Kcnip4 Cas9-CKO Strategy

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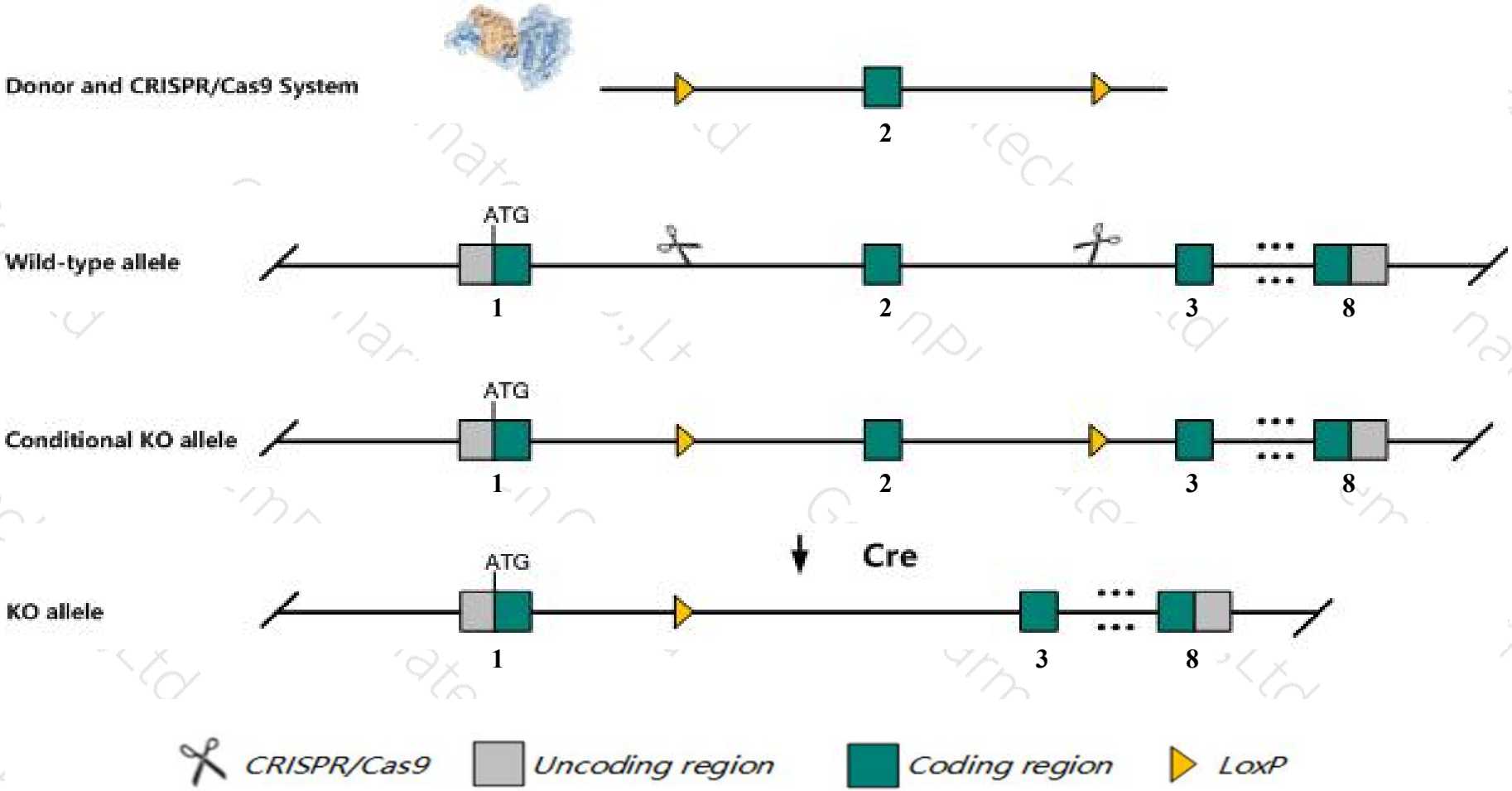
Project Overview

Project Name	***Kcnip4***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnip4* gene. The schematic diagram is as follows:



Technical routes

- The *Kcnip4* gene has 8 transcripts. According to the structure of *Kcnip4* gene, exon2 of *Kcnip4-206* (ENSMUST00000175660.4) transcript is recommended as the knockout region.The region contains 125bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Kcnip4* 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 *Kcnip4* gene is located on the Chr5. 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）

