

Ube2m Cas9-KO Strategy

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Project Overview

Project Name

Ube2m

Project type

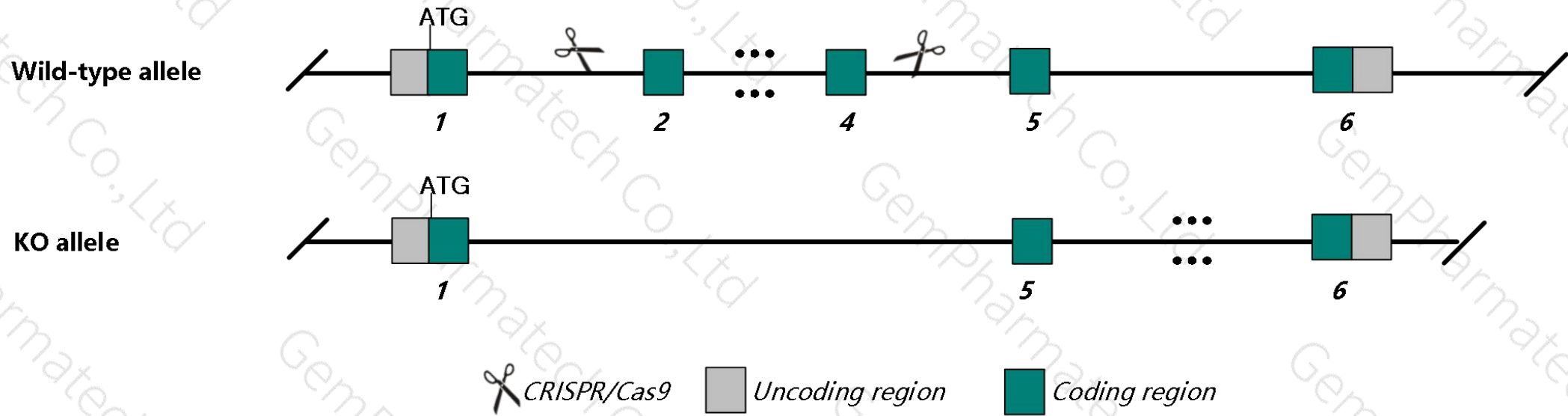
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ube2m* gene. The schematic diagram is as follows:



- The *Ube2m* gene has 8 transcripts. According to the structure of *Ube2m* gene, exon2-exon4 of *Ube2m-201* (ENSMUST00000005714.13) transcript is recommended as the knockout region. The region contains 238bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ube2m* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit early embryonic lethality.
- The *Ube2m* gene is located on 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ube2m ubiquitin-conjugating enzyme E2M [*Mus musculus* (house mouse)]

Gene ID: 22192, updated on 12-Aug-2019

Summary

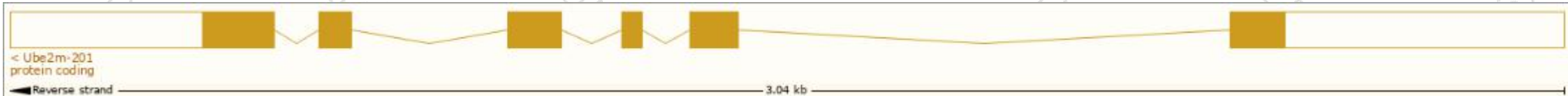
Official Symbol	Ube2m provided by MGI
Official Full Name	ubiquitin-conjugating enzyme E2M provided by MGI
Primary source	MGI:MGI:108278
See related	Ensembl:ENSMUSG000000005575
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	UBC12; Ubc-rs2; 2510040H03Rik
Expression	Ubiquitous expression in testis adult (RPKM 97.2), whole brain E14.5 (RPKM 66.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

