Head tilt (Nox3<sup>het</sup>) is an autosomal recessive mutation that can cause abnormal circling behavior and hyperactivity in affected mice. Homozygotes also exhibit a subtle head tilt. Together, the abnormal behavioral phenotype is consistent with that of a vestibular disorder. Evoked auditory brainstem response profiles are normal indicating that the mutants are not deaf. Nox3<sup>het</sup>/Nox3<sup>het</sup> mutants are unable to sense orientation under water and therefore, cannot swim properly. If held by the tail, Nox3<sup>het</sup>/Nox3<sup>het</sup> mice retract, rather than extend, their limbs; they also flex ventrally, instead of dorsally as wild type mice do. When lowered quickly by the tail, Nox3<sup>het</sup>/Nox3<sup>het</sup> mice fail to extend their forelimbs in a normal manner and have difficulty righting themselves if dropped vertically from a short distance. Morphological assessment of the inner ear of homozygotes r...
**GENETIC OVERVIEW**

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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**Nox3**

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tbody>
<tr>
<td>Spontaneous</td>
<td>Nox3</td>
<td>NADPH oxidase 3</td>
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</table>

**RESEARCH APPLICATIONS**

- Sensorineural Research
- Neurobiology Research
- Internal/Organ Research

**BASE PRICE**

Starting at: $2,854.50 Domestic price Cryo Recovery

**Details**

Head tilt (Nox3het) is an autosomal recessive mutation that can cause abnormal circling behavior and hyperactivity in affected mice. Heterozygotes also exhibit a subtle head tilt. Together, the abnormal behavioral phenotype is consistent with that of a vestibular disorder. Evoked auditory brainstem response profiles are normal indicating that the mutants are not deaf. Nox3het/Nox3het mutants are unable to sense orientation under water and therefore, cannot swim properly. If held by the tail, Nox3het/Nox3het mice retract, rather than extend, their limbs; they also flex ventrally, instead of dorsally as wild type mice do. When lowered quickly by the tail, Nox3het/Nox3het mice fail to extend their forelimbs in a normal manner and have difficulty righting themselves if dropped vertically from a short distance. Morphological assessment of the inner ear of homozygotes reveals an abnormal appearance of the saccule and utricle owing to a complete absence of otoliths. Otoliths are tiny calciferous granules within the statoconic membrane that covers the sensory epithelia of the acoustic maculae. These ear crystals function as mass particles that stimulate gravity receptors in the maculae of the utricle and saccule in response to head tilting and gravitational forces. Electrophysiological assessment of the vestibular neurons in Nox3het mutants demonstrates these cells totally lack vestibular evoked potentials in response to pulsed linear acceleration. Thus, the mutants are unable to process otolite-mediated sensory stimuli throughout their entire lifespan. The Nox3het gene product is likely involved in the formation of the otolithic ear crystals (prior to embryonic day 14), perhaps through the regulation of calcium secretion by neuroepithelial cells. Structures of the cochlea and middle ear appear normal and melanocyte function is not compromised. (Sweet, 1980; Bergstrom et al., 1998; Jones et al., 1999)

**Development**
Genotyping Protocols
Genotyping resources and troubleshooting

Appearance
agouti, unaffected
Related Genotype: A/A Nox3<sup>het</sup>/+ or A/A +/+ 
white-bellied agouti, unaffected
Related Genotype: A/A<sup>w-J</sup> Nox3<sup>het</sup>/+ or A/A<sup>w-J</sup> +/+ or A<sup>w-J</sup>/A<sup>w-J</sup> Nox3<sup>het</sup>/+ or A<sup>w-J</sup>/A<sup>w-J</sup> +/+ 
agouti, circling
Related Genotype: A/A Nox3<sup>het</sup>/Nox3<sup>het</sup>
white-bellied agouti, circling
Related Genotype: A/A<sup>w-J</sup> Nox3<sup>het</sup>/Nox3<sup>het</sup> or A<sup>w-J</sup>/A<sup>w-J</sup> het/Nox3<sup>het</sup>

Citation
When using the B6 x STOCK Nox3<sup>het</sup>/J mouse strain in a publication, please cite the originating article(s) and include JAX stock #000061 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions
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.

Payment Terms and Conditions
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All Related Strains