------------------------------------|---------------------------------------|
| Genetic background | Inbred: BALB/cAnN Outbred: NMRI | Congenic: CB-17 Inbred: NOD |
| Genotype: | | |
| Mutation | Foxn1 tm (chromosome 11) | Prkdc ^{scid} (chromosome 16) |
| Phenotype: | | |
| Coat | No | Yes (albino) |
| T cells | No | No |
| B cells | Functional | No |
| NK | Functional | Defect on NOD only |
| Complement | Functional | Defect on NOD only |



Main application and research fields

MONOCLONAL ANTIBODIES: STUDY AND PRODUCTION

IMMUNOLOGY | VIROLOGY | ONCOLOGY

EXPERIMENTAL INFECTIONS | INFLAMMATION

TRANSPLANTATION: XENOGRAFT AND ALLOGRAFT



Our added value

- The «JANVIER LABS Genetic Policy», specific programme, guarantees homozygosity of autosomal pairs
- Animals with the SPF or SOPF standards
- A gentling policy for docile and easy-to-handle animals
- Optimal stability conditions of our models during shipments, thanks to our dedicated and internal transport service
- A scientific support with a team of Veterinarians and PhD

JANVIER LABS

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