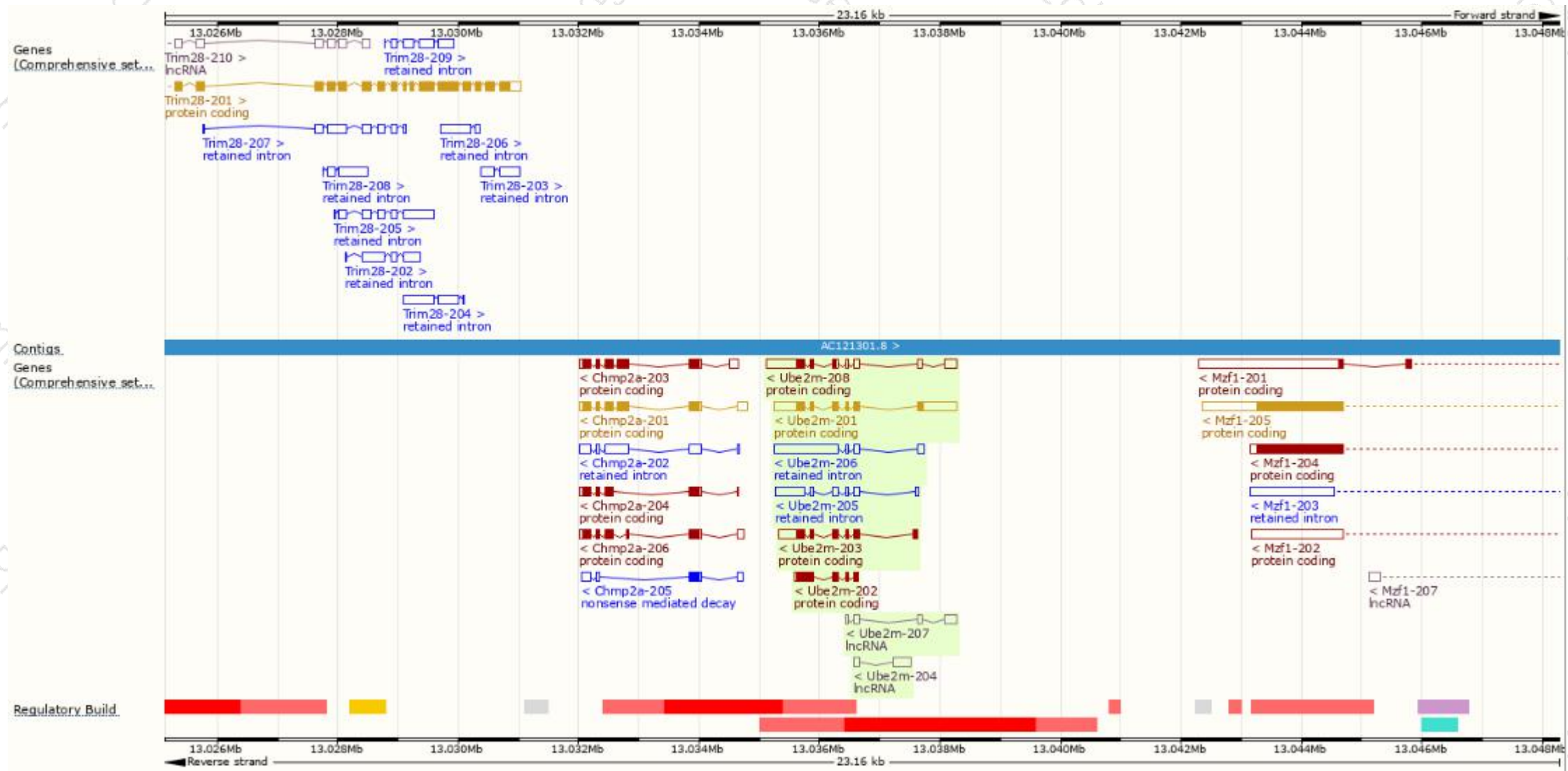
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ube2m-201	ENSMUST00000005714.13	1472	183aa	Protein coding	CCDS20825	P61082	TSL:1 GENCODE basic APPRIS P1
Ube2m-208	ENSMUST00000165394.8	1228	86aa	Protein coding	CCDS52024	G5E919	TSL:5 GENCODE basic
Ube2m-203	ENSMUST00000125964.7	801	171aa	Protein coding	-	F7CDT0	CDS 5' incomplete TSL:2
Ube2m-202	ENSMUST00000123541.1	544	172aa	Protein coding	-	F6WMC0	CDS 5' incomplete TSL:3
Ube2m-206	ENSMUST00000138357.8	1338	No protein	Retained intron	-	-	TSL:2
Ube2m-205	ENSMUST00000131837.7	851	No protein	Retained intron	-	-	TSL:3
Ube2m-207	ENSMUST00000156389.1	415	No protein	lncRNA	-	-	TSL:5
Ube2m-204	ENSMUST00000126827.1	401	No protein	lncRNA	-	-	TSL:3

