

Hmg20a Cas9-CKO Strategy

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Project Overview

Project Name

Hmg20a

Project type

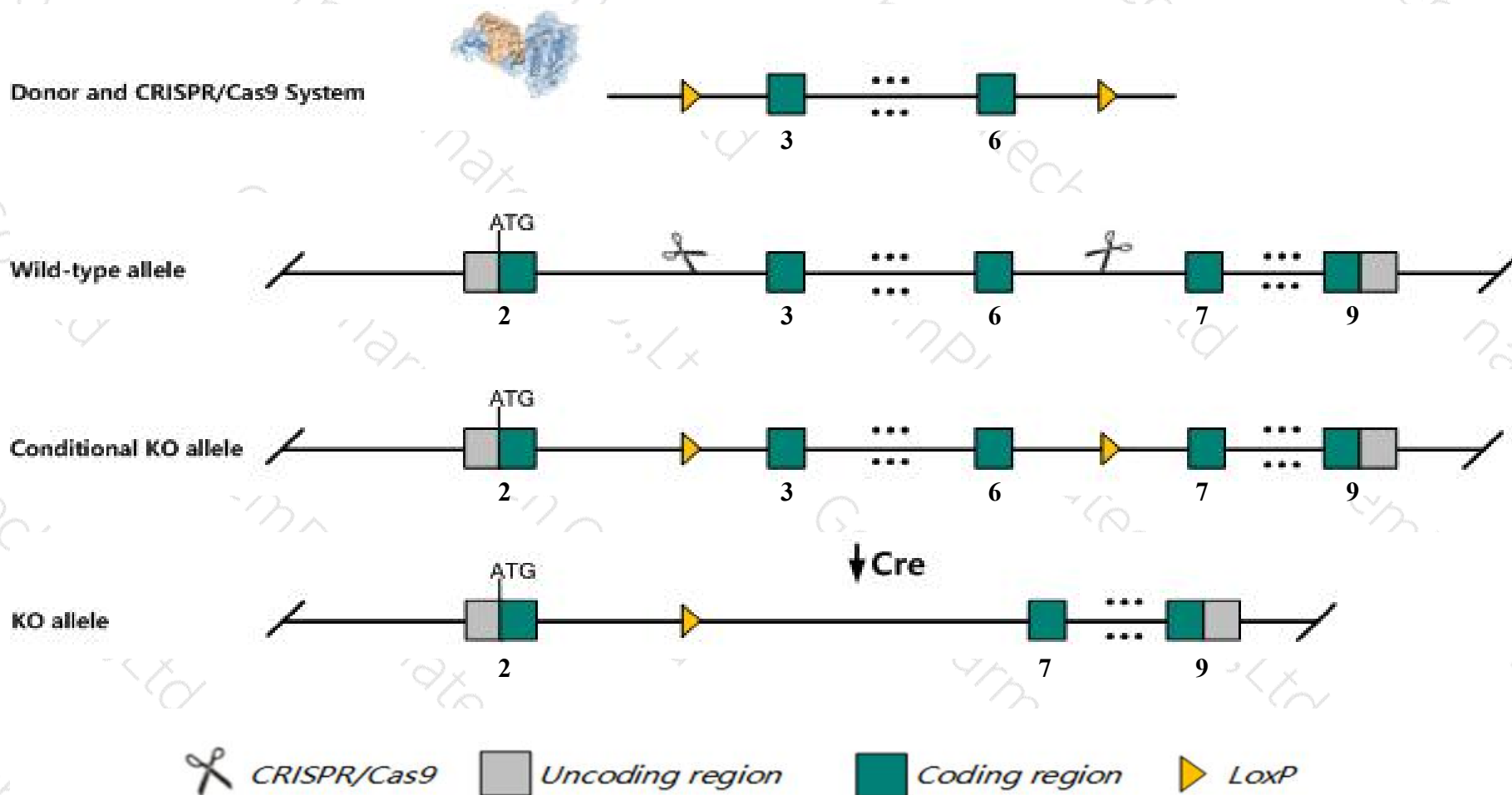
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hmg20a* gene. The schematic diagram is as follows:



