B6.Cg-Ins2 Akita Bdkrb2 tm1Jh/SmiJ

Stock No: 006860 | B6-B2R, Akita

Congenic, Spontaneous Mutation, Targeted Mutation

Cryo Recovery

REQUEST CRYORECOVERY

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

Also Known As: B6-Akita, B2R, B6-B2R, Akita

Mice homozygous for this targeted mutation of the bradykinin receptor, beta 2 (Bdkrb2) gene and heterozygous for the Akita spontaneous mutation of the insulin 2 (ins2) gene (Ins2Akita) are viable and fertile. They are extremely diabetic, underweight, hyperphagic, polyuric, and have severe kidney, skeletal, and testicular defects. Essentially no subcutaneous fat, and a significantly reduced lifespan. This strain may be used to research the kallikrein-kinin system, specifically the role of bradykinin B2 receptor in diabetes, oxidative stress, mitochondrial DNA damage, apoptosis, kidney morphology and function, and other senescence-associated phenotypes.

Donating Investigator

Dr. Masao Kakoki, University of North Carolina at Chapel H

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GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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<tbody>
<tr>
<td>000664 C57BL/6J</td>
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<th>Ins2 Akita</th>
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<tr>
<td><strong>Allele Type</strong></td>
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<tr>
<td>Spontaneous</td>
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<tr>
<th>Bdkrb2 tm1Jh</th>
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<tr>
<td><strong>Allele Type</strong></td>
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<td>Targeted (Null/Knockout)</td>
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VIEW GENETICS

RESEARCH APPLICATIONS

Diabetes and Obesity Research
Mice homozygous for the targeted mutation and heterozygous for the Ins2Akita spontaneous mutation are viable and fertile. Similar to mice only heterozygous for the Ins2Akita mutation, the double mutant mice are severely diabetic; their body weights are 70% of wildtype, they consume over 3-fold the normal amount of food, and their urinary output is approximately 20-fold more than that of wildtype mice. Double mutant mice have markedly enlarged kidneys. Urinary albumin excretion in double mutants is almost 4-fold that of either single mutant, and double mutants experience more severe nephropathy than mice that are heterozygous for the Akita mutation alone. Megsin and nephrin expression is markedly increased in double mutant mice when compared to wildtype or to mice with either single mutation alone. By 12 months of age, double mutant mice experience hair loss due to a reduction in hair follicle numbers and thinning of the dermis. Double mutants have essentially no subcutaneous fat, severe kyphosis, reduced bone density, osteoporosis, testicular atrophy, lipofuscin accumulation in the renal proximal tubule and testicular Leydig cells, increased apoptosis in the testicular seminiferous tubules and intestinal villi, and a significantly reduced lifespan.

This model is useful for studying the kallikrein-kinin system, specifically the role of bradykinin B2 receptor in diabetes, oxidative stress, mitochondrial DNA damage, apoptosis, morphological and functional kidney changes, and other senescence-associated phenotypes.
Genotyping Protocols
Restriction Enzyme Digest: Ins2<sup>Akita</sup>
End Point Analysis: Ins2<sup>Akita</sup>
MELT: Bdkrb2<sup>tm1.Jfh</sup>
Standard PCR: Bdkrb2<sup>tm1.Jfh</sup>
Genotyping resources and troubleshooting

Appearance
black
Related Genotype: a/a

Citation
For use of the BD-BRD Akita mouse strain in a publication, please cite the originating article(s) and include JAX stock #006860 in your Materials and Methods section.

Animal Health Reports
Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200

Pricing & Availability

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

<table>
<thead>
<tr>
<th>Domestic</th>
<th>International</th>
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<tr>
<td>Cryorecovery - Domestic Pricing</td>
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<tr>
<td>SERVICE</td>
<td>GENOTYPE</td>
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<tr>
<td>Cryo Recovery</td>
<td>Heterozygous or Wild-type for Ins2&lt;Akita&gt;, Heterozygous for Bdkrb2&lt;tm1.Jfh&gt;</td>
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</table>
We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

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