Ankrd11 Cas9-KO Strategy

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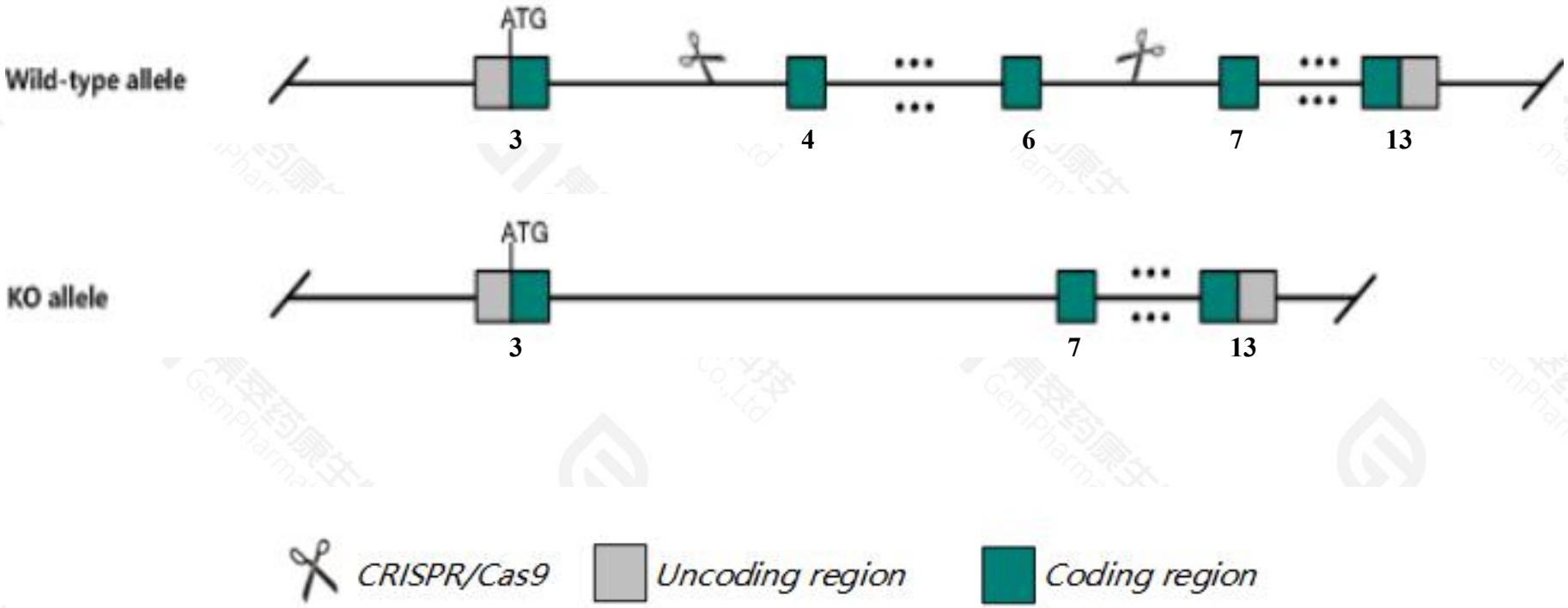
Project Overview

Project Name	***Ankrd11***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ankrd11* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ankrd11* gene has 7 transcripts. According to the structure of *Ankrd11* gene, exon4-exon6 of *Ankrd11-202*(ENSMUST00000098334.13) transcript is recommended as the knockout region.The region contains 514bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ankrd11* 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.

Notice

➢ According to the existing MGI data,mice homozygous for a spontaneous allele die by E9.5, are small and fail to turn. Mice heterozygous for a spontaneous allele exhibit craniofacial abnormalities, decreased weight, osteoporosis and osteopenia.

➢ The *Ankrd11*-207 transcript was not affected and the effect is unknown.

➢ This strategy can destroy *Gm45894* gene while knocking out the target gene.

