

Atp8b2 Cas9-CKO Strategy

Designer:

Daohua Xu

Design Date:

2019-7-18

Project Overview

Project Name

Atp8b2

Project type

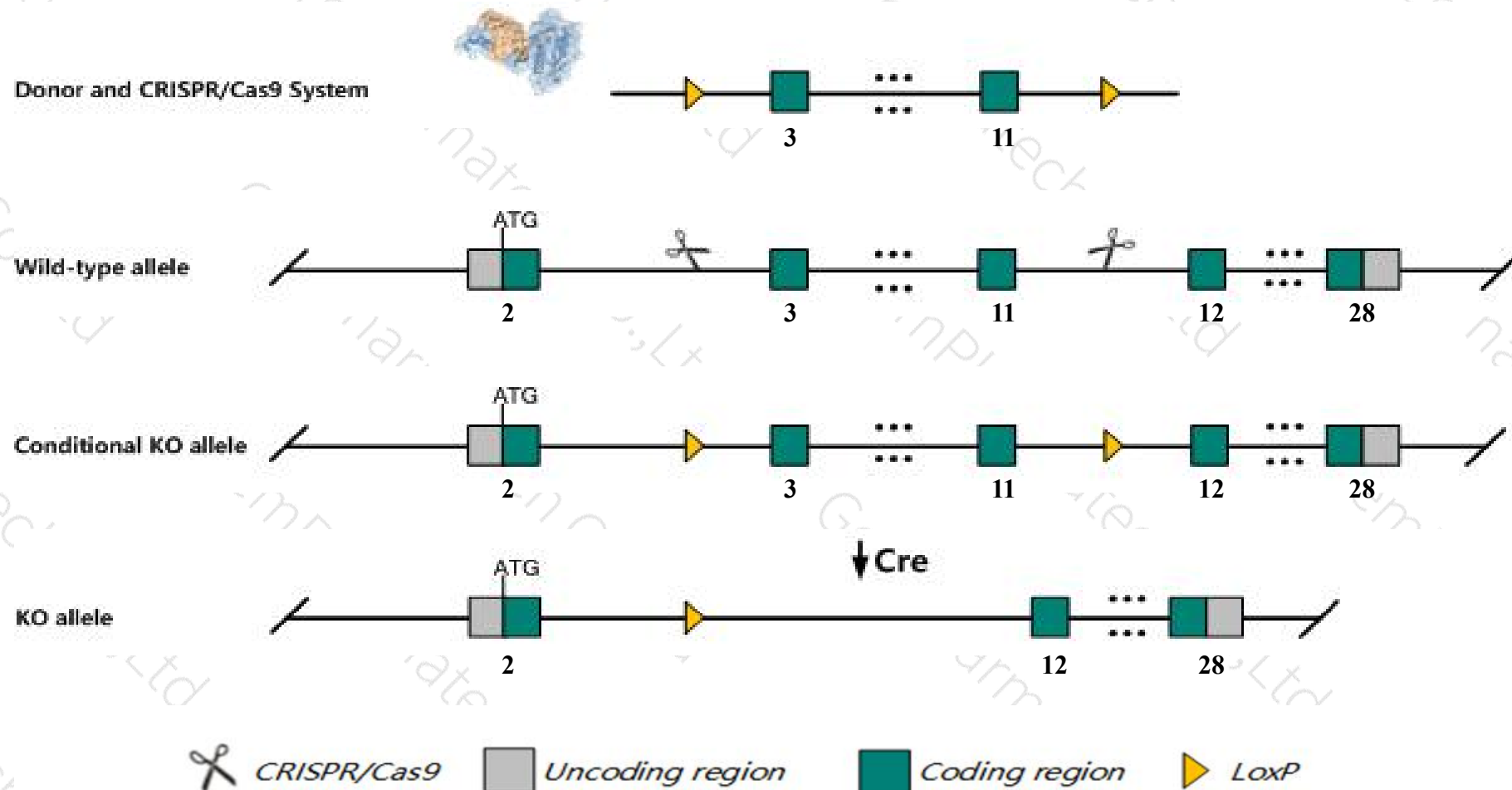
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp8b2* gene. The schematic diagram is as follows:



- The *Atp8b2* gene has 17 transcripts. According to the structure of *Atp8b2* gene, exon3-exon11 of *Atp8b2-210* (ENSMUST00000168276.7) transcript is recommended as the knockout region. The region contains 806bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Atp8b2* 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

- Transcript *Atp8b2-206* and *Atp8b2-217* may not be affected.
- The *Atp8b2* 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)

Atp8b2 ATPase, class I, type 8B, member 2 [Mus musculus (house mouse)]

