

***Rnf165* Cas9-KO Strategy**

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Project Overview

Project Name

Rnf165

Project type

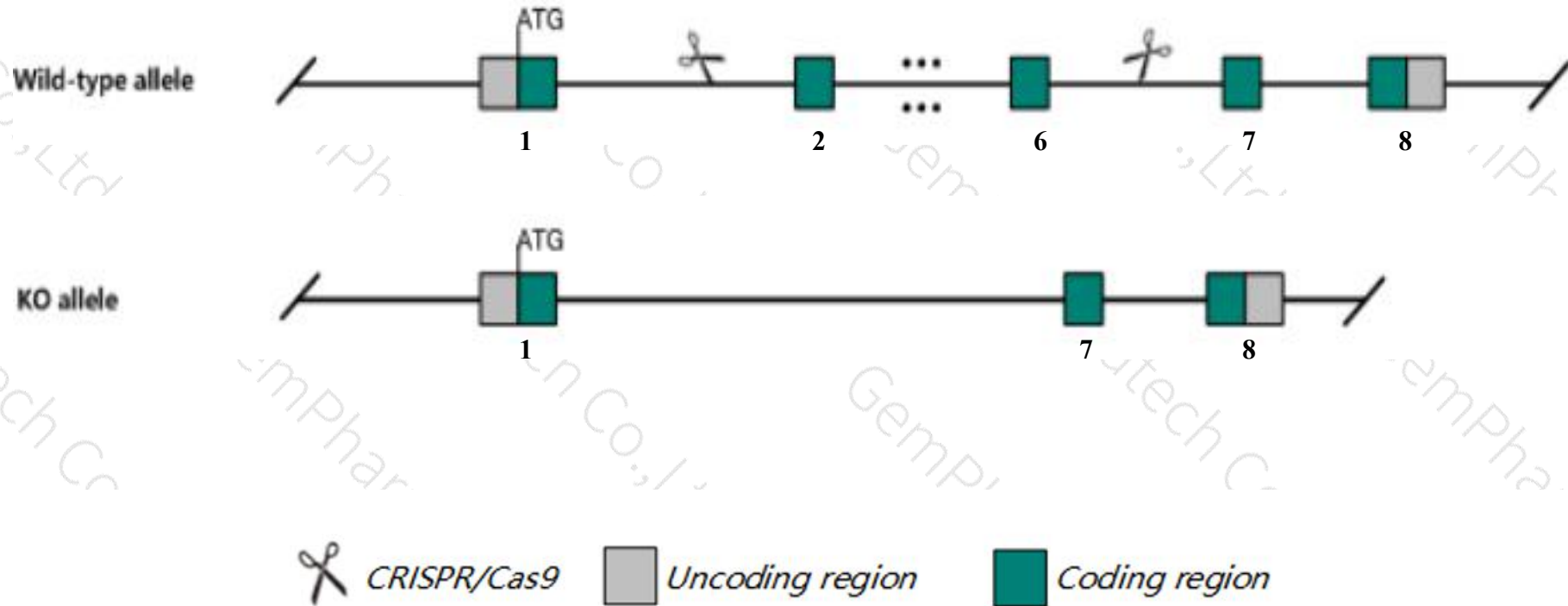
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnfl65* gene. The schematic diagram is as follows:



- The *Rnf165* gene has 7 transcripts. According to the structure of *Rnf165* gene, exon2-exon6 of *Rnf165-201* (ENSMUST00000026494.13) transcript is recommended as the knockout region. The region contains 758bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rnf165* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a gene trap allele exhibit partial neonatal lethality followed by complete postnatal lethality, growth retardation, abnormal joint mobility, cyanosis, abnormal motor neuron innervation pattern and abnormal phrenic nerve innervation pattern to diaphragm.
- The *Rnf165* gene is located on the Chr18. 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)

Rnf165 ring finger protein 165 [*Mus musculus* (house mouse)]

Gene ID: 225743, updated on 13-Mar-2020

Summary

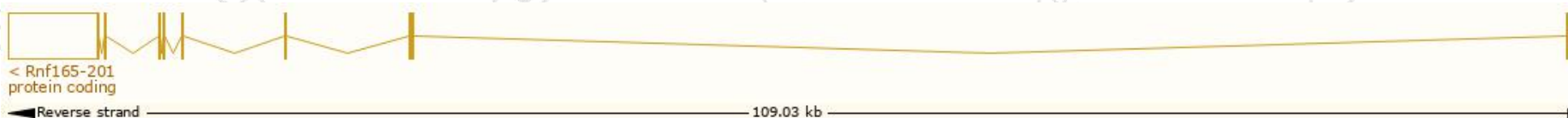
Official Symbol	Rnf165 provided by MGI
Official Full Name	ring finger protein 165 provided by MGI
Primary source	MGI:MGI:2444521
See related	Ensembl:ENSMUSG00000025427
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Akd2; Gm96; Ark2c; AI427432; 2900024M11Rik; G630064H08Rik
Expression	Biased expression in whole brain E14.5 (RPKM 11.0), CNS E14 (RPKM 9.2) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

