Chrna9 Cas9-KO Strategy

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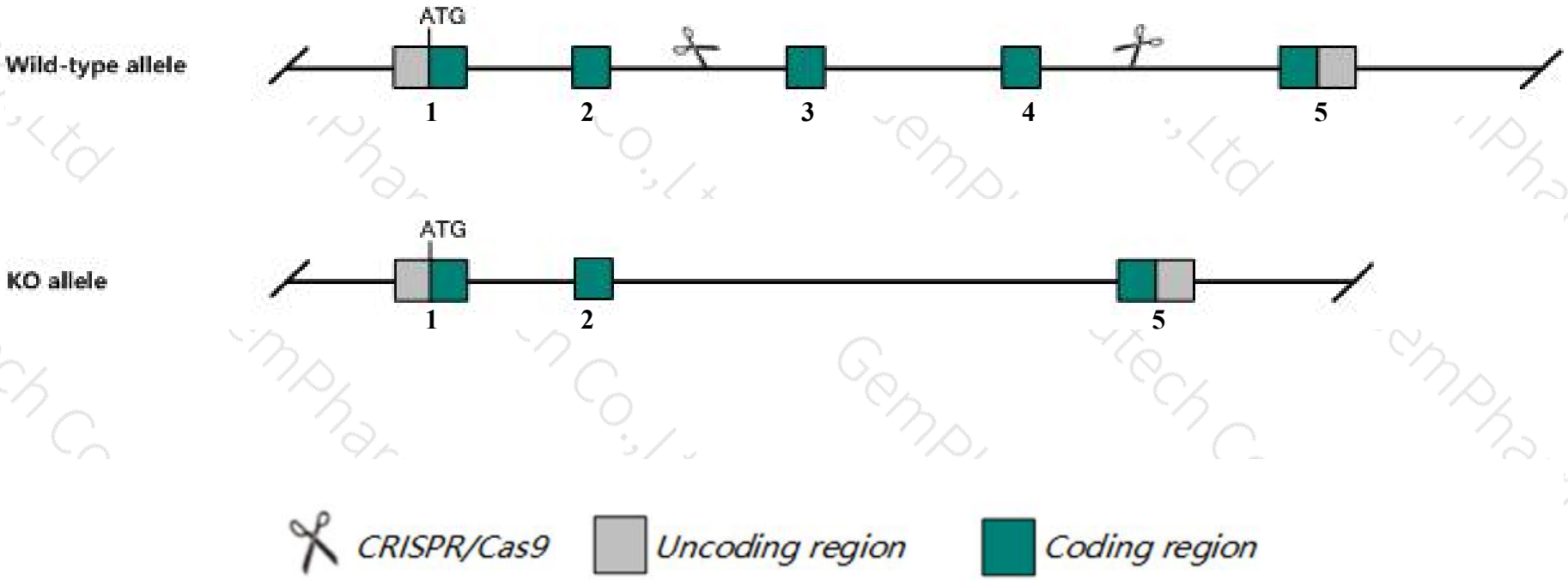
Project Overview

Project Name	***Chrna9***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Chrna9* gene. The schematic diagram is as follows:



Technical routes

➢ The *Chrna9* gene has 7 transcripts. According to the structure of *Chrna9* gene, exon3-exon4 of *Chrna9-201* (ENSMUST00000031108.8) transcript is recommended as the knockout region.The region contains 688bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Chrna9* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

➢ According to the existing MGI data,Homozygous mutation of this gene results in abnormal innervation of the outer hair cells and depressed olivocochlear response.

