DBA/2J
Stock No: 000671 | DBA2
Inbred Strain

Also Known As:D2J, D2, DBA2, DBA, DBA/2
DBA/2J is a widely used inbred strain. Some characteristics include low susceptibility to developing atherosclerotic aortic lesions, high-frequency hearing loss, susceptibility to audiogenic seizures, development of progressive eye abnormalities that closely mimic human hereditary glaucoma, and extreme intolerance to alcohol and morphine.

GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contact Technical Support</td>
</tr>
<tr>
<td></td>
<td>(2018-07-27 00:00:00)</td>
</tr>
</tbody>
</table>
Important Note
This strain is homozygous for Cdh23<sup>ahl</sup>, the age related hearing loss 1 mutation, which on this background results in progressive hearing loss that is already severe by three months of age.

Detailed Description
DBA/2J is a widely used inbred strain that is valuable in a large number of research areas, including cardiovascular biology, neurobiology, and sensorineural research. Its characteristics are often contrasted with those of the C57BL/6J inbred strain (Stock No. 000664). DBA/2J mice show a low susceptibility to developing atherosclerotic aortic lesions (20 to 350 um2 atherosclerotic aortic lesions /aortic cross-section) following 14 weeks on an atherogenic diet (1.25% cholesterol, 0.5% cholic acid and 15% fat). They also exhibit high-frequency hearing loss beginning roughly at the time of weaning/adolescence (between three to four weeks of age) and becoming severe by two to three months of age. The age related hearing loss 8 mutation arose spontaneously in DBA/2J between 1951 and 1975. This strain possesses three recessive alleles that cause progressive cochlear pathology initially affecting the organ of Corti. Decreasing anteroventral cochlear nucleus volume decreases and neuron loss parallel the progression of peripheral hearing loss. Young DBA/2J inbred mice are also susceptible to audiogenic seizures due to the asp2 mutation, however, this susceptibility decreases as animals reach adulthood. There is high incidence of calcareous pericarditis, and calcified lesions of the testes, tongue and skeletal muscle. This strain is among the least responsive to phytohemagglutinin (Heiniger et al., 1975), but highly sensitive to haloperidol (Kanes et al, 1993).
Aging DBA/2J mice develop progressive eye abnormalities that closely mimic human hereditary glaucoma. Defects include iris pigment dispersion, iris atrophy, anterior synechia (adhesion of the iris to the cornea), and elevated intraocular pressure (IOP). The onset of disease symptoms begins between three and four months of age with 56% of females and 15% of males showing signs of iris pigment epithelium loss and transillumination of the peripheral iris. By six to seven months of age, all mice demonstrate significant widespread transillumination and thickening of the iris border. Elevation of IOP is evident in some females by six months of age. By nine months of age, both sexes exhibit elevated IOP, with pressures higher in females (mean: 20.3 +/-79; 1.8 mmHg) compared to males (mean: 16.2 +/-79; 1.4 mmHg). Retinal histopathology reveals retinal ganglion cell, as well as GABAergic and cholinergic amacrine cell, loss. (Moon JI et al. 2005). Two alleles contribute to the eye phenotype, Gpnmb^{R150X} and Tyrp1^{isa}; both are present in DBA/2J mice.

DBA/2J mice also show an extreme intolerance to alcohol and morphine. In 2002, Vance et al. reported that NK cells in DBA/2J exhibit the unique characteristic that they lack surface expression of CD94/NKG2A receptors. CD94/NKG2 receptors are normally expressed on the surface of most fetal NK cells. Expression of CD94/NKG2 is thought to play a role in self tolerance and the ability of NK cells to distinguish between MHC I\textsuperscript{low} and MHC I\textsuperscript{high} target cells. CD94 is the product of the mouse Kird1 locus, on mouse Chromosome 6. A subsequent publication by Wilhelm and coworkers identified a deletion in the 3' end of the Kird1 gene of DBA/2J mice. This ~2.4 kb deletion does not prevent transcription of the gene, but prevents translation and cell surface expression of the CD94 protein. Analysis of DNA samples held at The Jackson Laboratory (unpublished results) confirmed the presence of the deletion of Kird1 in the DBA/2J strain. The deletion, which occurred sometime between 1984 and 1989, is homozygous within our colonies, making DBA/2J mice naturally CD94 deficient.