Gene ID: 54667, updated on 16-Feb-2019

Summary



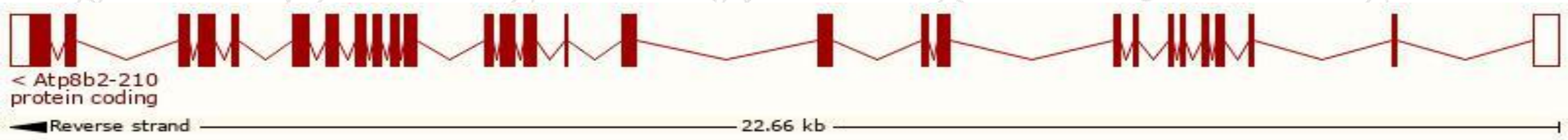
Official Symbol	Atp8b2 provided by MGI
Official Full Name	ATPase, class I, type 8B, member 2 provided by MGI
Primary source	MGI:MGI:1859660
See related	Ensembl:ENSMUSG00000060671
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Id
Expression	Ubiquitous expression in ovary adult (RPKM 20.9), limb E14.5 (RPKM 18.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

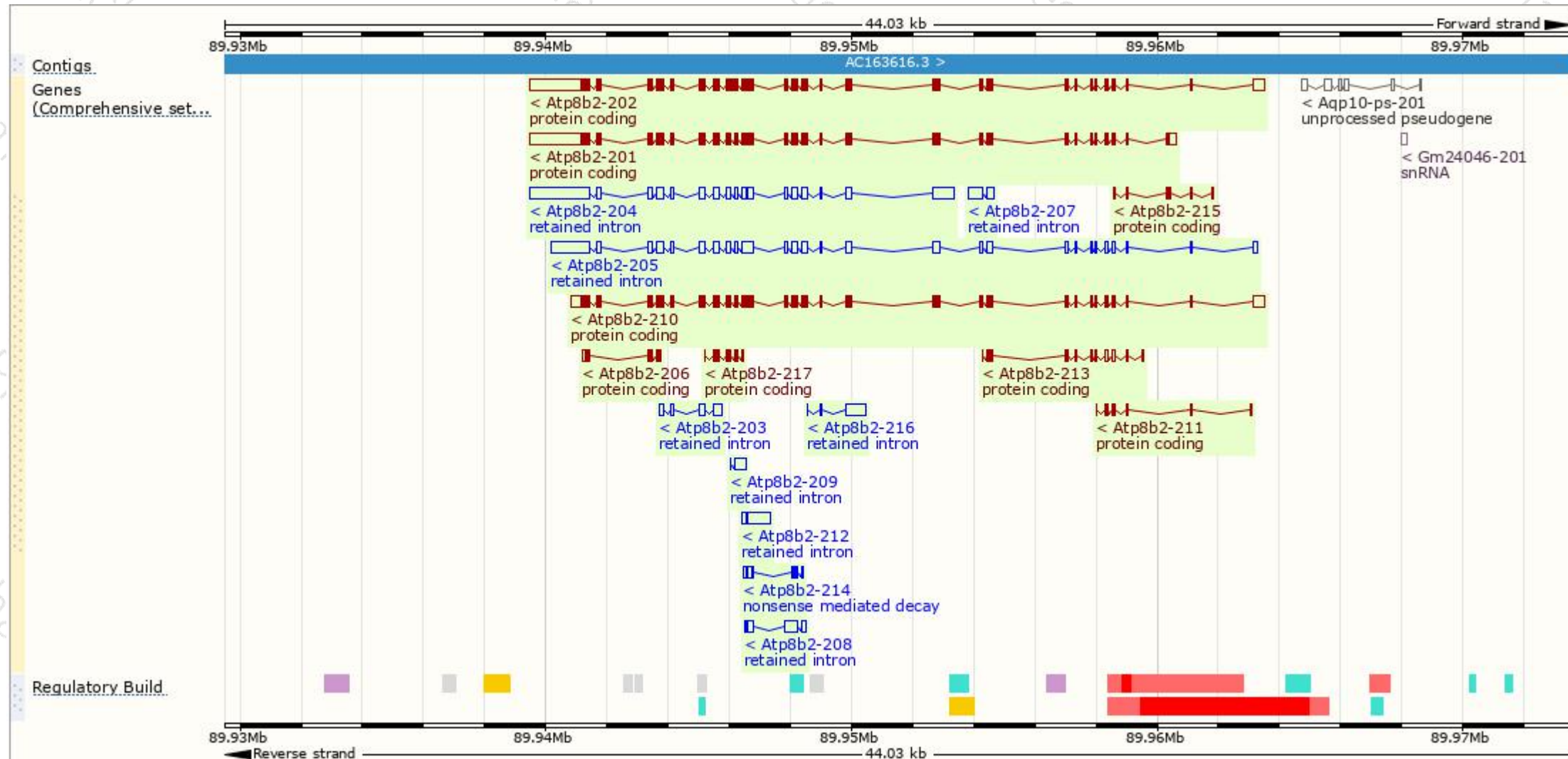
The gene has 17 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp8b2-210	ENSMUST00000168276.7	4265	1190aa	Protein coding	CCDS38497	E9QAL4	TSL:5 GENCODE basic APPRIS P2
Atp8b2-202	ENSMUST00000107396.7	5705	1214aa	Protein coding	-	D3YXQ5	TSL:5 GENCODE basic
Atp8b2-201	ENSMUST00000069805.13	5559	1209aa	Protein coding	-	P98199	TSL:5 GENCODE basic APPRIS ALT1
Atp8b2-213	ENSMUST00000170696.1	785	128aa	Protein coding	-	E9Q114	CDS 3' incomplete TSL:3
Atp8b2-206	ENSMUST00000166502.1	518	145aa	Protein coding	-	F6WT01	CDS 5' incomplete TSL:2
Atp8b2-217	ENSMUST00000171941.1	507	169aa	Protein coding	-	F6QLG1	CDS 5' and 3' incomplete TSL:3
Atp8b2-211	ENSMUST00000168880.7	459	112aa	Protein coding	-	E9Q8R2	CDS 3' incomplete TSL:5
Atp8b2-215	ENSMUST00000171422.1	360	72aa	Protein coding	-	E9Q491	CDS 3' incomplete TSL:3
Atp8b2-214	ENSMUST00000170739.1	447	86aa	Nonsense mediated decay	-	F6SPT4	CDS 5' incomplete TSL:5
Atp8b2-204	ENSMUST00000163354.7	4894	No protein	Retained intron	-	-	TSL:2
Atp8b2-205	ENSMUST00000166347.7	4814	No protein	Retained intron	-	-	TSL:2
Atp8b2-212	ENSMUST00000170324.1	831	No protein	Retained intron	-	-	TSL:3
Atp8b2-208	ENSMUST00000167257.1	756	No protein	Retained intron	-	-	TSL:5
Atp8b2-203	ENSMUST00000163152.1	736	No protein	Retained intron	-	-	TSL:2
Atp8b2-216	ENSMUST00000171818.1	697	No protein	Retained intron	-	-	TSL:2
Atp8b2-207	ENSMUST00000166705.1	652	No protein	Retained intron	-	-	TSL:3
Atp8b2-209	ENSMUST00000167442.1	403	No protein	Retained intron	-	-	TSL:3