➢ The *Chrna9* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Chrna9 cholinergic receptor, nicotinic, alpha polypeptide 9 [*Mus musculus* (house mouse)]

Gene ID: 231252, updated on 5-Nov-2019

Summary

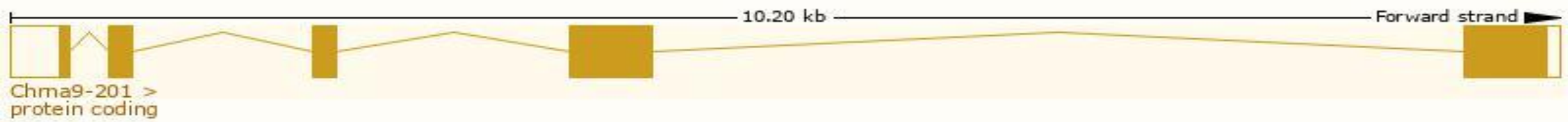
Official Symbol	Chrna9 provided by MGI
Official Full Name	cholinergic receptor, nicotinic, alpha polypeptide 9 provided by MGI
Primary source	MGI:MGI:1202403
See related	Ensembl:ENSMUSG00000029205
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Acra9; Gm8311; EG666827; 2410015I05Rik
Expression	Restricted expression toward thymus adult (RPKM 11.4) See more
Orthologs	human all

Transcript information（Ensembl）

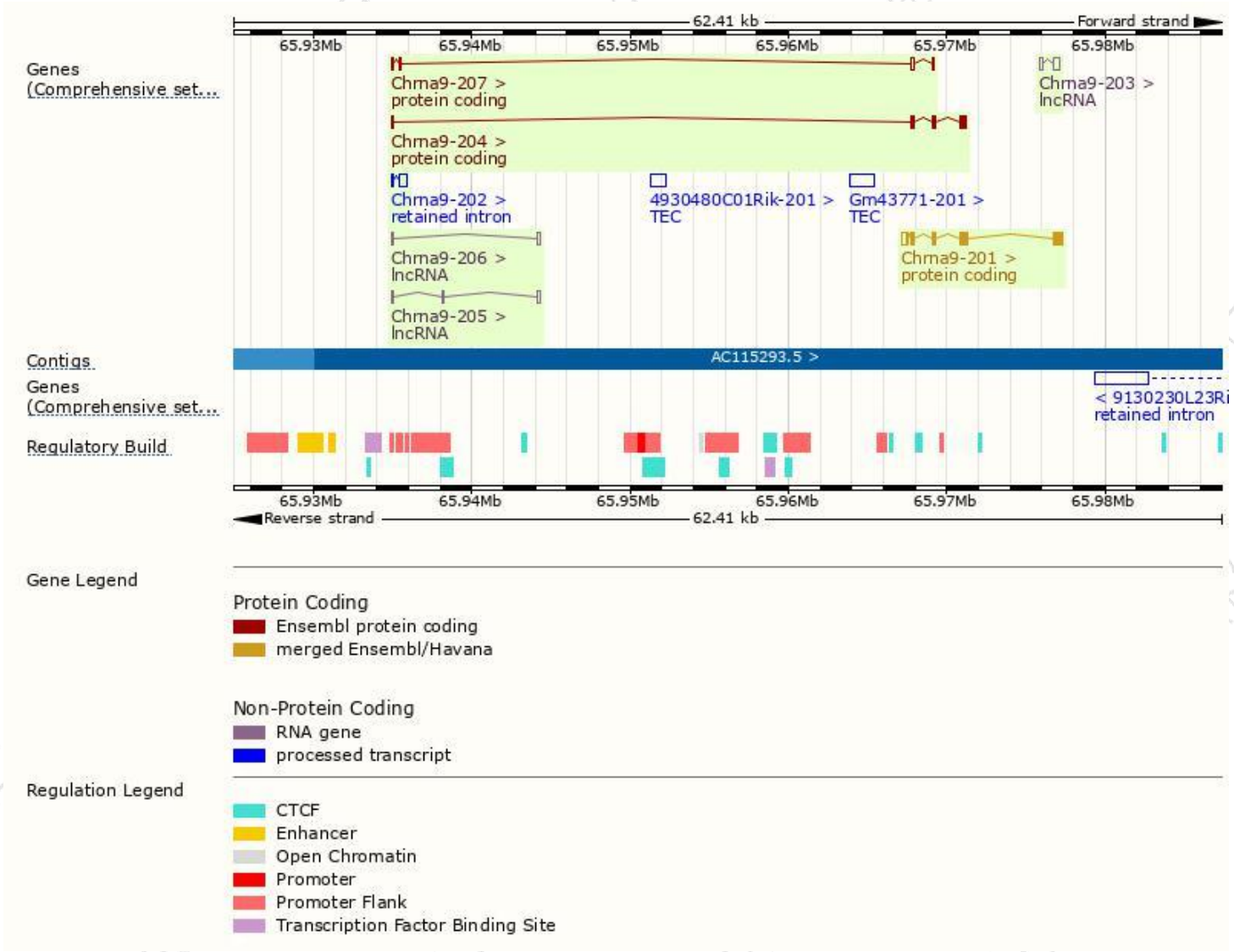
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Chrna9-201	ENSMUST00000031108.8	1843	479aa	Protein coding	CCDS39101	G3X8Z7	TSL:1 GENCODE basic APPRIS P1
Chrna9-204	ENSMUST00000201814.3	831	258aa	Protein coding	-	A0A0J9YUW0	CDS 3' incomplete TSL:3
Chrna9-207	ENSMUST00000202957.1	401	16aa	Protein coding	-	D3Z2J9	CDS 3' incomplete TSL:3
Chrna9-202	ENSMUST00000200881.1	600	No protein	Retained intron	-	-	TSL:2
Chrna9-203	ENSMUST00000201664.1	550	No protein	lncRNA	-	-	TSL:3
Chrna9-205	ENSMUST00000202234.1	501	No protein	lncRNA	-	-	TSL:1
Chrna9-206	ENSMUST00000202735.1	318	No protein	lncRNA	-	-	TSL:2