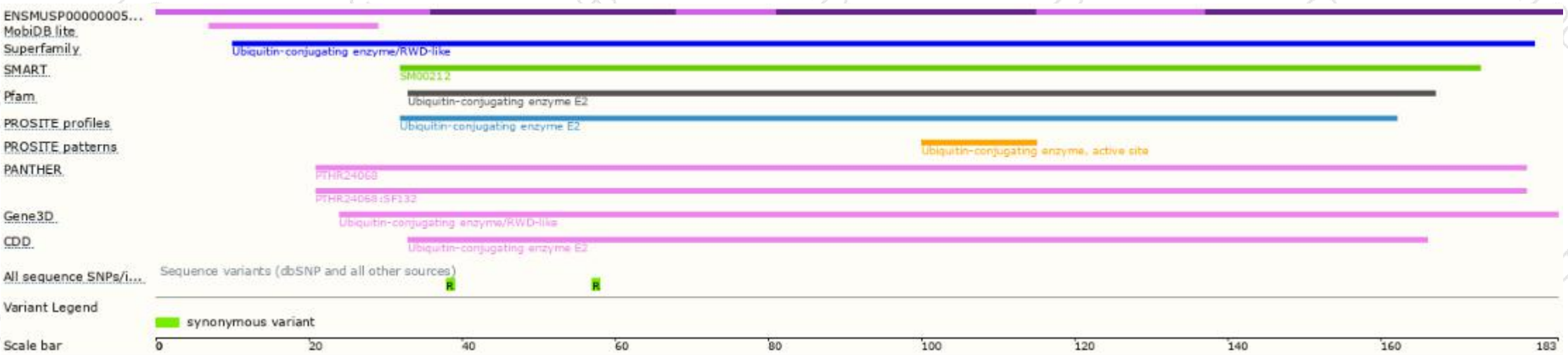
The strategy is based on the design of *Ube2m-201* transcript,The transcription is shown below



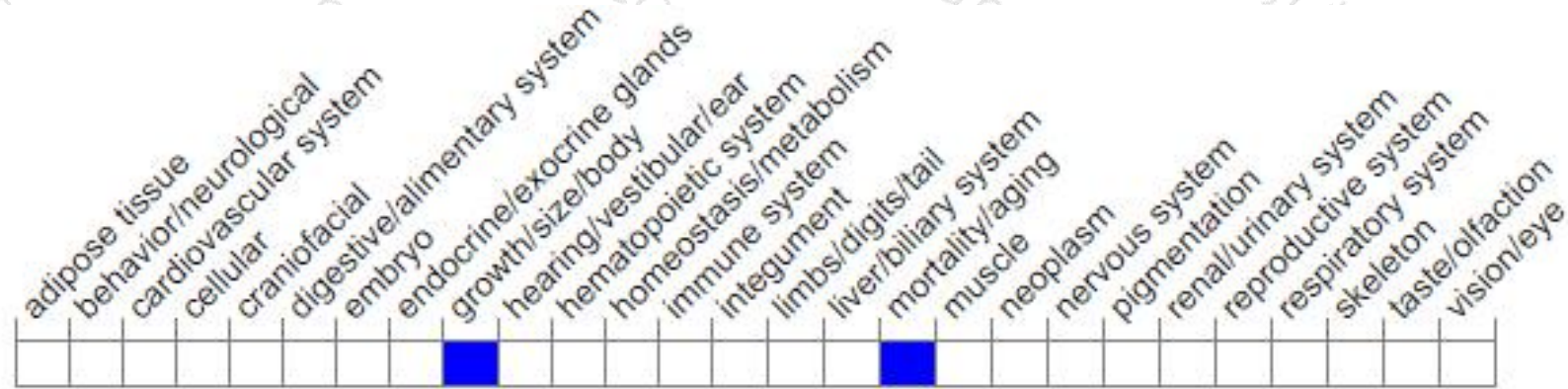
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit early embryonic lethality.

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

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