

WILD TYPE

GENETICALLY ENGINEERED MODELS (GEM)

NATURAL MUTANTS

NATURAL IMMUNO-DEFICIENT

RAT
Inbred

Brown Norway Rat

Strain name: BN/OrlRj

Type: Inbred rat

Origin: CSAL (Orleans, from Microbiological Associates Inc. Dept. of Laboratory Animals - 1969) - 1987 (F38)

Colour and related genotype:
Brown rat - a/a, C/C - MHC: $RT1^n$
Erythrocyte antigens: $RT2^a$,$RT3^b$, $RT8^b$
- Lymphocyte antigens: $RT6^b$

Breeding: Easy to rear

Presentation of the model

This strain was created by BILLINGHAM and SILVERS in 1958, from a brown mutation maintained by D.H. KING and P. APTEKMAN in a pen-bred colony (BILLINGHAM and SILVERS, 1959), probably from wild-caught rats (RUSSEL-LINDSAY, 1979).
90 % have a life expectancy greater than 25 months, 50 % of them reach 32 to 35 months.

BROWN NORWAY rats have high rates of spontaneous bladder carcinoma (28-35 % in males, 2-3 % in females) and ureter carcinoma (6-9 % in males and 20-22 % in females). Other common tumours in males are pancreas islet adenoma (15 %), pituitary adenoma (14 %), lymphoreticular sarcoma (14 %) and in the females, pituitary adenoma (26 %), adrenal cortical adenoma (19 %), vaginal sarcoma (19 %), mammary gland fibro-adenoma (11 %). Also described is the females' risk of cancer and metastasis increasing with age.

Another characteristic of the BROWN NORWAY strain is its important rate of endocardial disease in older animals.

Important notice: JANVIER LABS BROWN NORWAY rats have a retinal dystrophy caused by progressive loss of photoreceptors. Histology reveals that rods and cones disappear and a dysplasia of the outer nuclear layer with sectorial hyperplasia/hypernuclearity up to the retinal pigment epithelium.

This peculiar aspect of the retina is similar to the one seen in some types of canine retinal dysplasia, in which the retina forms folds with round clumps (these are nevertheless absent in rats).

Hematological parameters* of 10-week old BROWN NORWAY BN/OrlRj rats

Parameters	Male	Female
Erythrocytes (1012/l)	9.2 ± 0.5	8,6 ± 0.5
Hematocrit (l/l)	0.53 ± 0.02	0.49 ± 0.03
Hemoglobin (g/dl)	15.2 ± 0.4	14.7 ± 0.7
Mean corpuscular volume (fl)	59 ± 1	57 ± 1
Mean corpuscular rate (pg)	16.8 ± 0,4	17.0 ± 0,0
Hemoglobin concentration (g/dl)	29 ± 1	30 ± 1
Blood platelets (109/l)	935 ± 161	769 ± 245
Leukocytes (109/l)	11.1 ± 1.8	8.0 ± 1.5
Neutrophils (109/l)	1.44 ± 0.45	1.28 ± 0.78
Lymphocytes (109/l)	9.05 ± 1.52	6.00 ± 1.06
Eosinophils (109/l)	0.15 ± 0.06	0.29 ± 0.18
Monocytes (109/l)	0.26 ± 0.10	0.18 ± 0.08
Basophils (109/l)	0.11 ± 0.02	0.08 ± 0.02

Biochemical blood parameters* of 10-week old BROWN NORWAY BN/OrlRj rats

Parameters	Male	Female
Glucose (g/l)	3.7 ± 0.6	3.0 ± 1.0
Urea (g/l)	0.4 ± 0.0	0.4 ± 0.0
AST (ASAT) (UI/l)	117 ± 19	117 ± 35
ALT (ALAT) (UI/l)	69 ± 8	49 ± 10
Alkaline phosphatase (UI/l)	240 ± 25	142 ± 30
Cholesterolaemia (g/l)	0.7 ± 0.1	0.8 ± 0.1
Triglycerides (g/l)	0.8 ± 0.2	0.8 ± 0.3
Creatinine (mg/l)	6.1 ± 0.6	6.3 ± 0.5

Reproductive data*

Monogamous mating	
Litter size at birth	5.3
Weaning %	96
Productivity index	1.06
Sterility %	2
Gestation time	Between 20 and 23 days

* JANVIER LABS 2011 Data, for an indicative basis

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

Main application and research fields

RETINA DEGENERATION

ORGAN TRANSPLANTATION

IMMUNOLOGY

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