

Abcc8 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Abcc8

Project type

Cas9-CKO

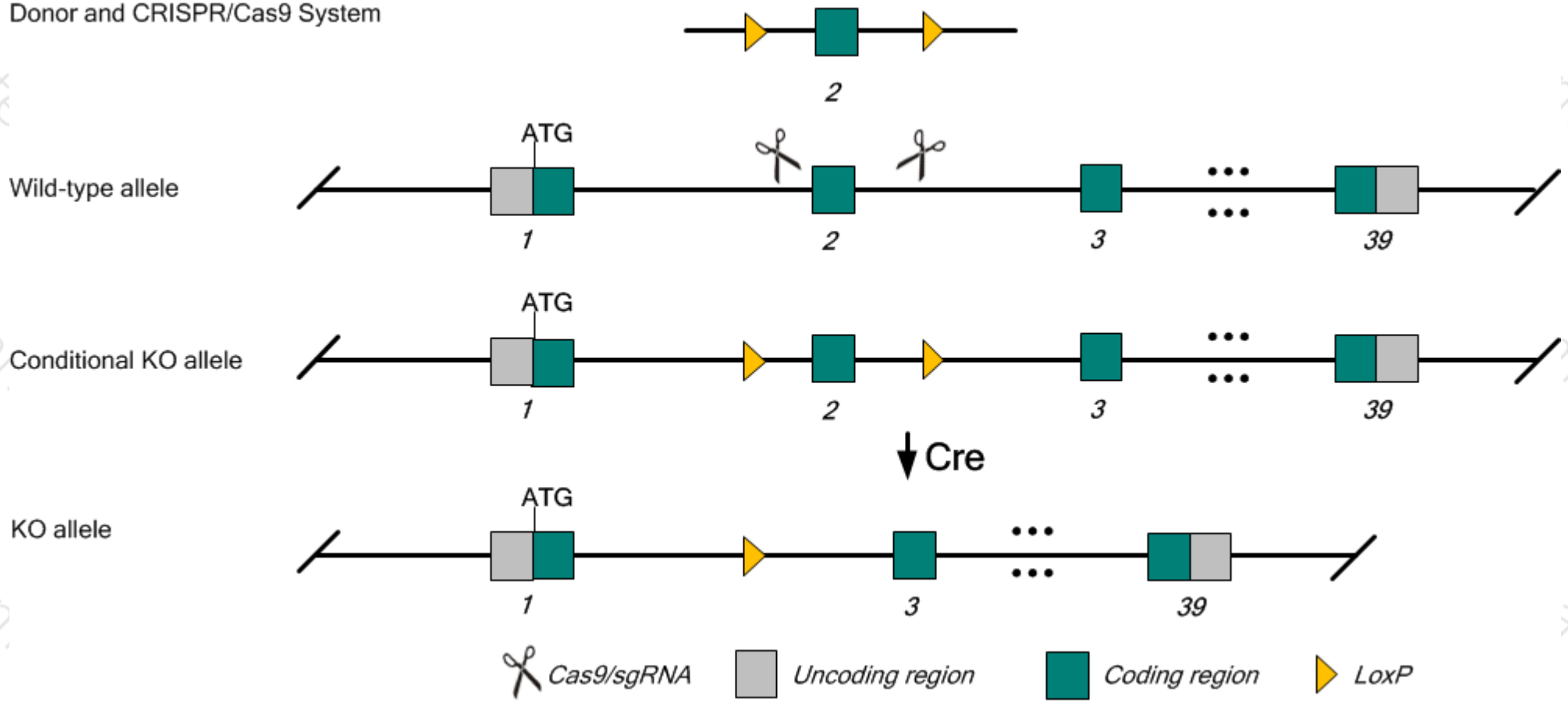
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abcc8* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



Technical routes

- The *Abcc8* gene has 8 transcripts, According to the structure of *Abcc8* gene, exon2 of *Abcc8-201* transcript is recommended as the knockout region. The region contains the 142bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abcc8* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data , Homozygotes for targeted null mutations exhibit a transient neonatal hypoglycemia and a late-developing glucose intolerance.
- Transcript *Abcc8-205* may not be affected. The impact on transcript *Abcc8-202*, *Abcc8-203*, *Abcc8-206*, *Abcc8-207* is unknown.
- The *Abcc8* gene is located in the Chr7. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Abcc8 ATP-binding cassette, sub-family C (CFTR/MRP), member 8 [*Mus musculus* (house mouse)]

Gene ID: 20927, updated on 31-Jan-2019

Summary

Official Symbol	Abcc8 provided by MGI
Official Full Name	ATP-binding cassette, sub-family C (CFTR/MRP), member 8 provided by MGI
Primary source	MGI:MGI:1352629
See related	Ensembl:ENSMUSG00000040136
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	Sur; SUR1; D930031B21Rik
Expression	Biased expression in cerebellum adult (RPKM 8.6), heart adult (RPKM 8.3) and 11 other tissues See more
Orthologs	human all

