

Cdh8 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Cdh8

Project type

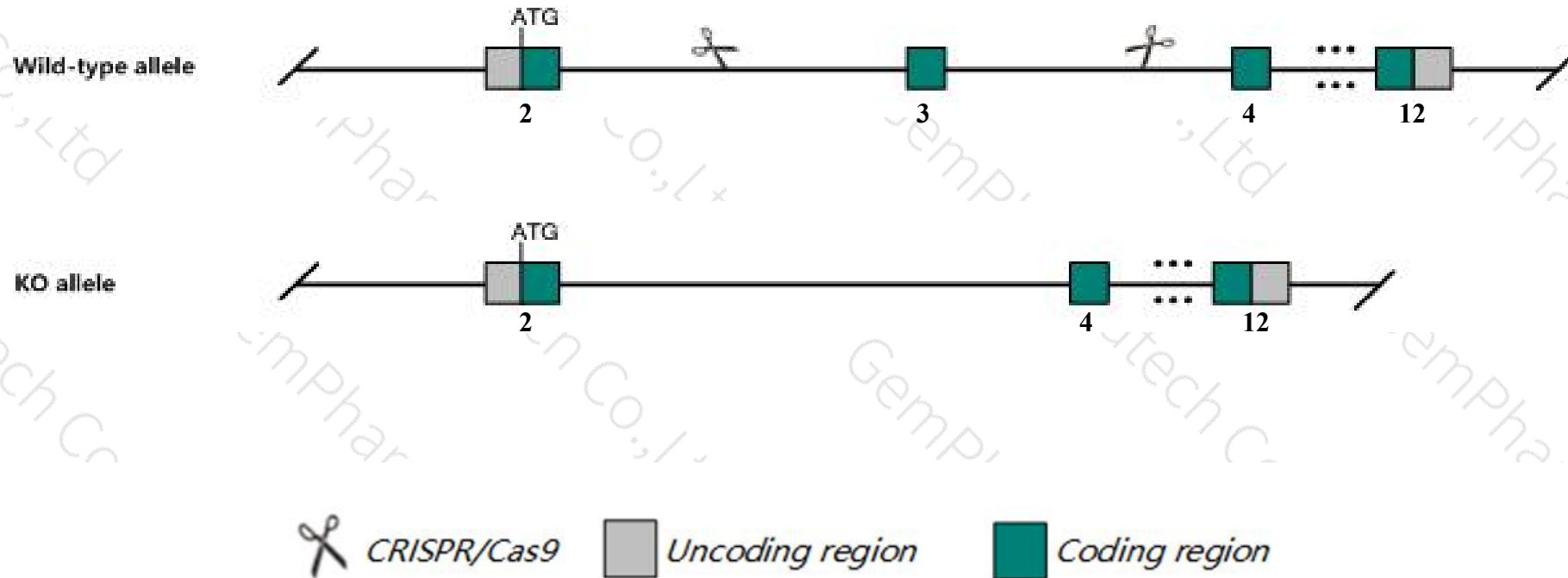
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdh8* gene. The schematic diagram is as follows:



- The *Cdh8* gene has 7 transcripts. According to the structure of *Cdh8* gene, exon3 of *Cdh8-203* (ENSMUST00000128860.7) transcript is recommended as the knockout region. The region contains 295bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdh8* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a null allele are viable, fertile and overtly normal but display abnormal CNS synaptic transmission, raise their tails in response to stress, and show reduced sensitivity to cutaneous cold stimuli.
- The *Cdh8* gene is located on the Chr8. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

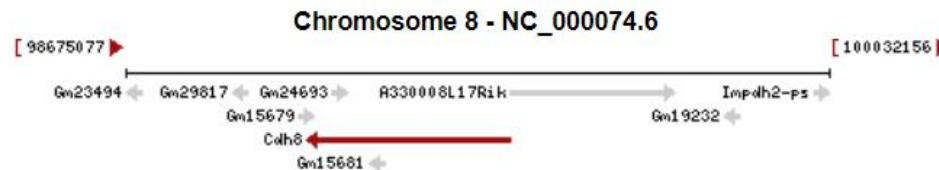
Gene information (NCBI)

Cdh8 cadherin 8 [*Mus musculus* (house mouse)]