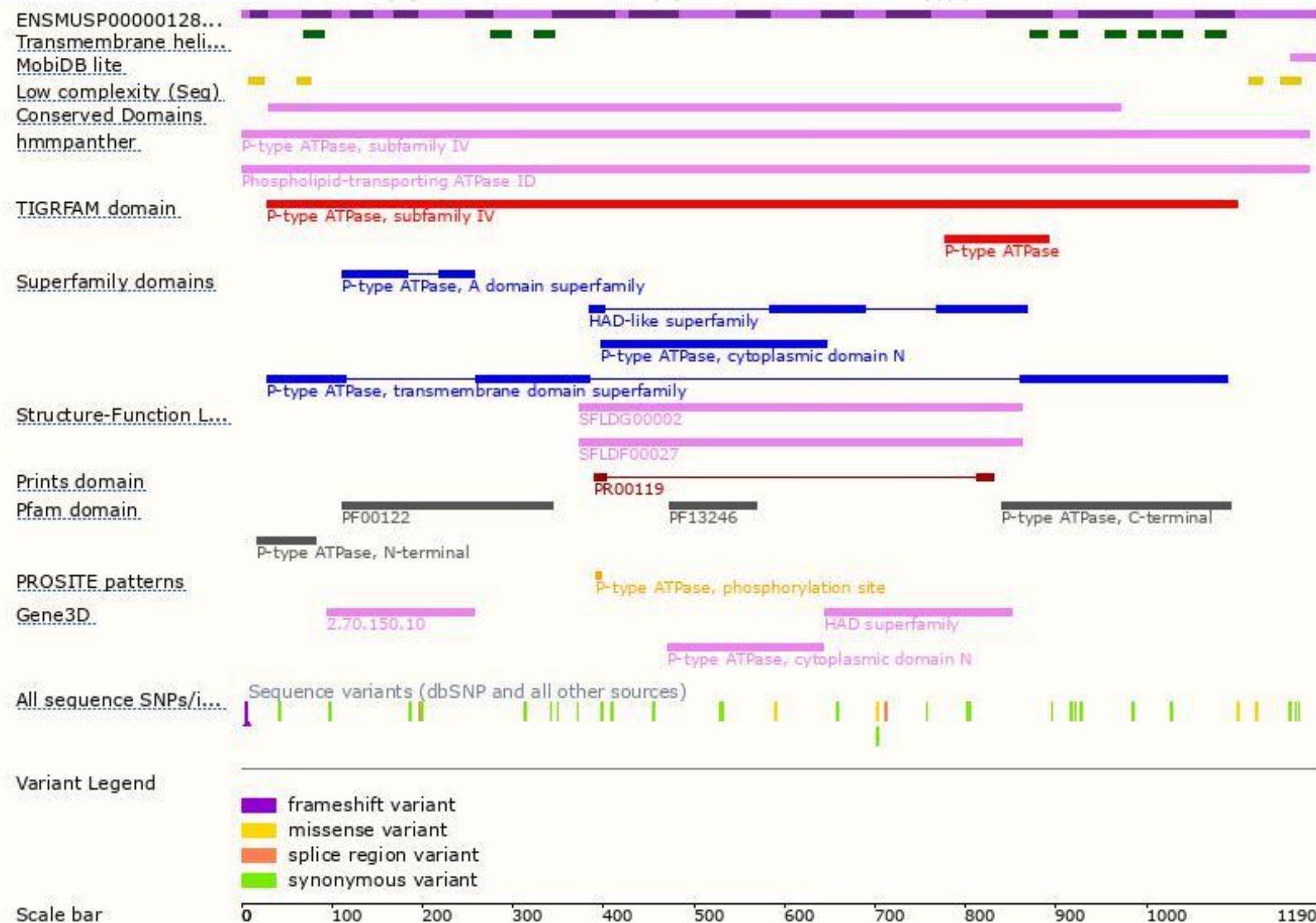
The strategy is based on the design of *Atp8b2-210* transcript,The transcription is shown below



