Gatad2b Cas9-CKO Strategy

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Project Overview

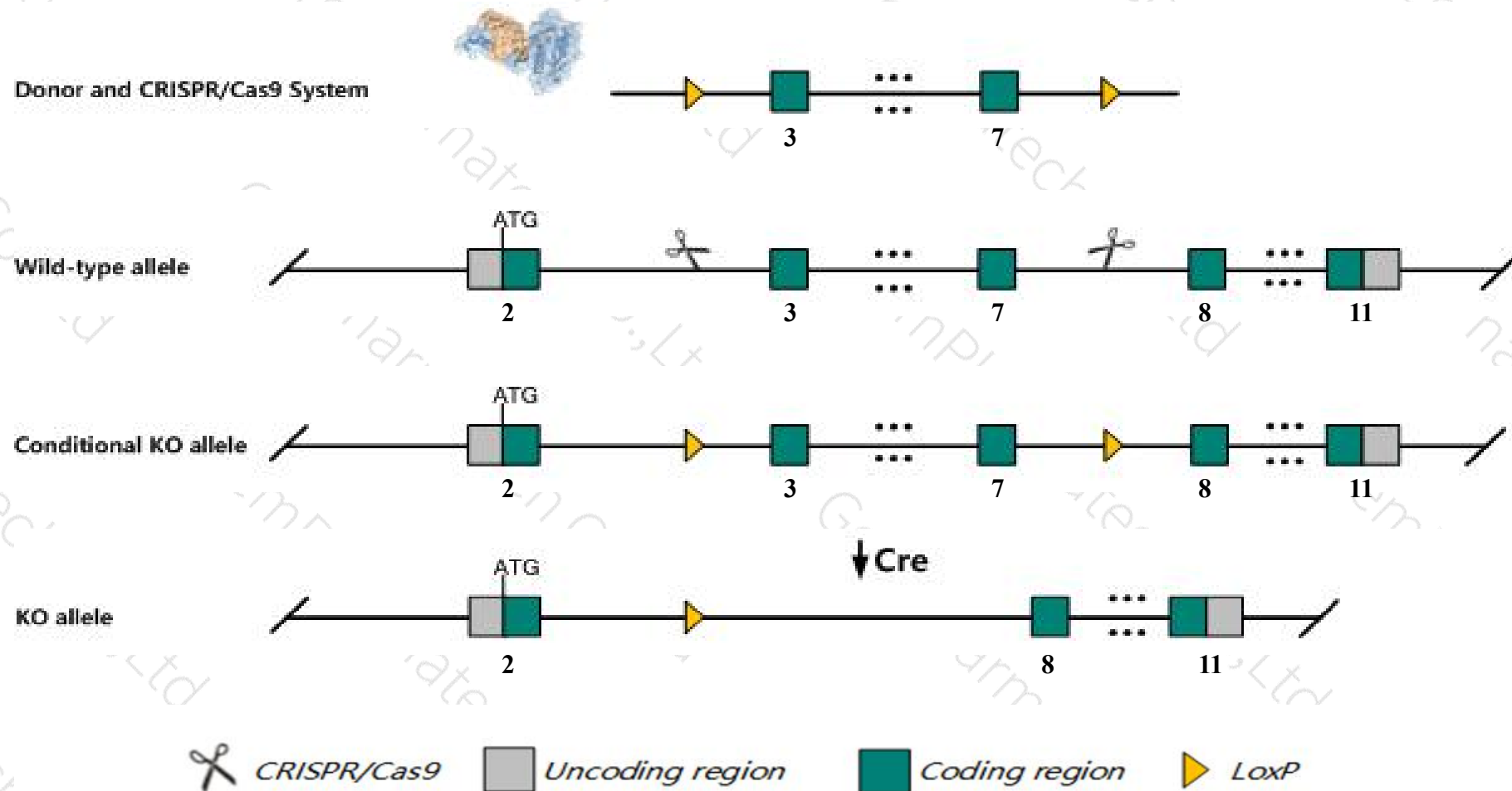|	
Project Name	*Gatad2b*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gatad2b* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

KO allele

Cre

CRISPR/Cas9 Uncoding region Coding region LoxP

Technical routes

➤ The *Gatad2b* gene has 8 transcripts. According to the structure of *Gatad2b* gene, exon3-exon7 of *Gatad2b-205* (ENSMUST00000199754.4) transcript is recommended as the knockout region.The region contains Ens 881bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Gatad2b* 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.