Gene ID: 12564, updated on 10-Oct-2019

Summary

Official Symbol	Cdh8 provided by MGI
Official Full Name	cadherin 8 provided by MGI
Primary source	MGI:MGI:107434
See related	Ensembl:ENSMUSG00000036510
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	cad8; Al851472
Summary	This gene encodes a member of the cadherin family of calcium-dependent glycoproteins that mediate cell adhesion and regulate many morphogenetic events during development. The encoded preproprotein is further processed to generate a mature protein. Mice lacking the encoded protein exhibit reduced behavioral responses to cold, but not thermal stimuli. Alternative splicing results in multiple transcript variants encoding different isoforms that may undergo similar proteolytic processing. Multiple distinct genes of the cadherin family, including this gene, are found on chromosome 8. [provided by RefSeq, Oct 2015]
Expression	Biased expression in CNS E18 (RPKM 7.5), whole brain E14.5 (RPKM 4.7) and 5 other tissues See more
Orthologs	human all

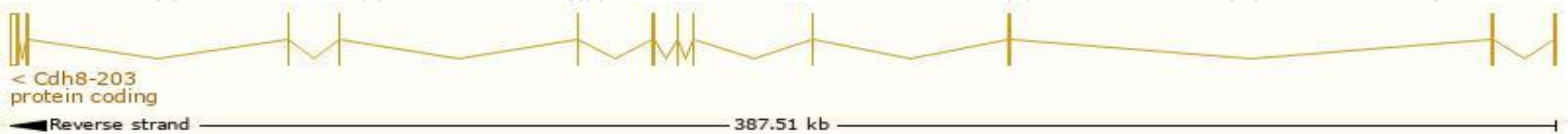


Transcript information (Ensembl)

