Steel 21 Jackson: a remutation of the *Kitl*^{Sl} gene

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Mutation (allele) symbol: *Kitl*$^{Sl\text{-}21J}$

Mutation (allele) name: steel 21 Jackson

Gene symbol: *Kitl*

Strain of origin:B10.BR-*H2*^{k} *H2-T18*^{a}/SgSnJ

Current strain name: B10.BR-*H2*^{k} *H2-T18*^{a}/SgSnJ-*Kitl*$^{Sl\text{-}21J}$/GrsrJ

Stock #006108

Phenotype categories: coat color and belly spotting

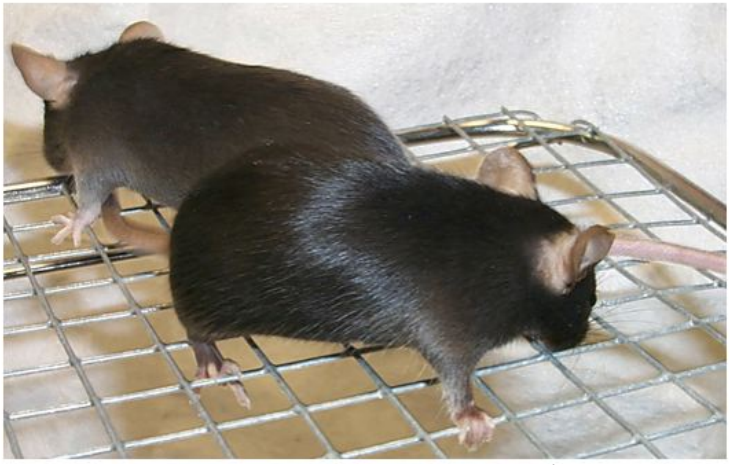
Abstract

A spontaneous, dominant coat color mutation that maps to the same region as *Kitl*^{sl} on Chr 10 has been characterized and named steel 21 Jackson (*Kitl*$^{Sl\text{-}21J}$).

Origin and Description

The steel 21 Jackson (*Kitl*$^{Sl\text{-}21J}$) mutation was discovered by Patricia Anne Mosley in a production colony of B10.BR-*H2*^{k} *H2-T18*^{a}/SgSnJ mice (Stock # 000465) on June 20, 2001. Mice heterozygous for this spontaneous, dominant mutation are recognizable by a slightly diluted coat color that also lightens the ears, tail and feet. All affected animals have a belly spot of variable size.

The ventral view of a 3-month-old mouse carrying the *Kitl*$^{Sl\text{-}21J}$ mutation (upper) showing the belly spot and a normal littermate control (lower).



The lighter colored male carrying the *Kitl*$^{Sl\text{-}21J}$ allele is in the background and a littermate control is shown in the foreground. Both at 3 months of age.

Genetic Analysis

In order to determine the mode of inheritance for this new remutation, two mice carrying the *Kitl*$^{Sl\text{-}21J}$ mutation were mated to an unrelated C57BL/6J mouse. These matings produced 25 progeny in 3 litters in which 13 were affected and 12 were unaffected, proving that the new mutation is dominant.

Using our standard mapping procedures a female B10.BR-*H2*^{k} *H2-T18*^{a}/SgSnJ-*Kitl*$^{Sl\text{-}21J}$/J mouse was mated to a CAST/Ei male. Three male F1 progeny from this mating were then backcrossed to three +/+ females. These matings produced 25 affected animals of which 21 were used for linkage analysis.

This new *Kitl*$^{Sl\text{-}21J}$ remutation was mapped to Chromosome 10 distal to *D10Mit65* at 46 cM (NCBIm34 position 84.1 Mb) showing 9.5% recombination and proximal to *D10Mit203* at 60 cM (NCBIm34 position 109.3 Mb) showing 4.7% recombination. *Kitl*^{Sl} is positioned at 57 cM (NCBIm34 position 99.9-100.0 Mb) on Chromosome 10. A direct test for allelism was not set up because homozygotes of *Kitl*^{Sl} are generally lethal.

Pathology

A routine pathological screen of 2 homozygous mutant mice and 1 control at 11 weeks of age revealed no lesions. Hearing as assessed by auditory-evoked brainstem response testing of two homozygous mutants and 2 controls at 4 weeks of age revealed no hearing loss. The eyes of 2 homozygous mutant mice at 4 weeks of age were tested with an ophthalmoscope and were determined to be normal.

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