

Sez6l Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Sez6l

Project type

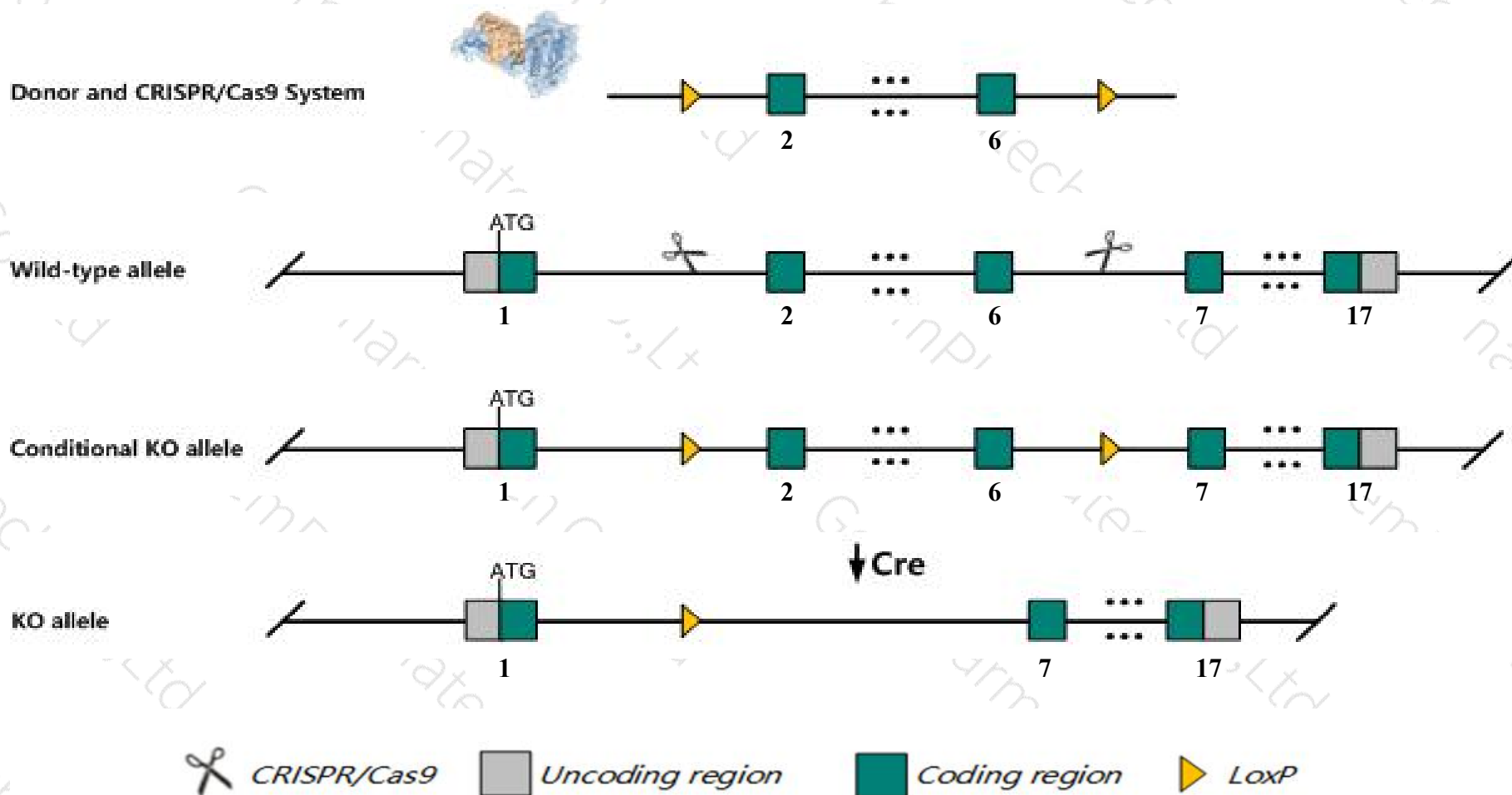
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sez6l* gene. The schematic diagram is as follows:



- The *Sez6l* gene has 6 transcripts. According to the structure of *Sez6l* gene, exon2-exon6 of *Sez6l-201* (ENSMUST00000075387.10) transcript is recommended as the knockout region. The region contains 1237bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sez6l* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Mice homozygous for a knock-out allele display slightly impaired coordination in the rotarod task.
- The *Sez6l* gene is located on the Chr5. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Sez6l seizure related 6 homolog like [Mus musculus (house mouse)]

Gene ID: 56747, updated on 31-Jan-2019

Summary



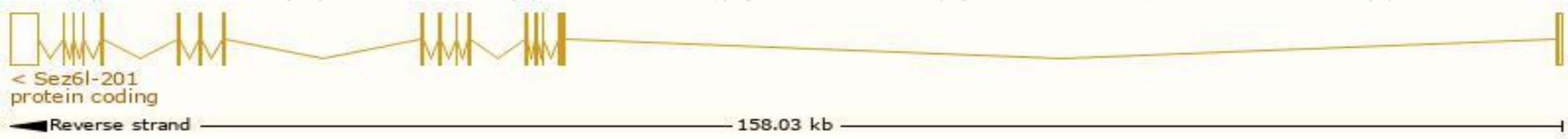
Official Symbol	Sez6l provided by MGI
Official Full Name	seizure related 6 homolog like provided by MGI
Primary source	MGI:MGI:1935121
See related	Ensembl:ENSMUSG00000058153
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI843918, AIG1, AW539724, Acig1, BSRP-B, mKIAA0927
Expression	Biased expression in whole brain E14.5 (RPKM 26.2), cortex adult (RPKM 23.6) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

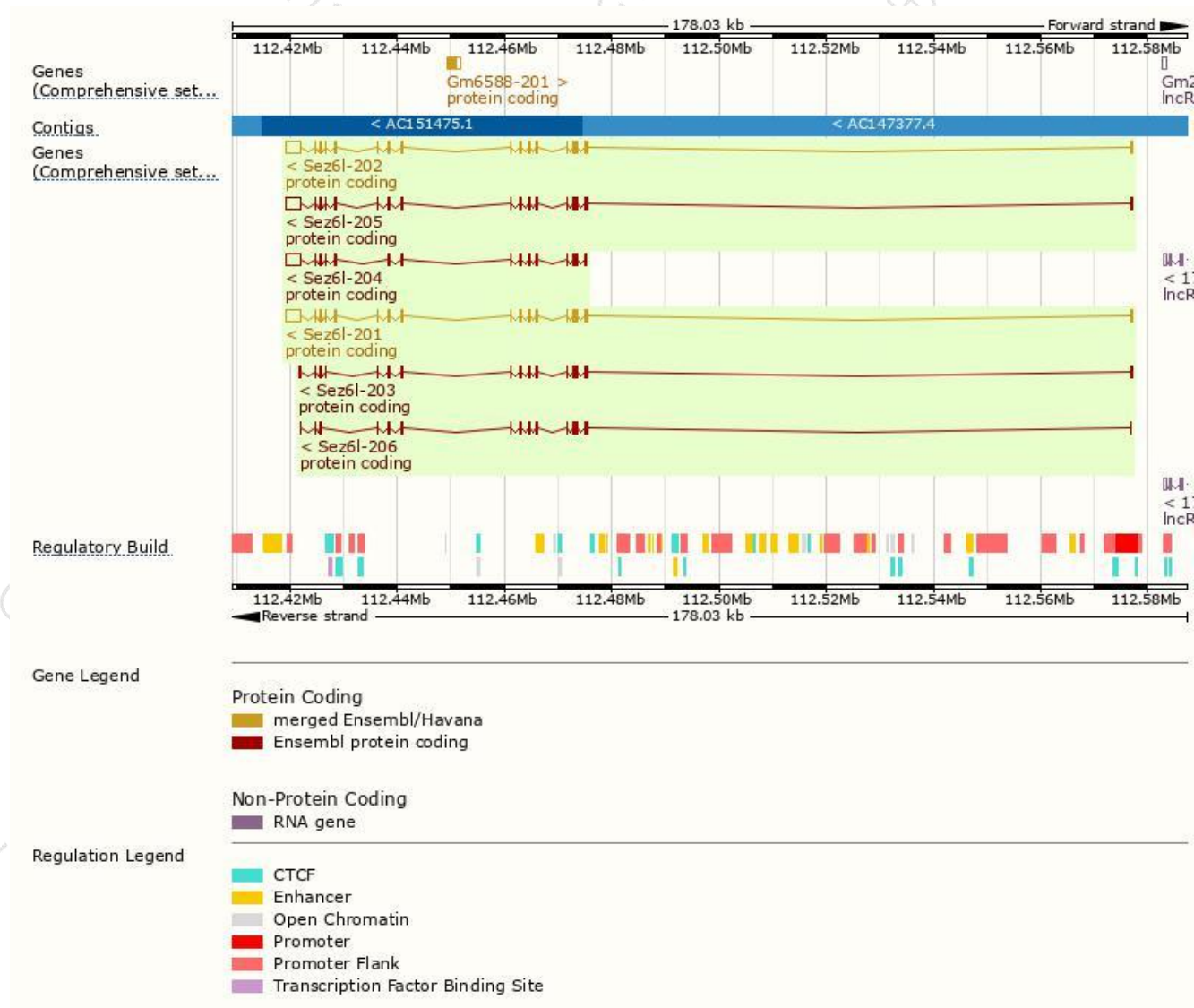
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sez6l-201	ENSMUST00000075387.10	6055	962aa	Protein coding	CCDS51617	A0A0R4J0Y4	TSL:1 GENCODE basic APPRIS P3
Sez6l-202	ENSMUST00000079491.13	5857	963aa	Protein coding	CCDS57373	Q6P1D5	TSL:1 GENCODE basic APPRIS ALT2
Sez6l-203	ENSMUST00000197425.1	3199	897aa	Protein coding	CCDS80369	A0A0G2JG23	TSL:1 GENCODE basic APPRIS ALT2
Sez6l-205	ENSMUST00000212480.1	5857	964aa	Protein coding	-	A0A1D5RMI4	TSL:5 GENCODE basic APPRIS ALT2
Sez6l-204	ENSMUST00000200575.4	4998	714aa	Protein coding	-	A0A0G2JFG4	CDS 5' incomplete TSL:1
Sez6l-206	ENSMUST00000212758.1	2664	887aa	Protein coding	-	A0A1D5RMJ7	TSL:5 GENCODE basic