Notice

➢ The *Gatad2b* gene is located on the Chr3. 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）

Gatad2b GATA zinc finger domain containing 2B [Mus musculus (house mouse)]

Gene ID: 229542, updated on 31-Jan-2019

▲Summary

|	
Official Symbol	Gatad2b provided by MGI
Official Full Name	GATA zinc finger domain containing 2B provided by MGI
Primary source	MGI:MGI:2443225
See related	Ensembl:ENSMUSG00000042390
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	AL118180, C430014D17Rik, P66beta, mKIAA1150
Expression	Ubiquitous expression in limb E14.5 (RPKM 10.2), CNS E14 (RPKM 8.9) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gatad2b-205	ENSMUST00000199754.4	7438	594aa	Protein coding	CCDS17526	Q8VHR5	TSL:5 GENCODE basic APPRIS P1
Gatad2b-204	ENSMUST00000199607.4	2418	594aa	Protein coding	CCDS17526	Q8VHR5	TSL:5 GENCODE basic APPRIS P1
Gatad2b-201	ENSMUST00000049382.5	1906	594aa	Protein coding	CCDS17526	Q8VHR5	TSL:1 GENCODE basic APPRIS P1
Gatad2b-203	ENSMUST00000197988.4	1815	578aa	Protein coding	-	A1L3S7	TSL:1 GENCODE basic
Gatad2b-208	ENSMUST00000206907.1	788	263aa	Protein coding	-	A0A0U1RNM2	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Gatad2b-202	ENSMUST00000196212.2	3125	No protein	Retained intron	-	-	TSL:2
Gatad2b-207	ENSMUST00000205797.1	2443	No protein	Retained intron	-	-	TSL:NA
Gatad2b-206	ENSMUST00000200373.4	1937	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Gatad2b-205* transcript,The transcription is shown below
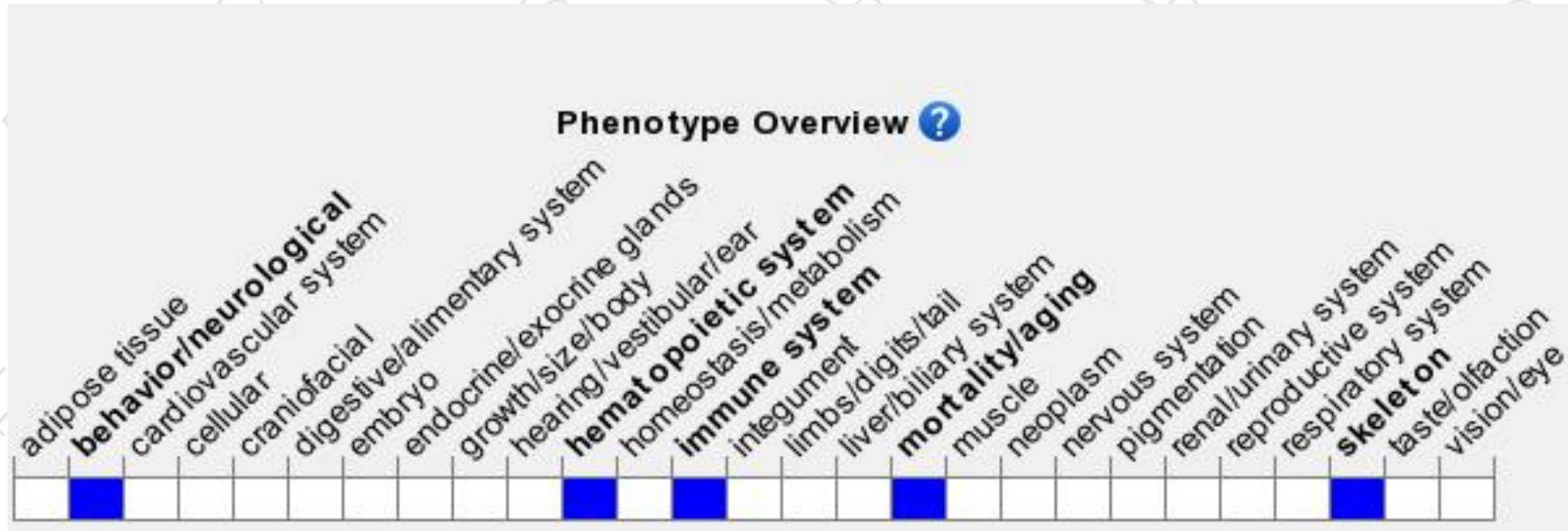