**Selected References**

- **Development**
- **Genetics**
  - a
  - Myo5a\textsuperscript{d}
  - Asp2
  - Gpnmb^{R150X}
  - Tyrp1^{isa}
  - Ahr\textsuperscript{d}
  - Hc\textsuperscript{0}
  - Cdh23\textsuperscript{ahl}
  - P2rx7\textsuperscript{s48804829-T}
  - Fscn2\textsuperscript{ahl8}
*Fbrw1^DBA/2J*

*Fbrw2^DBA/2J*

*Kld1^DBA/2J*

*Taar1^m1J*

*Gpr84^del*

*Cd5^a*

*Mx1^s1*

*Cox7a2^l*

### Disease/Phenotype

- Disease Terms
- Research Areas By Phenotype
- Mammalian Phenotype Terms by Genotype
- Phenotype Information
- References

### Technical Support

**Genotyping Protocols**

Sanger sequencing: *Taar1 rs33645709-SEQ*

Genotyping resources and troubleshooting

Inbred mouse strains are maintained through sibling (sister x brother) matings; no genotyping required.
Dietary Information
LabDiet® 5K52 formulation (6% fat)

Breeding Considerations

This strain is a good breeder.

Additional Breeding and Husbandry Support

Mating System
Sibling x Sibling

Appearance
dilute brown

Related Genotype: a/a Tyro1b/Tyro1b Myo5ad/Myo5ad

Citation
When using the DBA2 mouse strain in a publication, please include JAX stock #000671 in your Materials and Methods section.

Animal Health Reports

Facility Barrier Level Descriptions

- RB09 (Maximum)
- RB11 (Maximum)
- EM03 (Maximum)
- MP14 (Maximum)
- AX29 (Maximum)

Pricing & Availability

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

Domestic

Pricing effective for USA, Canada and Mexico shipping destinations

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$33.25</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$30.01</td>
</tr>
<tr>
<td>4 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$33.25</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$30.01</td>
</tr>
<tr>
<td>5 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$34.70</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$31.92</td>
</tr>
<tr>
<td>6 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$36.74</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$34.15</td>
</tr>
</tbody>
</table>
## Related Products and Services

<table>
<thead>
<tr>
<th></th>
<th>DBA/2J AC203/GrsrJ mES cells</th>
<th>$995.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse ES Cells</td>
<td>DBA/2J AC173/GrsrJ mES Cells</td>
<td>$995.00</td>
</tr>
</tbody>
</table>

## VOLUME PRICING DETAILS

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>Volume Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>5% off</td>
</tr>
</tbody>
</table>

**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.

This strain is available from some international Charles River (CR) breeding facilities in Japan and/or Europe. For more information, see the [Worldwide Distributor List for JAX® Mice](#).

## Payment Terms and Conditions

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

## The Jackson Laboratory's Genotype Promise

The Jackson Laboratory has rigorous genetic quality control and mutant gene genotyping programs to ensure the genetic...
background of JAX® Mice strains as well as the genotypes of strains with identified molecular mutations. JAX® Mice strains are only made available to researchers after meeting our standards. However, the phenotype of each strain may not be fully characterized and/or captured in the strain data sheets. Therefore, we cannot guarantee a strain’s phenotype will meet all expectations. To ensure that JAX® Mice will meet the needs of individual research projects or when requesting a strain that is new to your research, we suggest ordering and performing tests on a small number of mice to determine suitability for your particular project. We do not guarantee breeding performance and therefore suggest that investigators order more than one breeding pair to avoid delays in their research.

Terms Of Use

TERMS OF USE

General Terms and Conditions

LICENSING INFORMATION

Phone: 207-288-6470
Email: TechTran@jax.org

Related Strains

All

By Allele

By Gene

By Collection