This visual arrestin knock out mouse strain may be useful in studies of photoreceptor adaptation, phototransduction, and retinopathy.

Donating Investigator

Jeannie Chen, University of Southern California

**GENETIC OVERVIEW**

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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<td>Sag</td>
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**Allele Type**  
Targeted (Null/Knockout)

**Gene Symbol**  
Sag

**Gene Name**  
S-antigen, retina and pineal gland (arrestin)

**RESEARCH APPLICATIONS**

Research Tools  
Sensorineural Research

**BASE PRICE**

Starting at:
Details

Important Note

Breeding colonies at The Jackson Laboratory are maintained in normal light conditions. We will attempt to maintain this colony in shelf positions that allow the least amount of light possible (i.e., lower shelves), but cannot guarantee the extent of retinal damage (if any) in the mice we provide. For experimental use, we strongly suggest investigators use the mice we provide for breeding purposes rather than experiments. This allows each investigator to generate their own experimental offspring in light conditions ideal for their own respective experiments.

Detailed Description

Mice that are homozygous for the targeted mutation are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities. These mutant mice are photosensitive and if not maintained under low light conditions will develop progressive retinal degeneration. No gene product (protein) is detected by Northern blot analysis of retinas from homozygous mice maintained in cyclic (12 hour light: 12 hour dark) conditions. Photoreceptor loss in homozygotes maintained in cyclic light conditions begins at approximately 100 days of age, progressing to loss of more than half of the photoreceptors by 1 year of age. After 1 week of constant light exposure, homozygotes lose 30% of photoreceptors; after 3 weeks of constant light exposure, more than 60% of photoreceptors are lost. Homozygotes maintained under cyclic light conditions exhibit disorganized and 25% shorter retinal rod outer segment layer, as well as reduced levels of retinal rhodopsin. Recovery phase response to light flash stimulation of the retina is significantly longer in homozygotes, although light adaptation function is normal.

Development

Control Suggestions

Selected References

Genetics

Sag\textsuperscript{tm1Jnc}
Breeding Considerations

When maintaining a live colony, these mice can be bred as homozygotes.

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Additional Breeding and Husbandry Support

Citation

When using the STOCK $Sag^{tm1.Jnc}$ mouse strain in a publication, please cite the originating article(s) and include JAX stock #013197 in your Materials and Methods section.

Animal Health Reports

*Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200*
Related Products and Services

| Frozen Mouse Embryo | STOCK Sag<tm1Jnc>/J | $2595.00 |

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