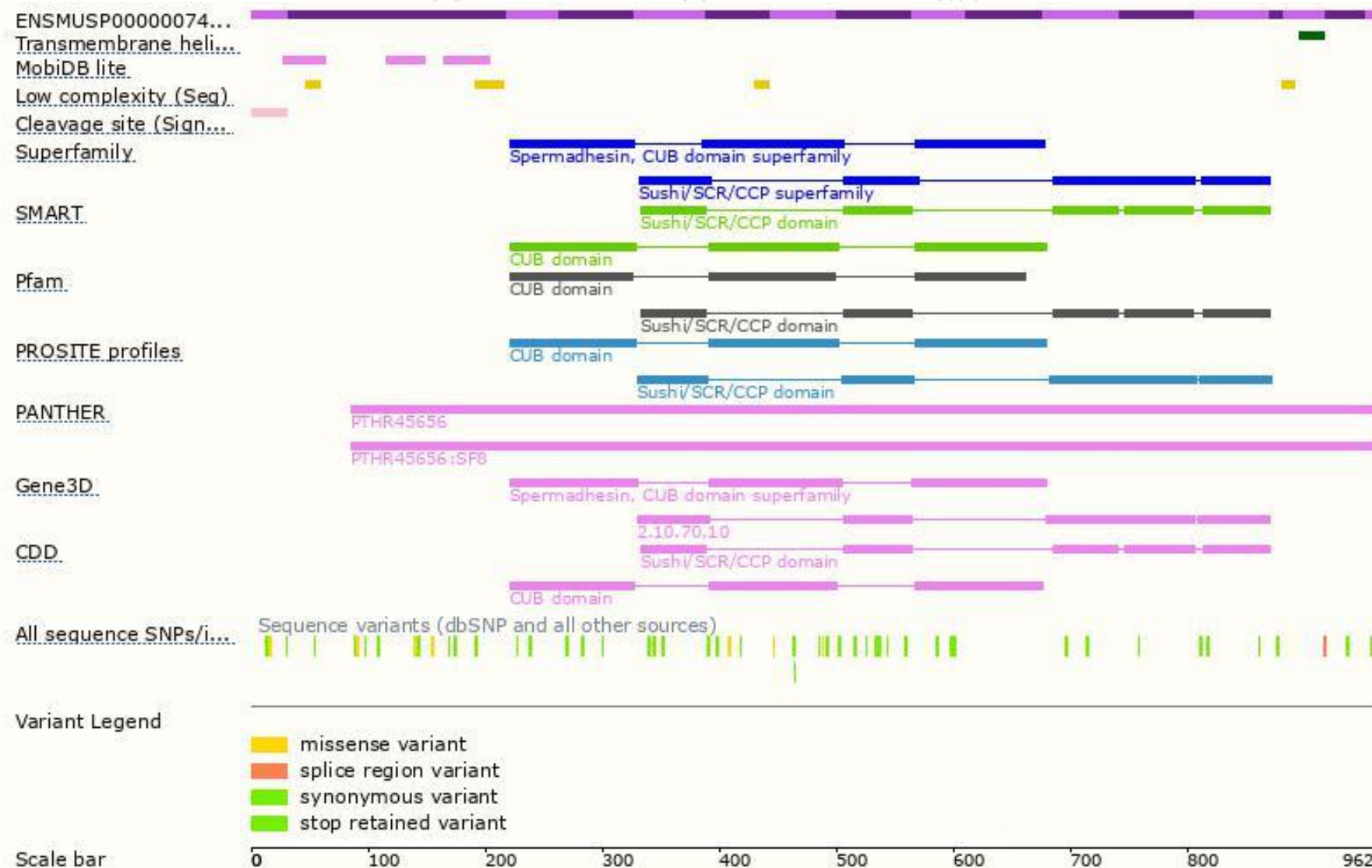
The strategy is based on the design of *Sez6l-201* transcript,The transcription is shown below