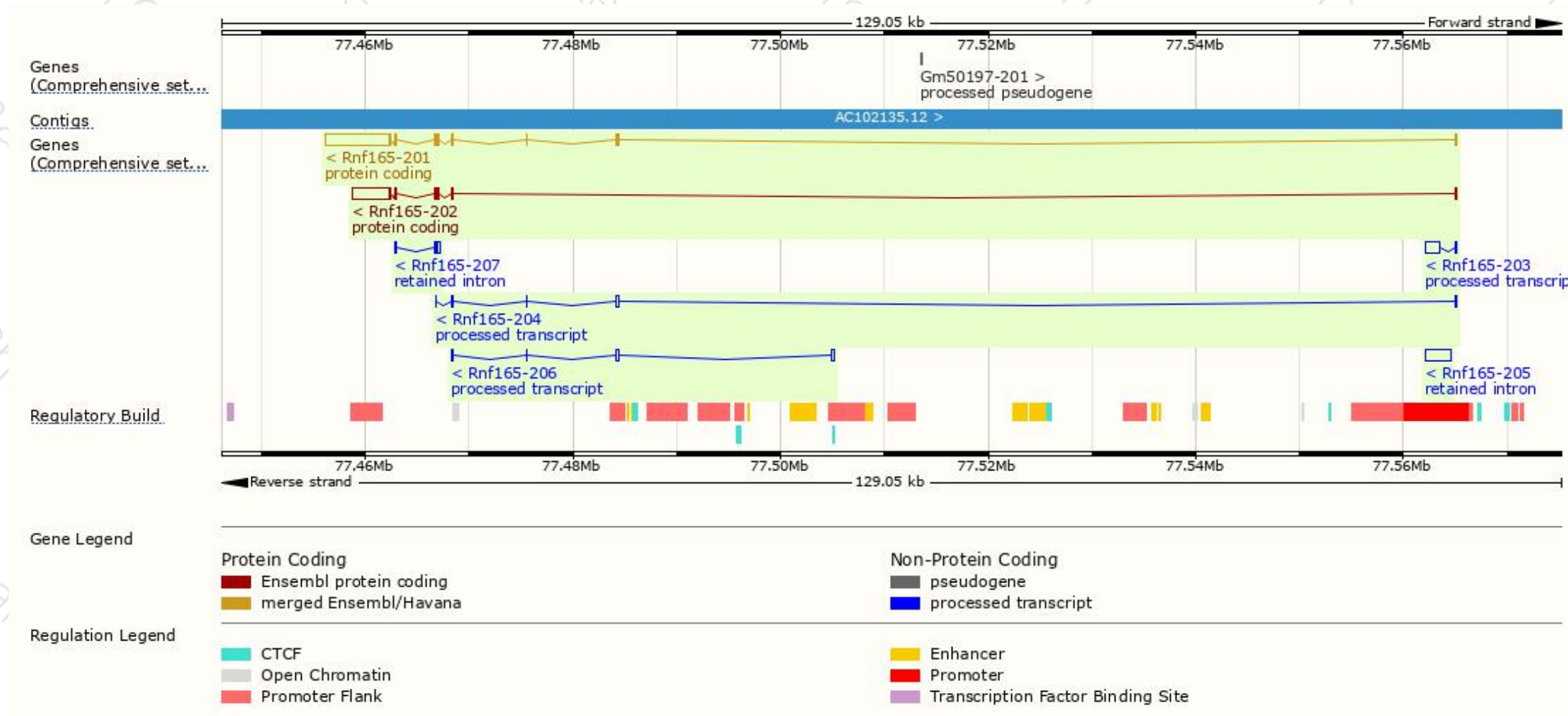
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf165-201	ENSMUST00000026494.13	7300	347aa	Protein coding	CCDS50327	E9QAU8	TSL:5 GENCODE basic APPRIS P1
Rnf165-202	ENSMUST00000182024.1	4309	154aa	Protein coding	-	A0A0R4J2A4	TSL:5 GENCODE basic
Rnf165-203	ENSMUST00000182146.2	1427	No protein	Processed transcript	-	-	TSL:1
Rnf165-206	ENSMUST00000182348.2	675	No protein	Processed transcript	-	-	TSL:5
Rnf165-204	ENSMUST00000182153.2	667	No protein	Processed transcript	-	-	TSL:5
Rnf165-205	ENSMUST00000182294.1	2517	No protein	Retained intron	-	-	TSL:NA
Rnf165-207	ENSMUST00000182805.1	408	No protein	Retained intron	-	-	TSL:3