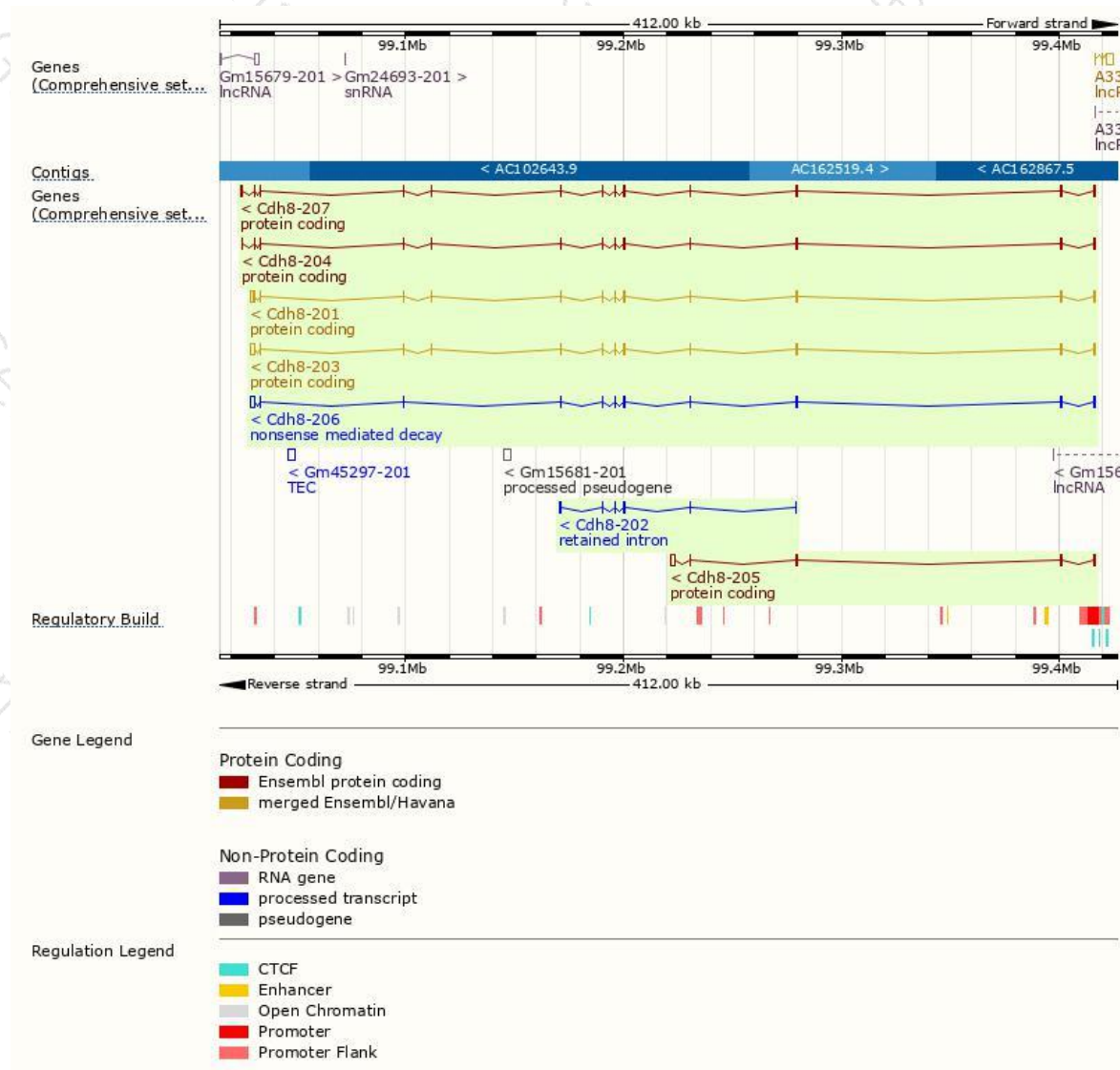
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Cdh8-203	ENSMUST00000128860.7	4594	799aa	ENSMUSP00000117326.1	Protein coding	CCDS40448	P97291	TSL:1 GENCODE basic APPRIS P1
Cdh8-201	ENSMUST00000093249.10	3790	716aa	ENSMUSP00000090935.4	Protein coding	CCDS22569	Q8C449	TSL:1 GENCODE basic
Cdh8-207	ENSMUST00000155527.7	3159	754aa	ENSMUSP00000123619.1	Protein coding	CCDS72155	E9Q451	TSL:1 GENCODE basic
Cdh8-204	ENSMUST00000142129.7	2711	711aa	ENSMUSP00000114507.1	Protein coding	CCDS72156	E9PYB2	TSL:1 GENCODE basic
Cdh8-205	ENSMUST00000142475.2	3216	247aa	ENSMUSP00000115977.2	Protein coding	-	E9PZC1	TSL:1 GENCODE basic
Cdh8-206	ENSMUST00000145601.7	4320	509aa	ENSMUSP00000122493.1	Nonsense mediated decay	-	D6RG94	TSL:1
Cdh8-202	ENSMUST00000126895.1	1410	No protein	-	Retained intron	-	-	TSL:1