- The *Hmg20a* gene has 6 transcripts. According to the structure of *Hmg20a* gene, exon3-exon6 of *Hmg20a-201* (ENSMUST00000034879.4) transcript is recommended as the knockout region. The region contains 523bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hmg20a* 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 effect on transcript *Hmg20a*-202 is unknown.
- The *Hmg20a* gene is located on the Chr9. 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)

Hmg20a high mobility group 20A [*Mus musculus* (house mouse)]

Gene ID: 66867, updated on 18-Feb-2020

Summary

- Official Symbol** Hmg20a provided by [MGI](#)
- Official Full Name** high mobility group 20A provided by [MGI](#)
- Primary source** [MGI:MGI:1914117](#)
- See related** [Ensembl:ENSMUSG00000032329](#)
- 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** Ibraf; Hmgxb1; 1200004E06Rik; 5730490E10Rik
- Expression** Ubiquitous expression in CNS E18 (RPKM 21.5), whole brain E14.5 (RPKM 21.1) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 9; 9 B

See Hmg20a in [Genome Data Viewer](#)

Exon count: 10

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	9	NC_000075.6 (56418619..56496936)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	9	NC_000075.5 (56266653..56344743)

Transcript information (Ensembl)

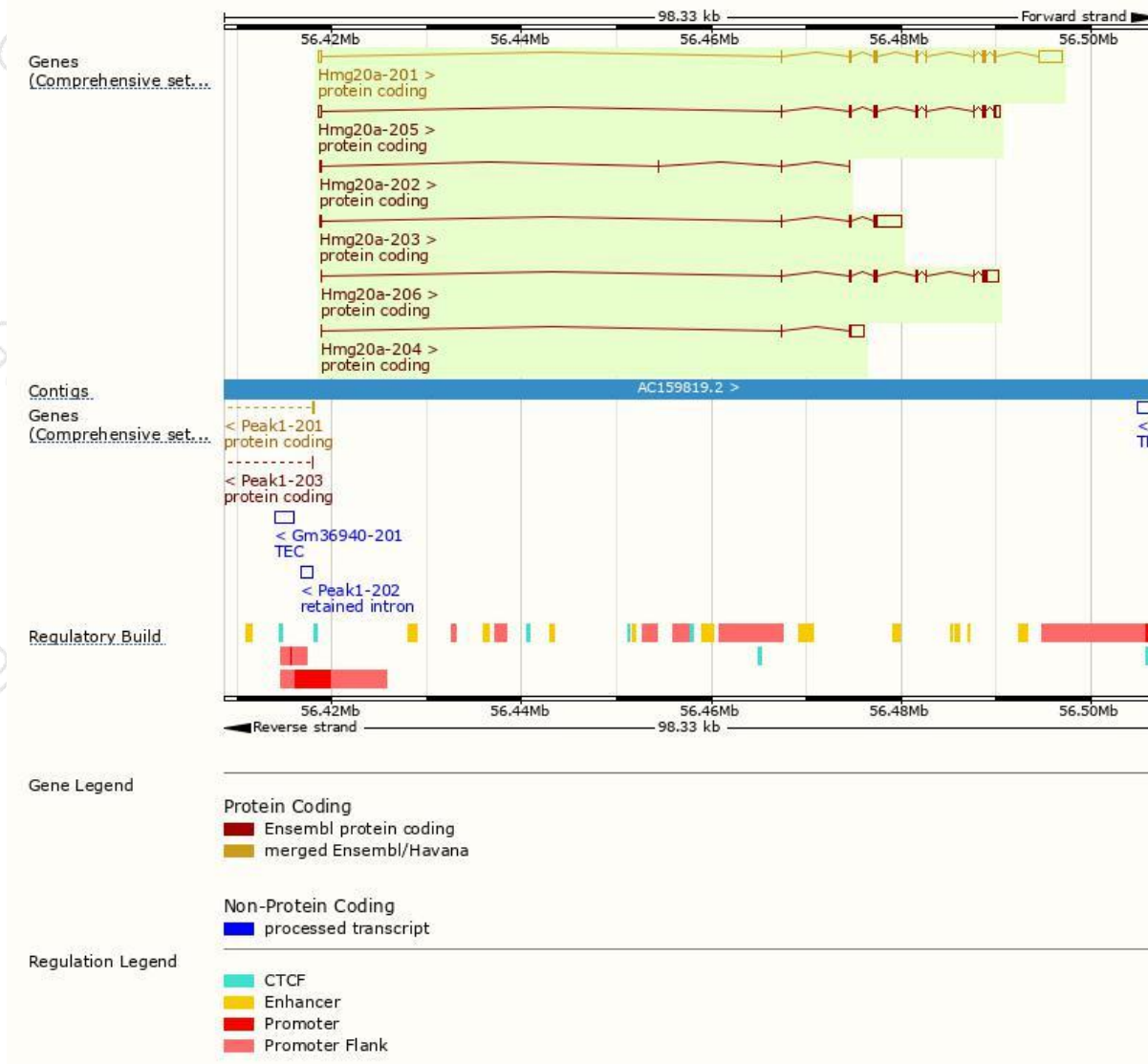
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hmg20a-201	ENSMUST00000034879.4	3778	346aa	Protein coding	CCDS23208	Q9DC33	TSL:1 GENCODE basic APPRIS P1
Hmg20a-205	ENSMUST00000215269.1	1700	346aa	Protein coding	CCDS23208	Q9DC33	TSL:1 GENCODE basic APPRIS P1
Hmg20a-203	ENSMUST00000214771.1	3191	180aa	Protein coding	-	A0A1L1SRA5	TSL:1 GENCODE basic
Hmg20a-206	ENSMUST00000217518.1	2468	379aa	Protein coding	-	Q9DC33	TSL:1 GENCODE basic
Hmg20a-204	ENSMUST00000214869.1	1782	101aa	Protein coding	-	Q9DC33	TSL:1 GENCODE basic
Hmg20a-202	ENSMUST00000213242.1	335	33aa	Protein coding	-	A0A1L1SSI9	CDS 3' incomplete TSL:5