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Kcnip4 Kv channel interacting protein 4 [Mus musculus (house mouse)]

Gene ID: 80334, updated on 31-Jan-2019

Summary

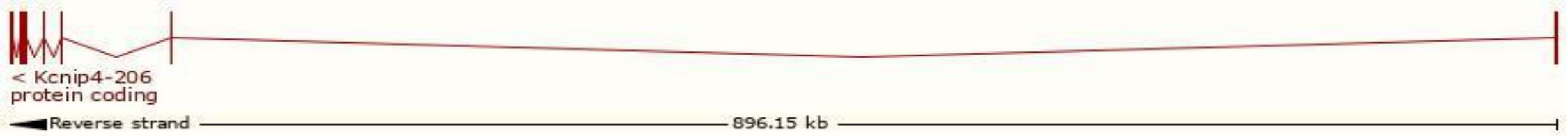
Official Symbol	Kcnip4 provided by MGI
Official Full Name	Kv channel interacting protein 4 provided by MGI
Primary source	MGI:MGI:1933131
See related	Ensembl:ENSMUSG00000029088
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV032399, Calp, Calp250, KChIP4, KChIP4a
Expression	Biased expression in cerebellum adult (RPKM 12.2), cortex adult (RPKM 6.6) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

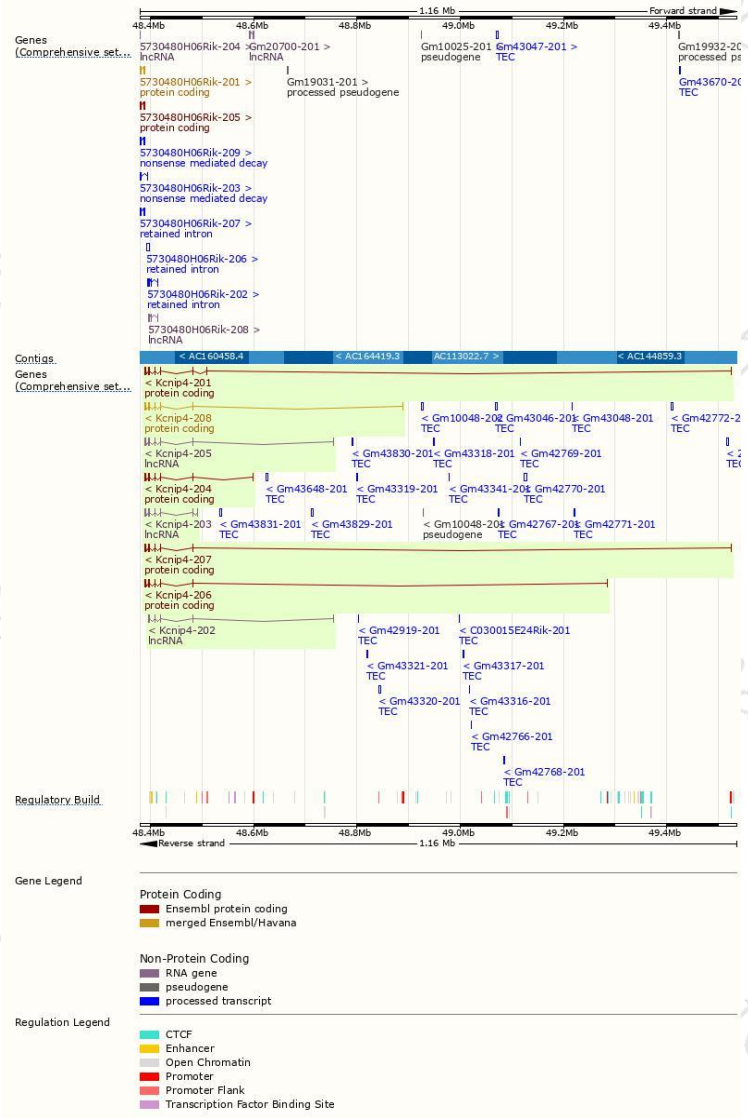
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcnip4-206	ENSMUST00000175660.4	2394	225aa	Protein coding	CCDS57340	Q3UFC0	TSL:1 GENCODE basic APPRIS ALT1
Kcnip4-201	ENSMUST00000087395.10	2366	250aa	Protein coding	CCDS57342	Q3YAA8 Q6PHZ8	TSL:5 GENCODE basic APPRIS ALT1
Kcnip4-204	ENSMUST00000166924.7	2257	233aa	Protein coding	CCDS57339	Q3YAA5	TSL:1 GENCODE basic APPRIS ALT1
Kcnip4-208	ENSMUST00000176978.7	2189	229aa	Protein coding	CCDS39084	Q3YAA6 Q6PHZ8	TSL:1 GENCODE basic APPRIS P3
Kcnip4-207	ENSMUST00000176191.7	2116	216aa	Protein coding	CCDS57341	Q3YAA7 Q6PHZ8	TSL:5 GENCODE basic
Kcnip4-203	ENSMUST00000101215.9	2139	No protein	lncRNA	-	-	TSL:1
Kcnip4-205	ENSMUST00000172363.8	2108	No protein	lncRNA	-	-	TSL:1
Kcnip4-202	ENSMUST00000101214.3	766	No protein	lncRNA	-	-	TSL:5