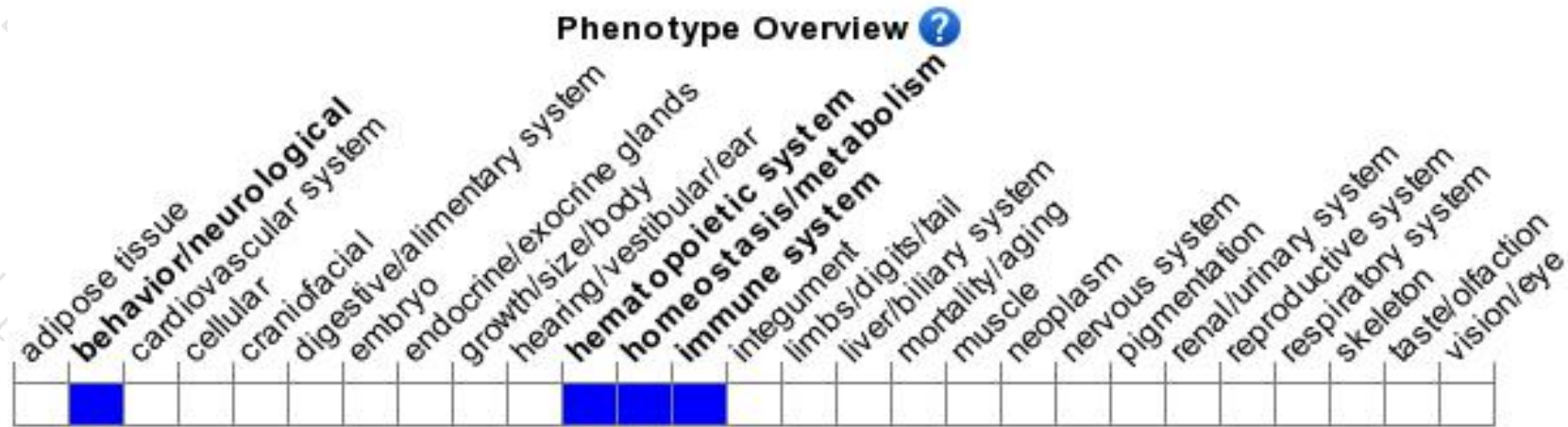
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for a knock-out allele display slightly impaired coordination in the rotarod task.

If you have any questions, you are welcome to inquire.

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