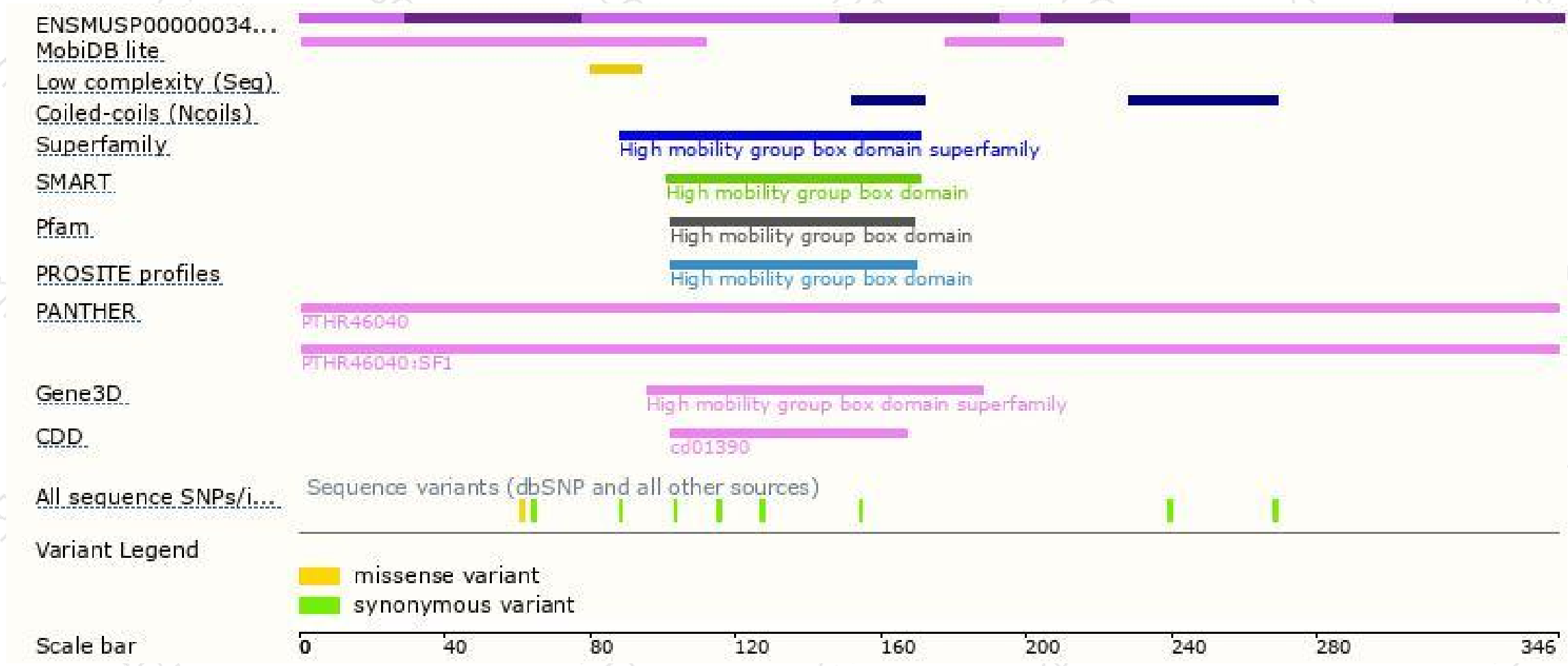
The strategy is based on the design of *Hmg20a-201* transcript,The transcription is shown below