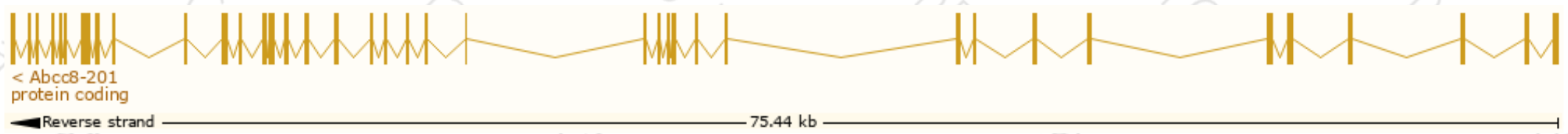
Transcript information (Ensembl)



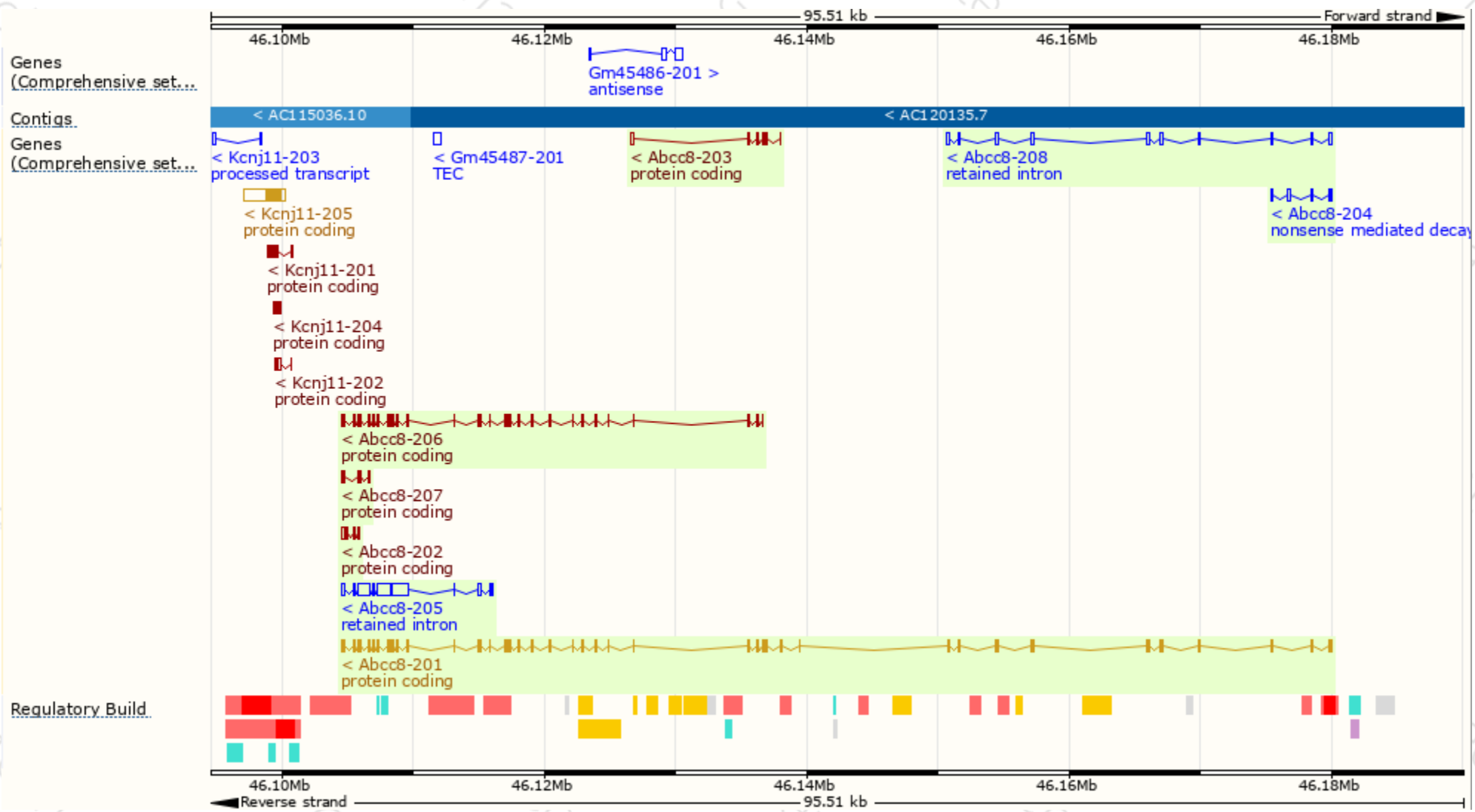
The gene has 8 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Abcc8-201	ENSMUST00000033123.7	4877	1588aa	Protein coding	CCDS21275	B2RUS7	NM_001357538 NM_011510 NP_001344467 NP_035640	TSL:1 Gencode basic APPRIS P1
Abcc8-206	ENSMUST00000210655.1	2832	910aa	Protein coding	-	A0A1B0GT25	-	CDS 5' incomplete TSL:1
Abcc8-203	ENSMUST00000210110.1	630	158aa	Protein coding	-	A0A1B0GRD7	-	CDS 5' incomplete TSL:5
Abcc8-207	ENSMUST00000210770.1	466	123aa	Protein coding	-	A0A1B0GSG2	-	CDS 5' incomplete TSL:3
Abcc8-202	ENSMUST00000209432.1	431	73aa	Protein coding	-	A0A1B0GR95	-	CDS 5' incomplete TSL:3
Abcc8-204	ENSMUST00000210511.1	637	100aa	Nonsense mediated decay	-	A0A1B0GT49	-	TSL:3
Abcc8-205	ENSMUST00000210637.1	4005	No protein	Retained intron	-	-	-	TSL:2
Abcc8-208	ENSMUST00000210986.1	1845	No protein	Retained intron	-	-	-	TSL:1

