NIH (National Institute of Health)

NIH/OlaHsd

Developed from outbred "Swiss" mice imported into the USA by Dr. C. Lynch in 1926. To Dr M. Pitman at NIH, Bethesda, USA from N:NIH(S) stock. To Dr Sheffield, National Institutes of Standards & Biological Control, Hampstead, England, in 1968. Maintained brother x sister colony. To Burroughs Welcome, Beckenham in 1970.

From Burroughs Welcome to OLAC (now Inotiv) in 1975. Harlan became Envigo in 2015, then Envigo was acquired by Inotiv in 2021.

CHARACTERISTICS

A prolific and vigorous general-purpose strain.

Genetics

Coat color genes

- *a, b, c* : albino.

Histocompatibility

- *H-2^{q}*.

Biochemical markers

- *Aco-1^{a}, Car-2^{b}, Es-1^{b}, Es-2^{b}, Es-3^{c}, Es-5^{b}, Es-10^{a}, Es-11^{a}, Got-2^{a}, Gpd-1^{b}, Gpi-1^{b}, Hbb^{s}, Hk-1^{a}, Idh-1^{a}, Ldr-1^{b}, Mod-1^{b}, Mod-2^{b}, Pep-3^{b}, Pgm-1^{a}, Pgm-2^{a}, Pk-3^{a}, Sdh-1^{a}, Tam-1^{c}, Trf^{b}, Xld-1^{b}* (Peters and Festing, 1985).

This strain carries gene rd causing retinal degeneration (Stirling *et al*, 1983).

Immunology

Good antibody response.

Infection

Highly susceptible to infection with the helminth *Mesocestoides corti.* Larval burdens at 21 days after infection with 100 tetrathyridia being considerably higher than all other strains except SJL, which was comparable (Lammas *et al*, 1990). Resistant to *Trichuris muris* (Wakelin, 1975; Else and Wakelin, 1990). Good response to surface antigen of *Trichinella spiralis* (Jungery and Ogilvie, 1982; Wakelin 1980; Robinson *et al*, 1994; Grencis *et al*, 1991). NIH is resistant to *Trichinella spiralis*, while C57BL/10 is sensitive.

During infection, the production of IL-2 and IL-3 is similar for both strains, but earlier in NIH mice (Crook *et al*, 1994).

Reproduction

Good reproductive performance and able to breed a high ratio of females per male (Peters and Festing, 1985).

REFERENCES

1. Crook K, Wakelin D (1994) Induction of T lymphocyte subsets and levels of interleukin-2 and interleukin-3 after infection with *Trichinella spiralis* are similar in mice of high-and low-responder phenotypes. Intern. J. parasitol. 24, 119-126.
2. Else KJ, Wakelin D (1990) Genetically-determined influences on the ability of poor responder mice to respond to immunization against *Trichuris muris*. Parasitology 100, 479-489.
3. Festing MFW (1997) Inbred Strains of mice. Mouse Genome 95, 519-686.
4. Grencis RK Hultner R, Else KJ (1991) Most protective immunity to *Trichinella spiralis* in mice: activation of Th subsets and lymphokine secretion in mice expressing different response phenotypes. Immunology 74, 329-332.
5. Jungery M, Ogilvie BM (1982) Antibody response to stage-specific *Trichinella spiralis* surface antigens in strong and weak responder mouse strains. J. Immunol. 129, 839-843.
6. Lammas DA, Mitchell LA, Wakelin D (1990) Genetic influences upon eosinophilia and resistance in mice infected with *Mesocestoides corti*. Parasitology 101, 291-299.
7. Peters AG, Festing MFW (1985) NIH/Ola: a highly productive inbred strain of the laboratory mouse. Lab. Anim. 19, 320-327.
8. Robinson K Bellaby T, Wakelin D (1994) Vaccination against the nematode *Trichinella spiralis* in high-and low-responder mice. Effects of different adjuvants upon protective immunity and immune responsiveness. Immunology 82, 2261-2267.
9. Stirling P, Tullo AB, Blyth WA, Hill TJ (1983) Retinal degeneration in NIH (inbred) mice. Exp. Eye Res. 36, 761-763.
10. Wakelin D (1975) Genetic control of immune response to parasites: immunity to Trichuris muris in inbred and random-bred strain of mice. Parasitology 71, 51-60.
11. Wakelin D (1980) Genetic control of immunity to parasites. Infection with *Trichinella spiralis* inbred and congenic mice showing rapid and slow response to infection. Parasite Immunol. 2, 85-98.