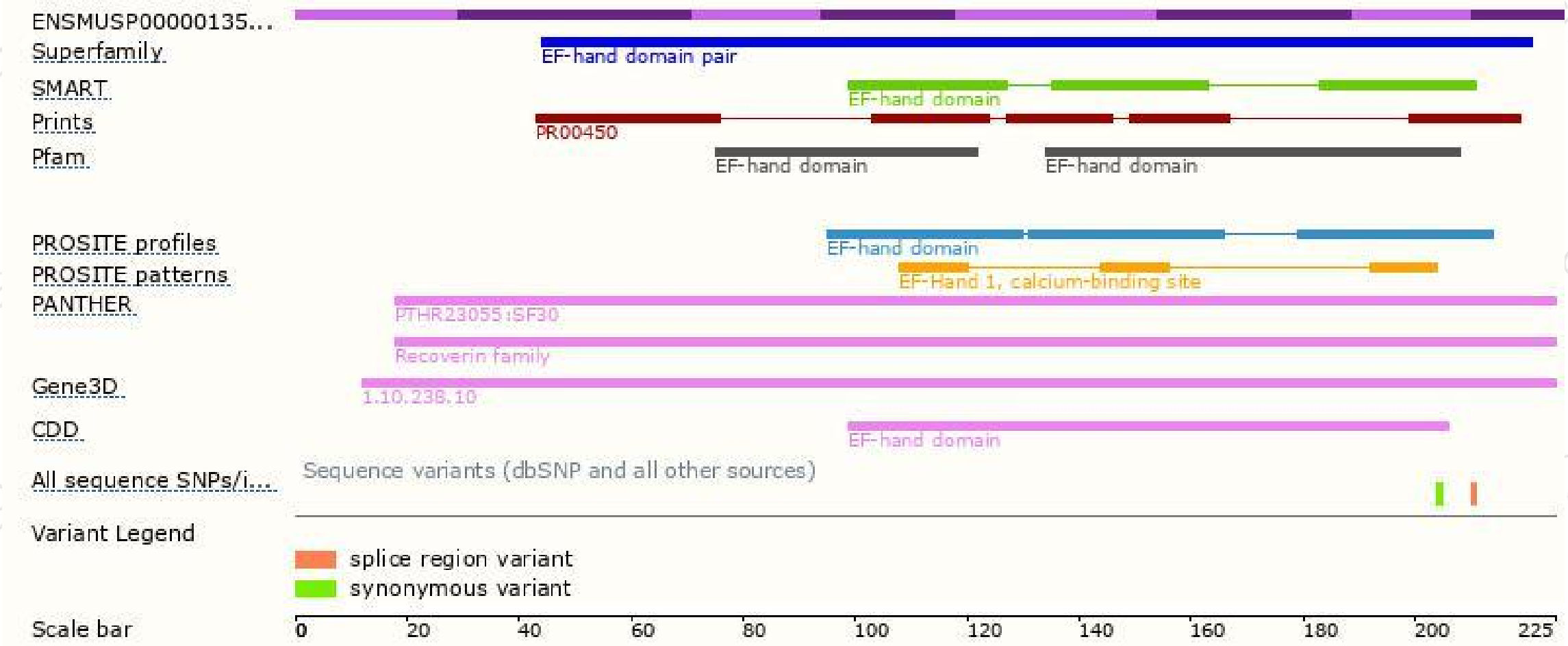
The strategy is based on the design of *Kcnip4-206* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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