➢ The *Ankrd11* gene is located on the Chr8. 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）

Ankrd11 ankyrin repeat domain 11 [Mus musculus (house mouse)]

Gene ID: 77087, updated on 17-Dec-2020

Summary

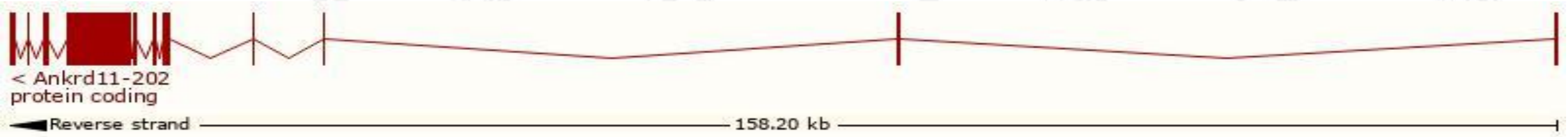
Official Symbol	Ankrd11 provided by MGI
Official Full Name	ankyrin repeat domain 11 provided byMGI
Primary source	MGI:MGI:1924337
See related	Ensembl:ENSMUSG00000035569
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410104C19Rik, 3010027A04Rik, 6330578C09Rik, 9530048I21Rik, AA930108, Gm176, Yo, Yod
Expression	Ubiquitous expression in thymus adult (RPKM 25.9), ovary adult (RPKM 21.9) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

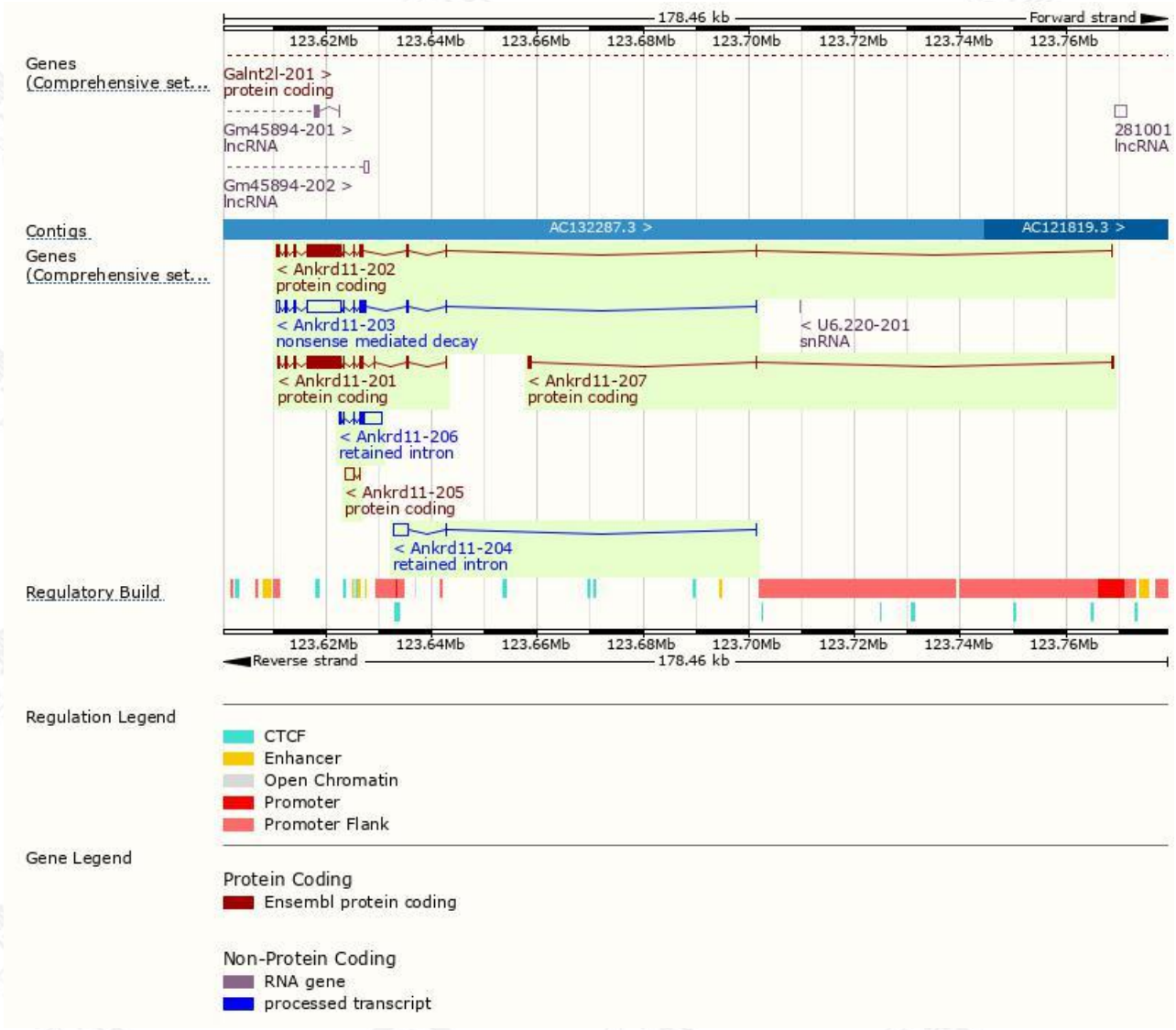
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ankrd11-202	ENSMUST00000098334.13	8455	2643aa	Protein coding	CCDS40507		TSL:5 , GENCODE basic , APPRIS P2 ,
Ankrd11-201	ENSMUST00000098333.5	7995	2664aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Ankrd11-205	ENSMUST00000212050.2	1874	134aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Ankrd11-207	ENSMUST00000212937.2	943	121aa	Protein coding	-		TSL:1 , GENCODE basic ,
Ankrd11-203	ENSMUST00000172906.8	8481	97aa	Nonsense mediated decay	-		TSL:1 ,
Ankrd11-206	ENSMUST00000212337.2	4257	No protein	Retained intron	-		TSL:1 ,
Ankrd11-204	ENSMUST00000174833.2	2934	No protein	Retained intron	-		TSL:1 ,

