Steel 22 Jackson *Kitl*$^{Sl\text{-}22J}$; a new remutation in the *Kitl* gene.

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Mutation (allele) symbol: *Kitl*$^{Sl\text{-}22J}$

Mutation (allele) name: Steel 22 Jackson

Gene symbol: *Kitl*

Strain of origin: C57BL/6-*Ins2*^{Akita}/J

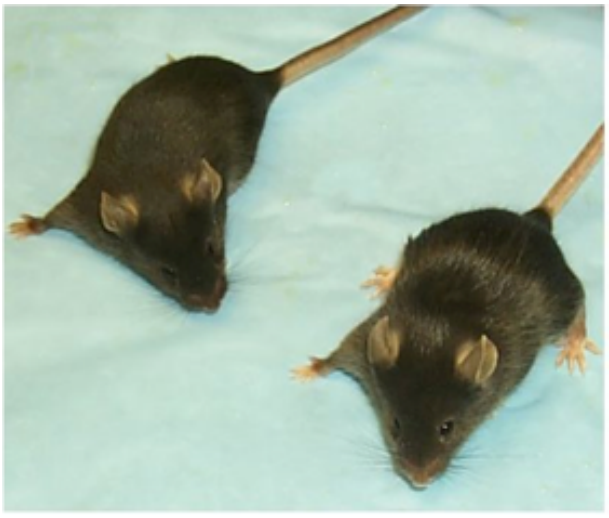
Current strain name: C57BL/6J-*Kitl*$^{Sl\text{-}22J}$/GrsrJ

Stock #006839

Phenotype categories: coat color

Abstract
A spontaneous, dominant coat color mutation that maps to the same region as *Kitl* on Chromosome 10 has been characterized and named steel 22 Jackson (*Kitl*$^{Sl\text{-}22J}$).

Origin and Description
The steel 22 Jackson (*Kitl*$^{Sl\text{-}22J}$) mutation was discovered by Kristy Martin in a production colony of C57BL/6-*Ins2*^{Akita}/J mice (Stock #003548) at The Jackson Laboratory. Like the previously described *Kitl*^{Sl}, mice heterozygous for the new spontaneous, dominant *Kitl*$^{Sl\text{-}22J}$ mutation are recognized by a slightly diluted coat color that also lightens the ears, tail and feet. All affected animals have a belly spot of variable size.



A *Kitl*$^{Sl\text{-}22J}$ heterozygote on the right and a control littermate is on the left. Note the diluted coat color and lighter ears, feet, and tail.

Genetic Analysis
In order to determine the mode of inheritance for this new remutation, a mouse carrying the *Kitl*$^{Sl\text{-}22J}$ mutation was mated to an unrelated +/+ C57BL/6J mouse. This mating produced a litter of 6 progeny of which 3 were affected by the mutant phenotype and 3 were unaffected, proving that the mutation is dominant.

Using our standard mapping procedures two females, homozygous for the *Kitl*$^{Sl\text{-}22J}$ mutation were mated to a CAST/Ei male mouse. The progeny from this previous cross were then backcrossed to three +/+ C57BL/6-*Ins2*^{Akita}/J mice and they produced 58 offspring that were utilized for linkage analysis. The new *Kitl*$^{Sl\text{-}22J}$ remutation was mapped to Chromosome 10 and is distal to *D10Mit96* (NCBIm36 position 98.9 Mb) and proximal to *D10Mit70* (NCBIm36 position 103.5 Mb) and non-recombinant with *D10Mit178* (NCBIm36 position 99.6 Mb). The previously described *Kitl*^{Sl} is at (NCBIm36 position 99.4-99.5 Mb).

Pathology
A routine pathological screen of two mutant and two littermate controls at 8 weeks of age showed no gross abnormalities. Hearing as assessed by auditory-evoked brainstem response testing of two heterozygous mutants and 2 controls at 4 weeks of age revealed no hearing loss. The eyes of one mutant and one control at 33 weeks of age were examined with an ophthalmoscope and the mutant had areas of pigment loss in peripheral retina. This same mutant and control were ERG tested and both were normal.

Discussion
Based on phenotype and map position, this new remutation was determined to be an allele of the *Kitl* gene. A direct test for allelism was not performed as both *Kitl* and the new *Kitl*$^{Sl\text{-}22J}$ have dominant inheritance.

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