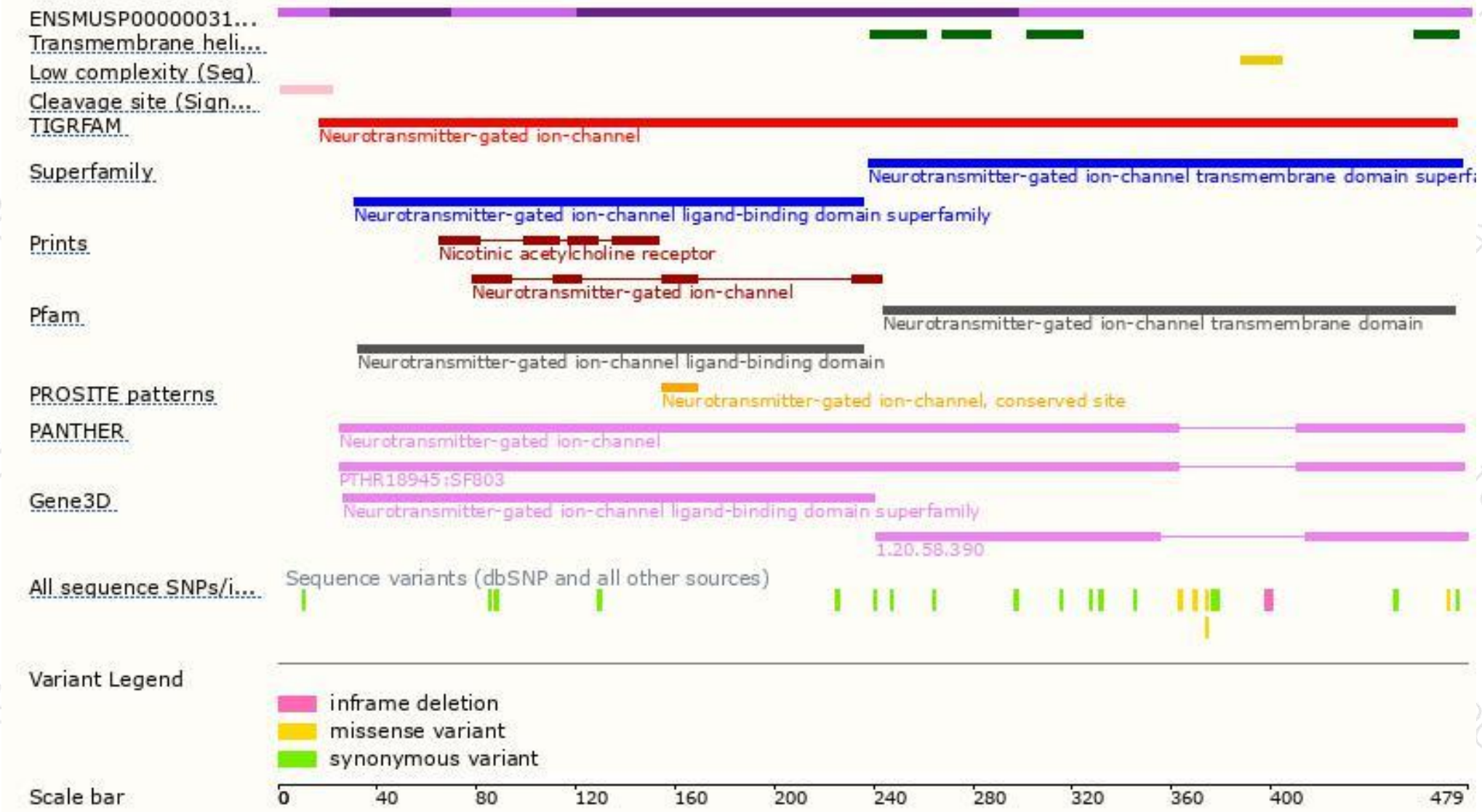
The strategy is based on the design of *Chrna9-201* transcript,The transcription is shown below