Gatad2b-205 >
protein coding
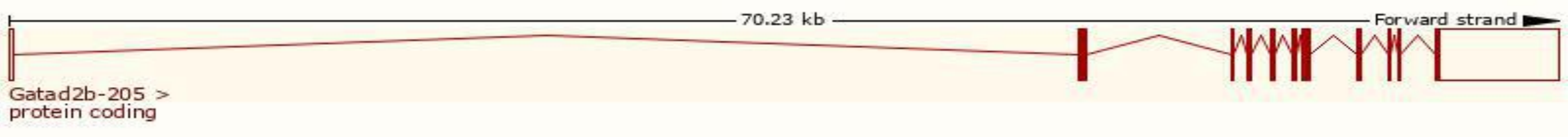
Genomic location distribution
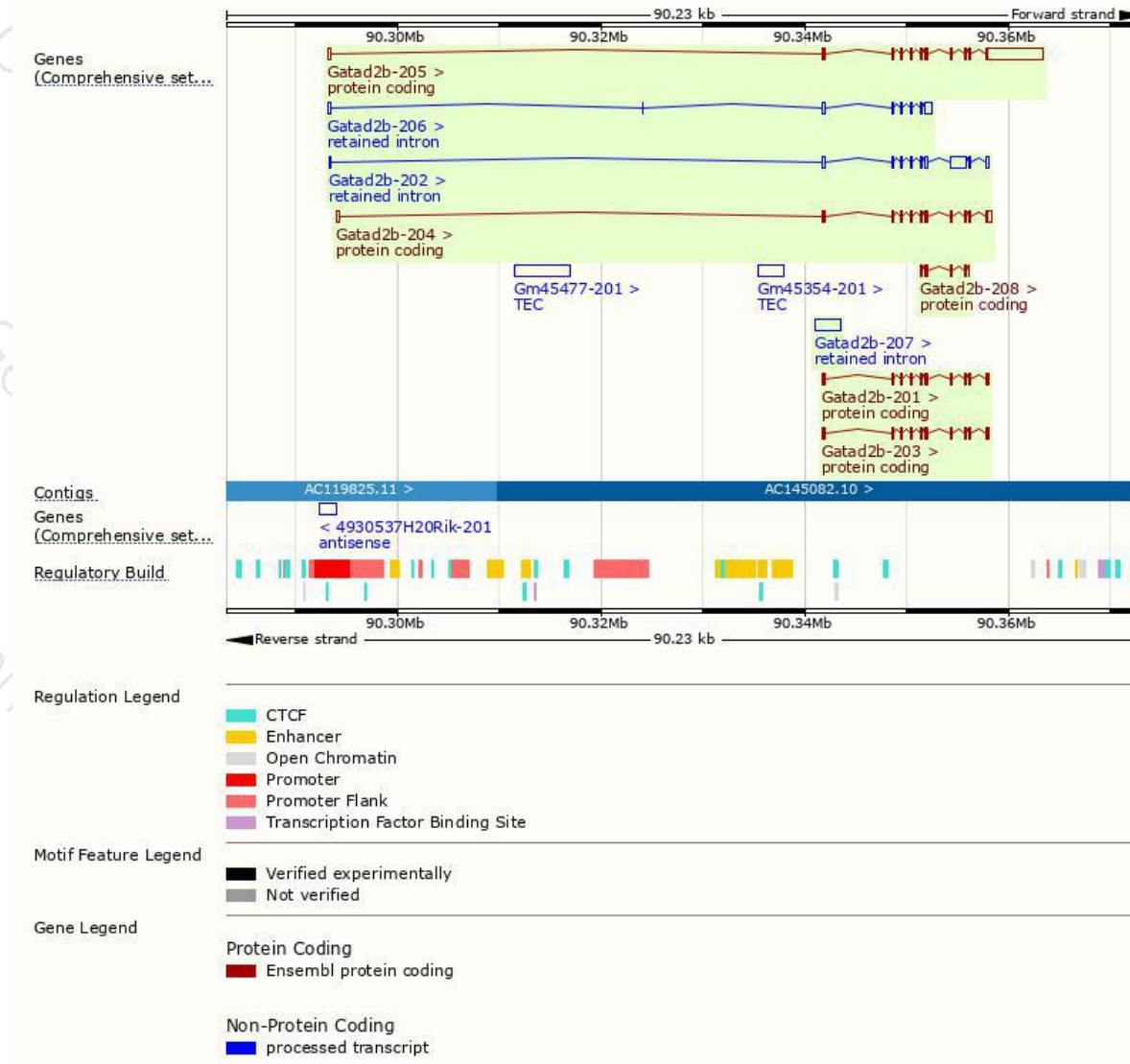
Protein domain