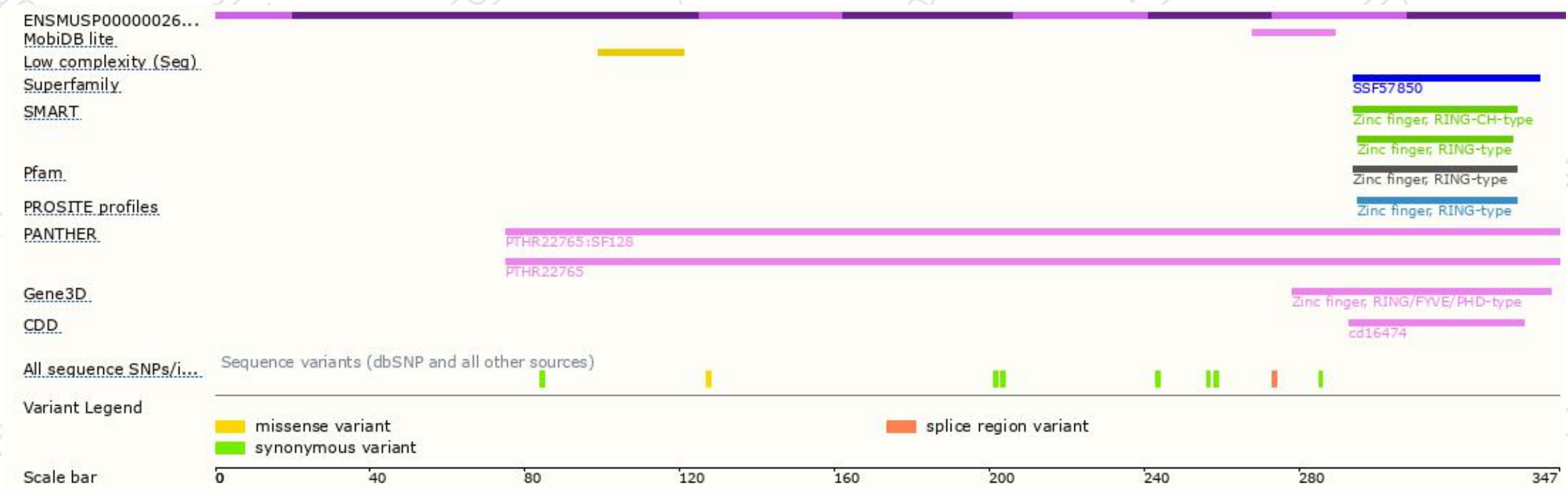
The strategy is based on the design of *Rnf165-201* transcript, the transcription is shown below



Genomic location distribution

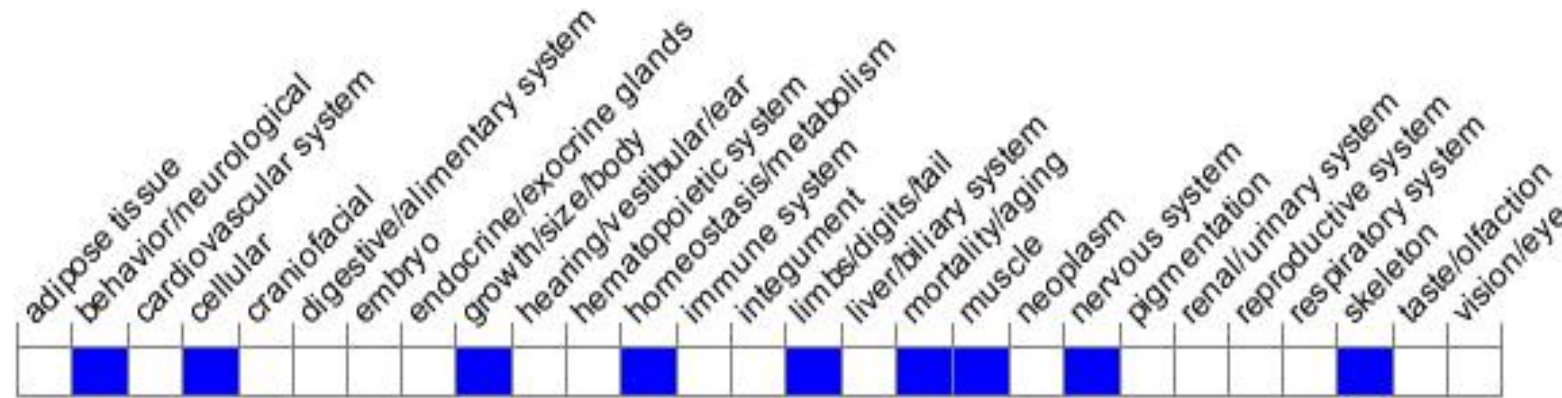


Protein domain



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/>).

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

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