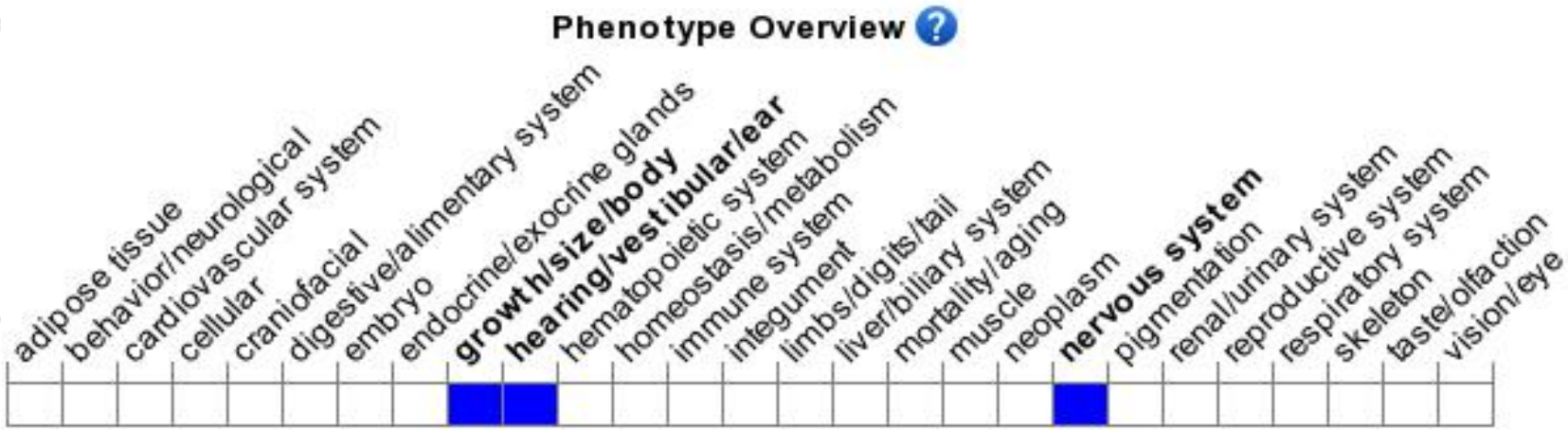
Genomic location distribution



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,Homozygous mutation of this gene results in abnormal innervation of the outer hair cells and depressed olivocochlear response.

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

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