FVB (Friend Virus B)

FVB/NHsd, FVB/NHan®Hsd

Outbred N:Gp (NIH General-purpose) Swiss mice, established at the National Institutes of Health, Bethesda, Maryland, USA in 1935. In 1966 two strains (HSFS/N and HSFR/N) were selected for sensitivity and resistance, respectively, to the action of Histamine after treatment with *Bordetella pertussis* vaccination. In the early 1970's, a group of mice at the eighth inbred generation of HSFS/N were found to carry the *Fv-1*^{b}, allele for sensitivity to the B strain of Friend leukaemia virus. Homozygous mice were then inbred as strain FVB, without further selection for histamine sensitivity (Taketo *et al*, 1991).

FVB/NHsd - Derived from a breeding nucleus obtained from the National Institutes of Health, Bethesda in 1988.

FVB/NHan®Hsd - In 1994, to Harlan Laboratories through acquisition of Central Institute for Laboratory Breeding, Hannover. Harlan became Envigo in 2015, then Envigo was acquired by Inotiv in 2021.

CHARACTERISTICS

This strain is useful for the production of transgenic mice on a fully inbred genetic background.

Drugs

Relatively insensitive to the initiation of papillomas following initiation by 7,12-dimethylbenz(a) anthracene and promotion with 12-o-tetradecanoylphorbyl-13-acetate (TPA), but a high proportion progress to carcinomas (Hennings *et al*, 1993).

Genetics

Coat colour genes

- *A, B, c, D, P* : albino.

Histocompatibility

- *H-2*^{q}, *Hc*^{1}, *Ly-1*^{b}, *Ly-2*^{b}, *Ly-3*^{b}, *Thy-1*^{a}.

Biochemical markers

- *Apoa-1*^{b}, *Car-2*^{b}, *Es-1*^{b}, *Es-2*^{b}, *Es-3*^{c}, *Fv-1*^{b}, *Gpd-1*^{b}, *Gpi-1*^{b}, *Hbb*^{d}, *Idh-1*^{a}, *Mod-1*^{a}, *Mup-1*^{a}, *Pep-3*^{b}, *Pgm-1*^{a}, *Pgm-2*^{a}, *Trf*^{b}.

Description of the difference between FVB/N and C57BL/6J for 272 microsatellites (Neuhaus *et al*, 1997).

Infection

Highly susceptible paralysis induced by ts1, a mutant of Moloney murine leukaemia virus (Wong *et al*, 1991).

Life-span and spontaneous disease

60% survival to 24 months of age in both sexes with 55% and 66% gross tumour incidence in males and females, respectively at that time (Mahler *et al*, 1996). Most common tumour types were lung alveolar-bronchiolar, hepatocellular, subcutis neural crest and Harderian gland adenomas in males, and lung, pituitary, ovarian, lymphomas, histiocytic sarcomas, Harderian gland adenomas and pheochromocytomas in females (Mahler *et al*, 1996).

Miscellaneous

A new strain 129-derived embryonic stem cell line, H3, gives good levels of germ-line transmission in chimeras involving FVB (Kim *et al*, 1966).

Reproduction

These mice have a vigorous reproductive performance with large litters. Fertilised eggs contain large and prominent pronuclei, which facilitate the microinjection of DNA (Taketo *et al*, 1991). Good reproductive performance with large litters (Wong *et al*, 1991). Characteristics of the FVB strain have been described by Festing (1997) and Lyon *et al*, (1996).

REFERENCES

1. Festing MFW (1997) Inbred Strains of mice. Mouse genome 95, 519-686.
2. Goelz MF, Mahler J, Harry J, Myers P, Clark J, Thigpen JE, Forsythe DB (1998) Neuropathologic findings associated with seizures in FVB mice. Lab. Anim. Sci. 48, 34-37.
3. Hennings H, Glick AB, Lowry DT, Krsmanovic LS, Sly LM, Yuspa SH (1993) FVB/N mice: An inbred strain sensitive to the chemical induction of squamous cell carcinomas in the skin. Carcinogenesis 14, 2353-2358.
4. Kim D, Park DH, Kang NG, Namkoong Y, Shin HS (1996) A new embryonic stem-cell line with germ-line competence in the FVB/N background. Molecules and Cells 6, 577-581.
5. Lyon MF, Rastan S, Brown SDM (1996) Genetic variants and strains of the laboratory mouse. 2 Volumes. Oxford, New York, Tokyo: Oxford University Press.
6. Mahler JF, Stokes W, Mann PC, Takaoka M, Maronpot RR (1996) Spontaneous lesions in aging FVB/N mice. Toxicologic Pathology 24, 710-716.
7. Neuhaus IM, Sommardahl CS, Johnson DK, Beier DR (1997) Microsatellite DNA variants between the FVB/N and C3HeB/FeJLe and C57BL/6J mouse strains. Mammalian Genome 8, 506-509.
8. Taketo M, Schroeder AC, Mobraaten LE, Gunning KB, Hanten G, Fox RR, Roderick TH, Stewart CL, Lilly F, Hansen CT, Overbeek PA (1991) FVB/N: An inbred mouse strain preferable for transgenic analysis. Proc. Natl. Acad. Sci. USA, 88 2065-2069.
9. Wong PKY *et al* (1991) High susceptibility of FVB/N mice to the paralytic disease induced by ts1, a mutant of Moloney murine leukemia virus TB. Virology 180, 365-371.