Steel 23 Jackson (*Kitl*$^{Sl\text{-}23J}$); a new remutation in the *Kitl* gene.

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Mutation (allele) symbol: *Kitl*$^{Sl\text{-}23J}$

Mutation (allele) name: Steel 23 Jackson

Gene symbol: *Kitl*

Strain of origin: B6Smn.C3H-*Fasl*^{gld}/J

Current strain name: B6Smn(C3)-*Fasl*$^{?}$ *Kitl*$^{Sl\text{-}23J}$/GrsrJ

Stock #006961

Phenotype categories: coat color

Abstract
A spontaneous, dominant coat color mutation that maps to the same region of Chromosome 10 as *Kitl* has been characterized and named Steel 23 Jackson (*Kitl*$^{Sl\text{-}23J}$).

Origin and Description
Mice carrying the new steel 23 Jackson (*Kitl*$^{Sl\text{-}23J}$) mutation were discovered by Karrie Willey in a production colony of B6Smn.C3H-*Fasl*^{gld}/J mice (Stock #001021) at the Jackson Laboratory in January 2003. This dominant mutation causes no noticeable difference between heterozygous and homozygous mice. The *Kitl*$^{Sl\text{-}23J}$ mutation affects the black pigment by diluting the coat color and causes white belly spots, the degree of which varies greatly from mouse to mouse. There may also be white hairs appearing throughout the rest of the coat of *Kitl*$^{Sl\text{-}23J}$ mice. The colony is at N2 as of August 2, 2007. The two backcrosses may have removed the gld mutation from this strain. The phenotype remains, but *gld* genotype has not been confirmed.

Genetic Analysis
In order to determine the mode of inheritance for this new mutation, a mouse carrying the *Kitl*$^{Sl\text{-}23J}$ mutation was mated to an unrelated +/+ C57BL/6J mouse. This mating produced 7 litters of which 19 of the progeny were affected by the mutant phenotype and 19 were unaffected, proving that the mutation is dominant.

Using our standard mapping procedures two female mice carrying the *Kitl*$^{Sl\text{-}23J}$ mutation were mated to a CAST/Ei male mouse. The progeny from this previous cross were then backcrossed to 5 +/+ mice and they produced 53 offspring that were utilized for linkage analysis. The new *Kitl*$^{Sl\text{-}23J}$ mutation was mapped to Chromosome 10 and is distal to *D10Mit291* (NCBIm36 position 95.7Mb), proximal to *D10Mit163* (NCBIm36

position107 Mb), and non-recombinant with *D10Mit290* (NCBIm36 position 98.3 Mb), *D10Mit96* (NCBIm36 position 98.9 Mb), and *D10Mit178* (NCBIm36 position 99.6 Mb). The previously described $Kitl^{Sl}$ is at (NCBIm36) position 99.4 Mb.

Pathology

A routine pathological screen of two mice carrying the $Kitl^{Sl\text{-}23J}$ mutation and one littermate control at 7 weeks of age revealed no gross lesions. Hearing as assessed by auditory-evoked brainstem response on one 6-month old mutant mouse was normal. The eyes of mice carrying the $Kitl^{Sl\text{-}23J}$ mutation were examined with an ophthalmoscope and revealed no abnormalities.

Discussion

Based on phenotype and map position, this new mutation was determined to be an allele of the *Kitl* gene. A direct test for allelism was not performed as both *Kitl* and the new $Kitl^{Sl\text{-}23J}$ have dominant inheritance.

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