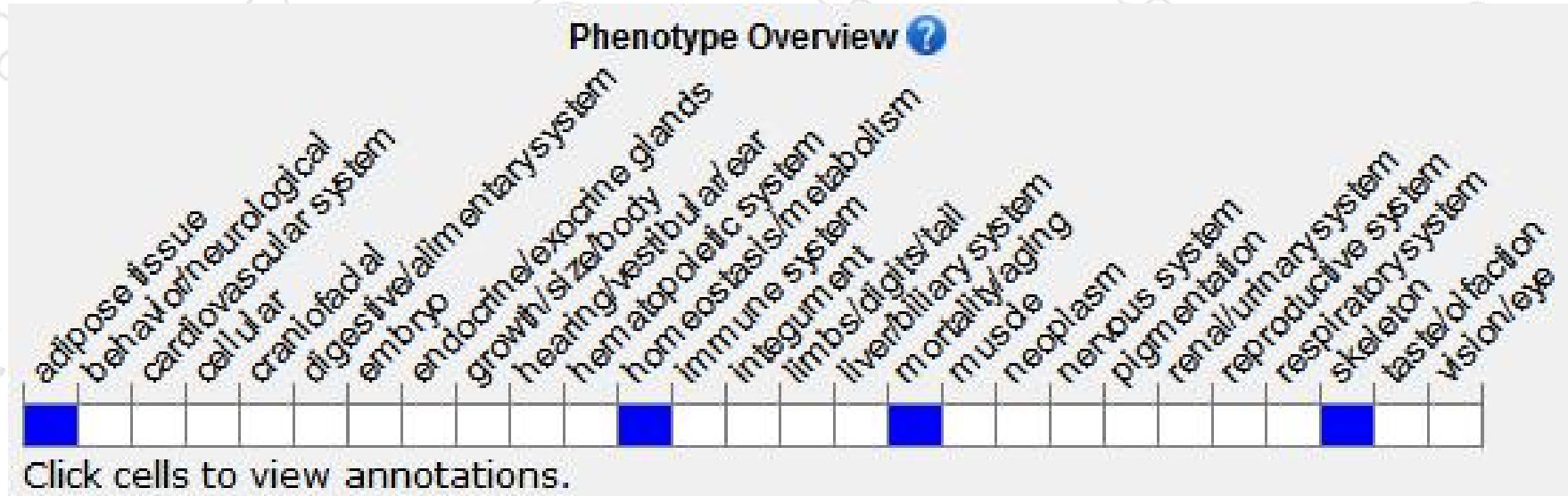
Genomic location distribution



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/>).

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

Tel: 400-9660890