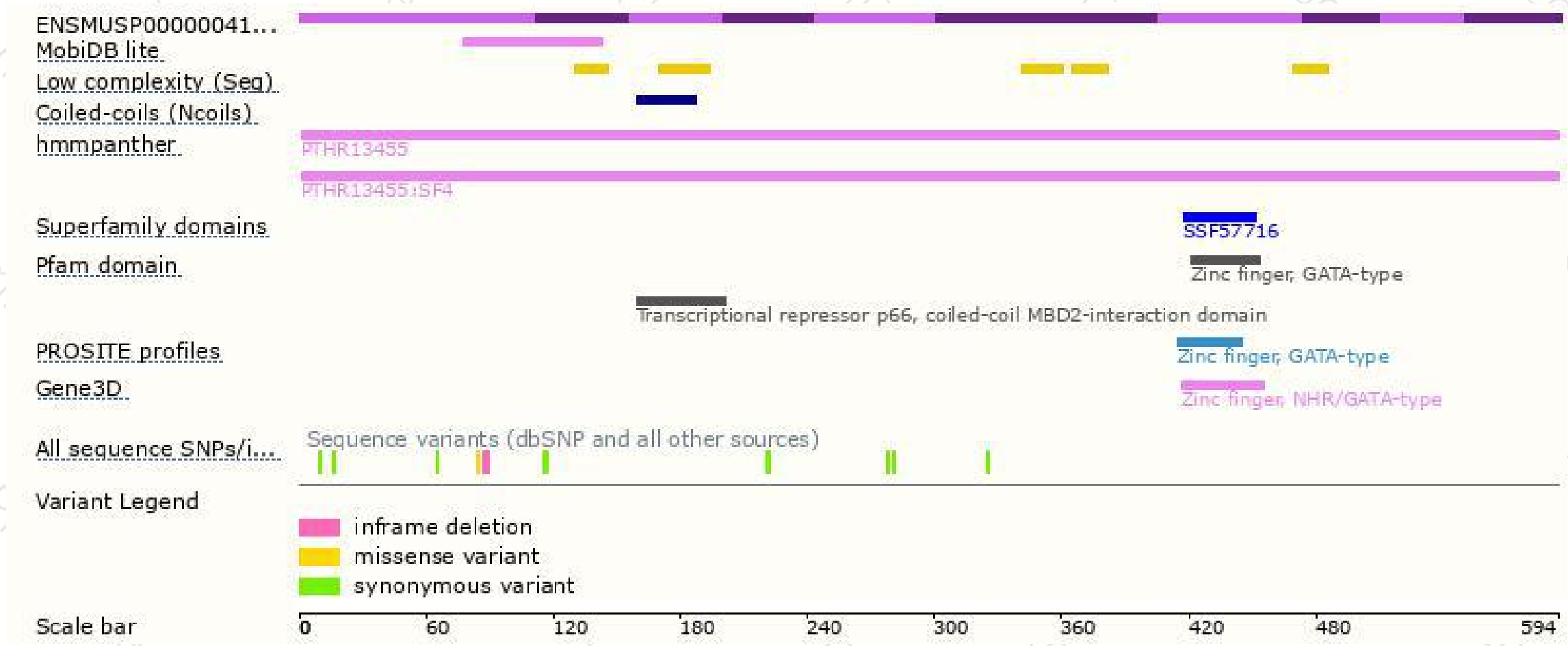
Mouse phenotype description(MGI)

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

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