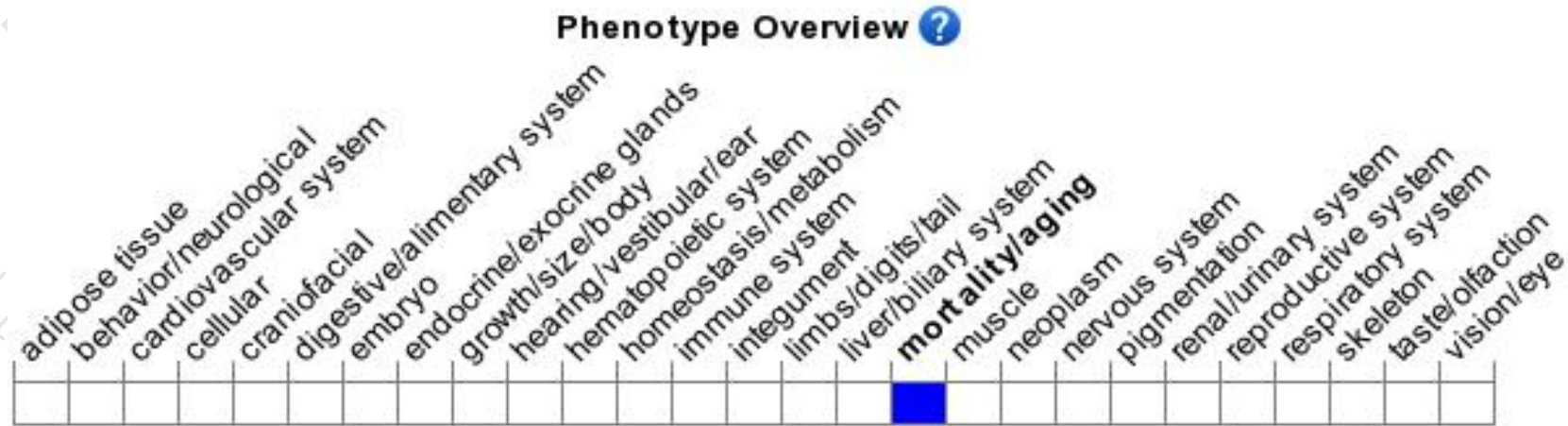
Genomic location distribution



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/>).

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

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