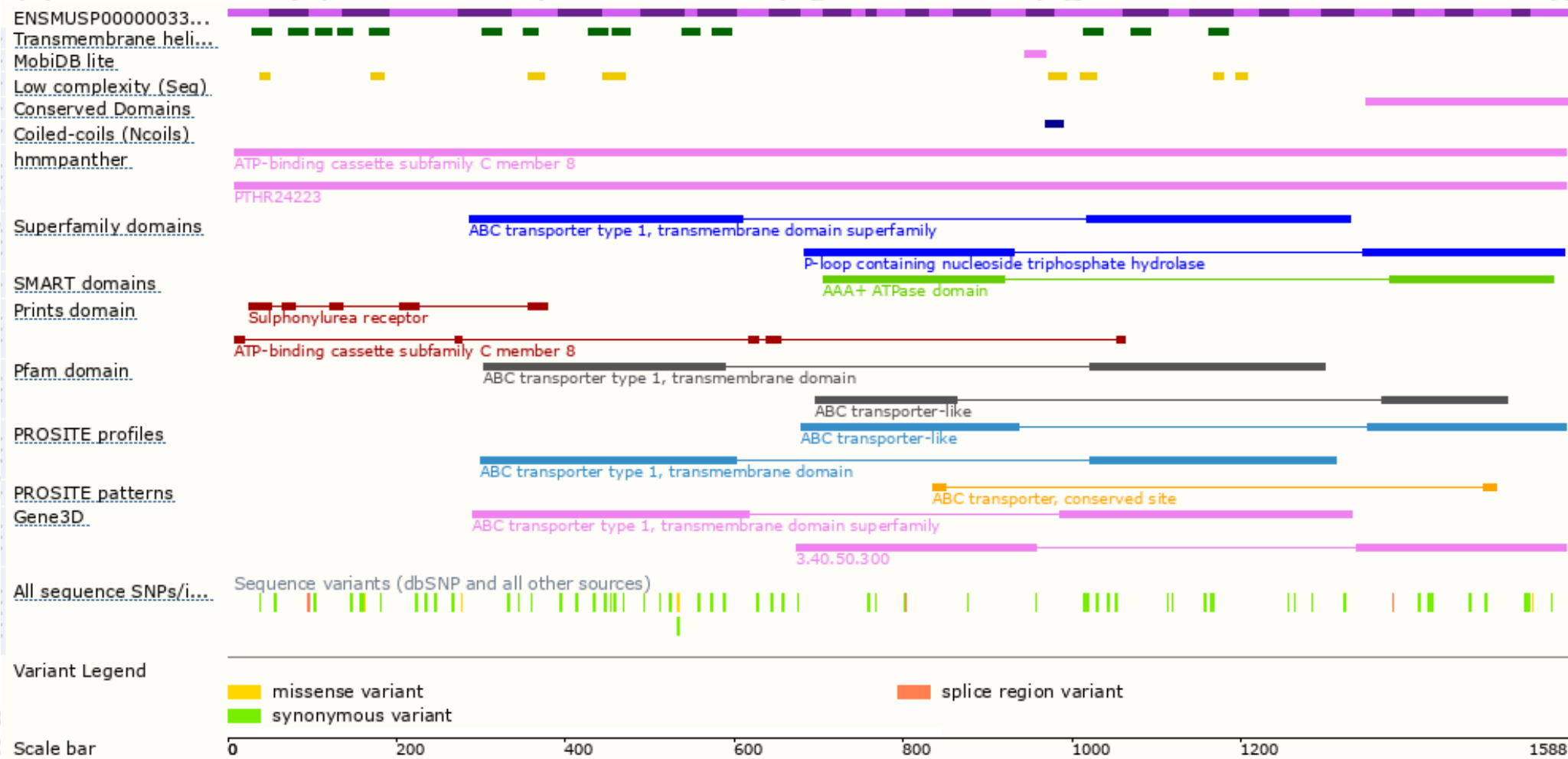
The strategy is based on the design of *Abcc8-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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