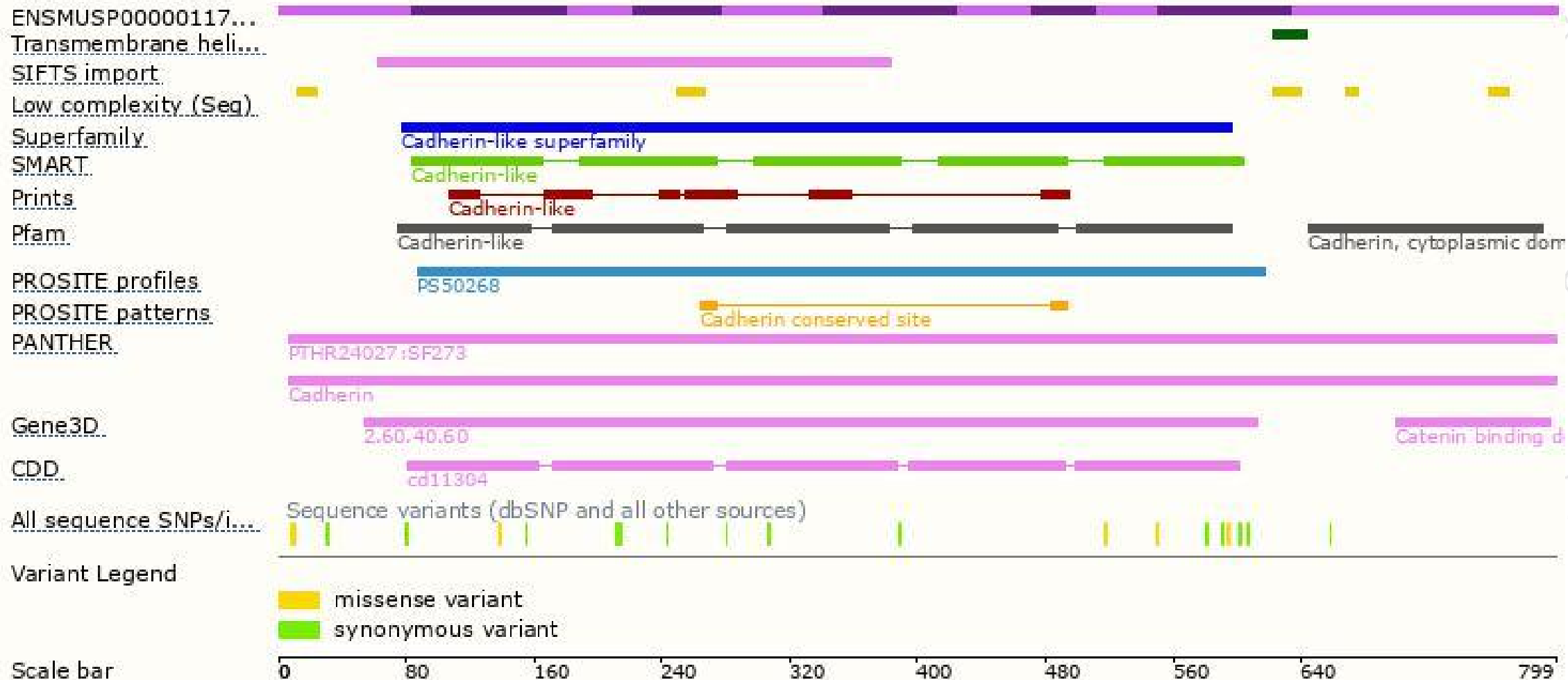
The strategy is based on the design of *Cdh8-203* transcript,The transcription is shown below



Genomic location distribution

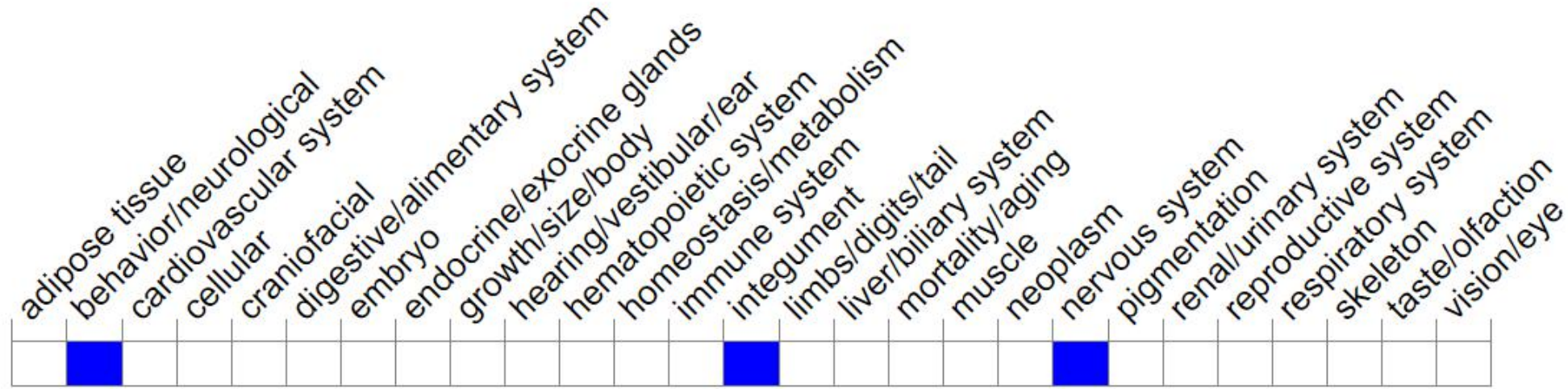


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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 null allele are viable, fertile and overtly normal but display abnormal CNS synaptic transmission, raise their tails in response to stress, and show reduced sensitivity to cutaneous cold stimuli.

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

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