Waved 1-like (*wa1l*), a new mutation causing a curly coat

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Mutation (allele) symbol: *wa1l*

Mutation (allele) name: waved 1-like

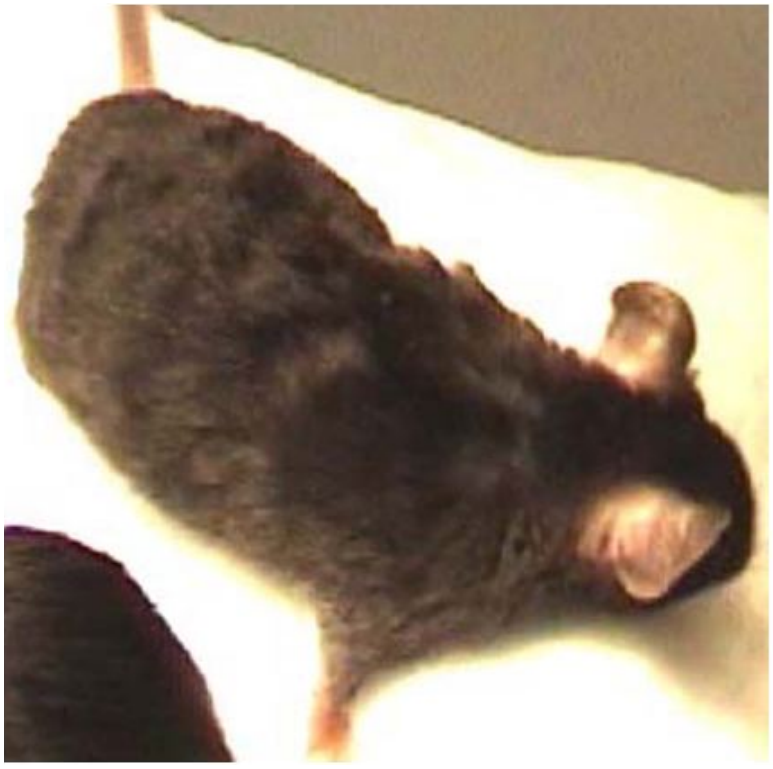
Gene symbol: *wa1l*

Strain of origin: B6;129P2 $Sele^{tm1Hyn}$-$Ap3b1^{pe-14J}$/J

Current strain name for Stock #008048: B6;129P2-*wa1l*/GrsrJ

Phenotype categories: skin and hair

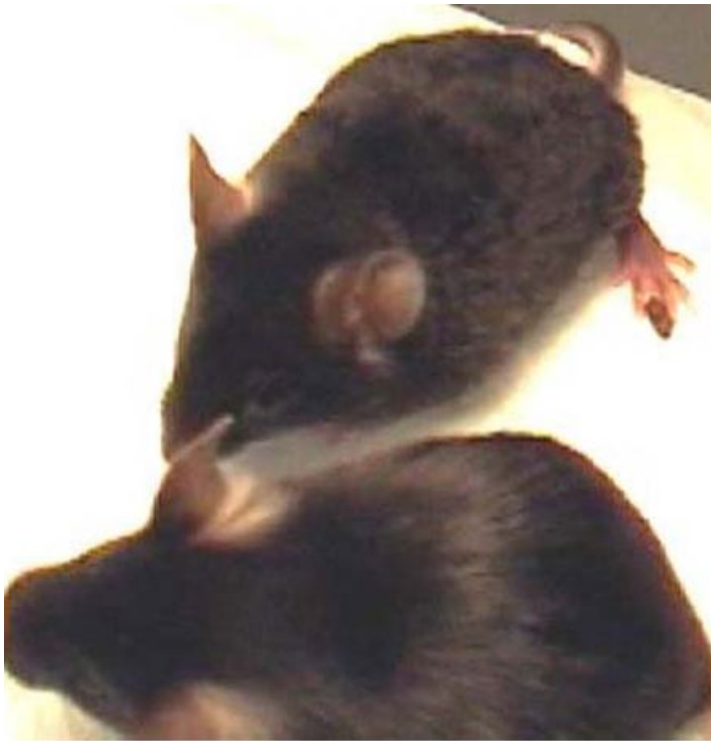
Abstract
A new mutation that causes affected mice to have a wavy coat has been identified and has been mapped to Chromosome 6 in the same region as the previously described waved 1 ($Tgfa^{wa1}$) mutation. A direct test for allelism was not performed because the waved 1 mutation is only available as cryopreserved embryos.



A mouse homozygous for the waved 1-like (*wa1l*) mutation showing the wavy coat phenotype.

Origin and Description

Mice carrying the new spontaneous recessive *wa1l* mutation were discovered in a research colony of B6;129P2 *Sele*^{tm1Hyn}-*Ap3b1*$^{pe-14J}$/J mice at the Jackson Laboratory. Like *Tgfa*^{wa1} mutant mice, the wavy hair of mice affected with the *wa1l* mutation is recognized as soon as their first coat of hair comes in. The original *Tgfa*^{wa1} mutant mice have curly vibrissae, misaligned hair follicles, reduced body weight and eye defects that are not seen in the *wa1l* mutant mice. The B6;129P2-*wa1l*/J colony is maintained by homozygous and heterozygous sibling matings. Mice homozygous for the *wa1l* mutation were backcrossed to C57BL/6J mice to eliminate the *Sele* targeted mutation from the background strain.



A mouse homozygous for the waved 1-like (*wa1l*) mutation is shown at the top and a littermate control is shown below. Both are 1 month of age.

Genetic Analysis

Using the Mouse Mutant Resource standard mapping protocols, B6;129P2-*wa1l*/J mice were mated to CAST/Ei mice. The affected progeny from these matings were then intercrossed and they produced 27 affected F2 progeny of which 21 were used for linkage analysis. This mutation was mapped distal to *D6Mit3* (BLAT sequence 78.56 Mb), proximal to *D6Mit100* (NCBI 36 position 92.0 Mb), and non-recombinant with *D6Mit29* (NCBI 36 position 86.7 Mb). The original *Tgfa*^{wa1} mutation is mapped at the NCBI 36 position 86.1 Mb.

Pathology

A pathological screen of one homozygous mutant was performed at three weeks of age and no gross abnormalities were observed. A pelt pad and plucked hair samples were taken from 2 homozygous mutant mice at three weeks of age. The results showed the pelt

pad to be normal and all hair types are wavy.

A plucked hair sample from a 3-week-old mouse homozygous for the wa1l mutation.

Hearing was normal as assessed by auditory brainstem response testing of two homozygous mutants and one heterozygous mouse at twenty-six days of age.

The eyes of five homozygous mutants and two heterozygous mice at 4 weeks of age were examined with an ophthalmoscope and were determined to be normal. Electroretinogram testing (ERG) on a homozygous mutant at 24 weeks of age was normal.

Discussion

Based on phenotype and chromosome position, this new mutation may be a remutation to $Tgfa^{wa1}$, however this was not confirmed by a direct test for allelism.

Acknowledgements

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