Also Known As: A, AJ

A/J inbred mice are widely used to model cancer and for carcinogen testing given their high susceptibility to carcinogen-induced tumors. Other uses include hybridoma production for immunology applications, cardiovascular research, developmental biology (low background incidence of cleft palate; high susceptibility to cortisone-induced cleft palate) and sensorineural given their early hearing loss.

Our preclinical efficacy testing services offer scientific expertise and an array of target-based and phenotype-based outcome measures, both in vivo and at endpoint, for flexible study designs and assay development in mouse models of muscular dystrophy. See our full service platform.

VIEW GENETICS
Important Note
This strain is homozygous for Cdh23<sup>ahl</sup>, the age related hearing loss 1 mutation, and ahl4, which on this background result in progressive hearing loss with onset between three and five months of age.

Detailed Description
Developed by LC Strong in 1921 from a cross between a Cold Spring Harbor albino and a Bagg albino, the A/J inbred strain is widely used in cancer and immunology research. It is highly susceptible to cortisone-induced congenital cleft palate. It has a high incidence of spontaneous lung adenomas, and lung tumors readily develop in response to carcinogens. A high percentage of mammary adenocarcinomas (a large proportion of acinar-type) develop in multiparous females. Rare spontaneous myoepitheliomas arising from myoepithelial cells of various exocrine glands have been observed in The Jackson Laboratory substrains.

A/J mice fed an atherogenic diet (1.25% cholesterol, 0.5% cholic acid, and 15% fat) fail to develop atherosclerotic aortic lesions in contrast to several highly susceptible strains of mice (e.g. C57BL/6J, Stock No. 000664; C57L/J, Stock No. 000688, C57BR/cdJ, Stock No. 000667, and SM/J, Stock No. 000687). In addition to atherosclerosis resistance, A/J mice are resistant to diabetes, obesity, insulin resistance and glucose intolerance. On either chow or high fat diet, A/J mice maintain low glucose and insulin levels.
A/J mice develop cigarette smoke-induced emphysema in approximately half the time when compared with C57BL/6J mice. Structural lung damage caused by induced asthma mimics the phenotype found in asthma patients more closely than does the induced damage in BALB/c mice.

A strain characteristic of A/J is a late onset (four to five months) progressive muscular dystrophy as a result of a homozygous retrotransposon insertion in the dysferlin (Dysf) gene. Myofibers in $Dysf^{prmd}$ homozygotes undergo degeneration and regeneration, and their nuclei are placed centrally. Proximal muscles are more severely affected than distal muscles (Ho M, et al. 2004).

Sequencing of the mitochondrial genome of A/J reveals 10 adenines in a polymorphic adenine repeat sequence in the mt-Tr sequence. This repeat contains nine adenines in NOD/ShiLtJ, A/HeJ, A/WySnJ, and SKH2/J and 10 adenines in A/J, and NZB/B1NJ, and likely enhances the hearing loss associated with the $Cdh23^{ahl}$ allele (Johnson et al. 2001).

Selected References

Genetics

- $Il3ra^{m1}$
- $Nrg3^{ska}$
- $Rmc6$
- $Cs^{ahl4}$
- $Hc^{0}$
- $Wnt9b^{clf1}$
- $Cdh23^{ahl}$
- $Mx1^{st1}$
- $Ahr^{b-2}$
- $Bhr5^{A/J}$
- $Micr^{n}$
- $Cox7a2l^{i}$
- $mt-Tr^{m1}$
- $Bhr1^{A/J}$
Genotyping Protocols
Sanger sequencing:H2rs33645062
Genotyping resources and troubleshooting
Inbred mouse strains are maintained through sibling (sister x brother) matings; no genotyping required.

Dietary Information
LabDiet® 5K52/5K67

Breeding Considerations
This strain is a good breeder.

Additional Breeding and Husbandry Support
Mating System
Sibling x Sibling

Appearance
albino

Related Genotype: a/a Tyrp1b/Tyrp1b Tyrf/Tyrf

Citation
When using the A/J mouse strain in a publication, please include JAX stock #000646 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions
## Pricing & Availability

**Pricing effective for USA, Canada and Mexico shipping destinations**

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**Readily Available**

Sized to accommodate orders of up to 100 or more. Ask Customer Service for details.
Volume Pricing Details

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**Volume Pricing Program**
Quantities: Volume pricing is automatically applied when a minimum quantity per strain for a shipment is reached
Sexes: Sexes of the same strain may be combined to reach minimum quantity levels to receive the volume pricing
Shipment: All shipping destinations qualify

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