

Underwhite-like: a new coat color mutation mapping near the *Slc45a2* locus on Chromosome 15.

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Mutation (allele) symbol: *uwl*

Mutation (allele) name: underwhite-like

Gene symbol: *uwl*

Strain of origin: C57BL/6J

Current strain name: C57BL/6J-*uwl*/GrsrJ

Stock #005962 (jaxmice.jax.org)

Phenotype categories: coat color

Abstract

A spontaneous, recessive mutation that causes a very light coat color has been discovered and named underwhite-like (*uwl*). The phenotype and Chromosome 15 map location suggest that this new mutation may be a remutation to *Slc45a2*^{*uw*}, however a direct test for allelism was not performed because *Slc45a2*^{*uw*} is only available as frozen embryos.

Origin and Description

The underwhite-like (*uwl*) mutation was discovered by Crystal Gewlas in a production colony of C57BL/6J mice (stock #000664) in AX-12 at the Jackson Laboratory on March 10, 2004. Mice homozygous for the *uwl* mutation on this nonagouti background are recognized by a very light skin color at birth, and the coat remains light throughout the animal's lifespan. This coat color is a very light cream color, not very different from albino but with more of a flesh tone (see photos on the MGI allele detail page). In mice homozygous for this new mutation, the lightness of the underwhite coat color is more extreme than that observed in original underwhite (*Slc45a2*^{*uw*}) homozygotes. This dilution also lightens feet, ears and tail. Like mice homozygous for *Slc45a2*^{*uw*}, this new *uwl* mutation has abnormal eye pigmentation. The eyes are unpigmented at birth, but become ruby colored at maturity.

Genetic Analysis

The underwhite-like mutation was first identified as a recessive mutation by crossing a C57BL/6J-*uwl* mutant to an inbred BALB/cJ mouse. In this cross no mutants were produced in the F1 generation, but mutants were produced in the F2 intercross generation. Using our standard mapping procedures an intercross with CAST/Ei was set up and generated 33 affected progeny that were used for linkage analysis. This new mutation maps on mouse Chromosome 15 between *D15Mit13* (NCBI m34 position 3.2 Mb) and

D15Mit265 (NCBIIm34 position 12.7 Mb) and is non-recombinant with *D15Mit175* (NCBIIm34 position 9.0 Mb) and *D15Mit10* (NCBIIm34 position 10.4 Mb). The original underwhite mutation, (*Slc45a2^{uw}*), also maps in this region (NCBIIm34 position 10.8 Mb). Thus, the underwhite-like mutation is likely a remutation of *Slc45a2^{uw}*; however a direct test for allelism between mice carrying the *Slc45a2^{uw}* mutation and this new mutation was not performed because the *Slc45a2^{uw}* mice are only available as cryopreserved embryos.

Pathology

A routine pathological screen of a mutant and a littermate control at 3 weeks of age showed no lesions.

Hearing as assessed by ABR of 3 mutants and 3 control littermates at 2.5 months of age was normal.

The eyes of 3 mutants and 3 littermate controls at 2.5 months of age were examined with an ophthalmoscope and determined to be normal.

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