The strategy is based on the design of *Ankrd11-202* transcript,the transcription is shown below:

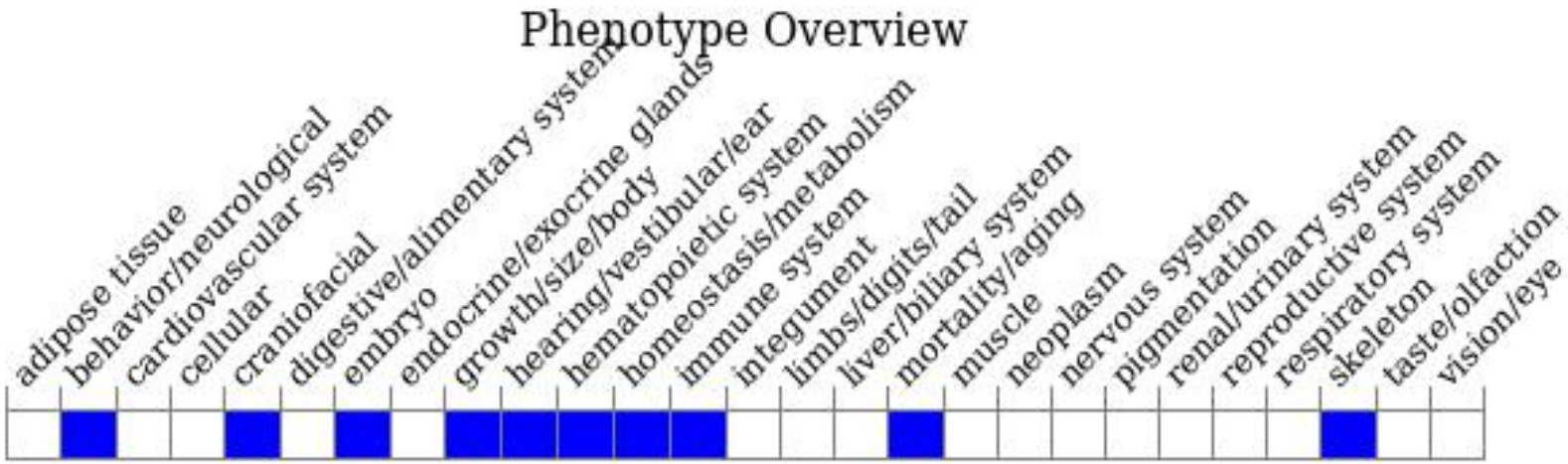


Genomic location distribution



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/).

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