Adam9 Cas9-CKO Strategy

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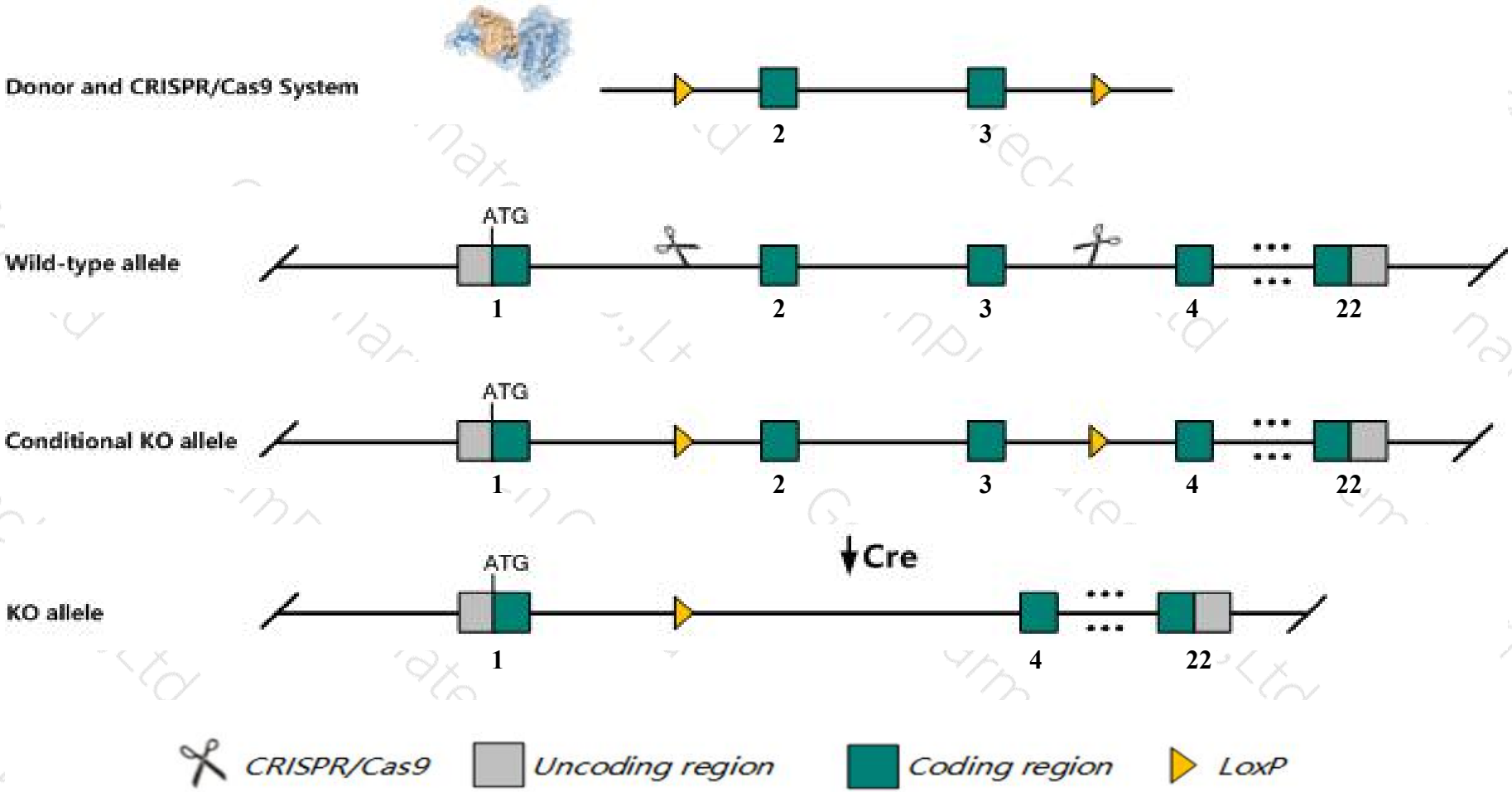
Project Overview

Project Name	***Adam9***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adam9* gene. The schematic diagram is as follows:



Technical routes

- The *Adam9* gene has 5 transcripts. According to the structure of *Adam9* gene, exon2-exon3 of *Adam9-204* (ENSMUST00000208247.2) transcript is recommended as the knockout region.The region contains 157bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Adam9* 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

- According to the existing MGI data,Homozygous knockout mice exhibit progressive retinal degeneration, disorganized retinal layers and a degenerate retinal pigment epithelium.

- The *Adam9* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Adam9 a disintegrin and metallopeptidase domain 9 (meltrin gamma) [Mus musculus (house mouse)]

Gene ID: 11502, updated on 12-Mar-2019

Summary

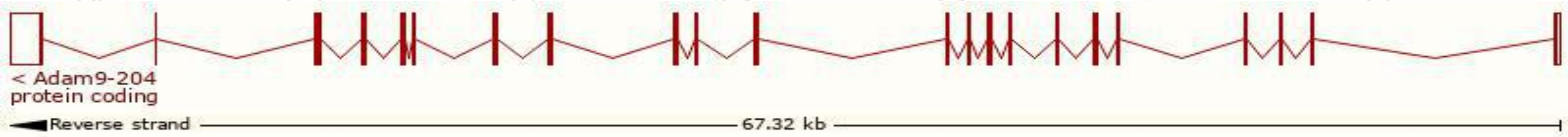
Official Symbol	Adam9 provided by MGI
Official Full Name	a disintegrin and metallopeptidase domain 9 (meltrin gamma) provided by MGI
Primary source	MGI:MGI:105376
See related	Ensembl:ENSMUSG00000031555
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU020942, MDC9, Mltng, mKIAA0021
Expression	Ubiquitous expression in bladder adult (RPKM 28.0), lung adult (RPKM 12.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

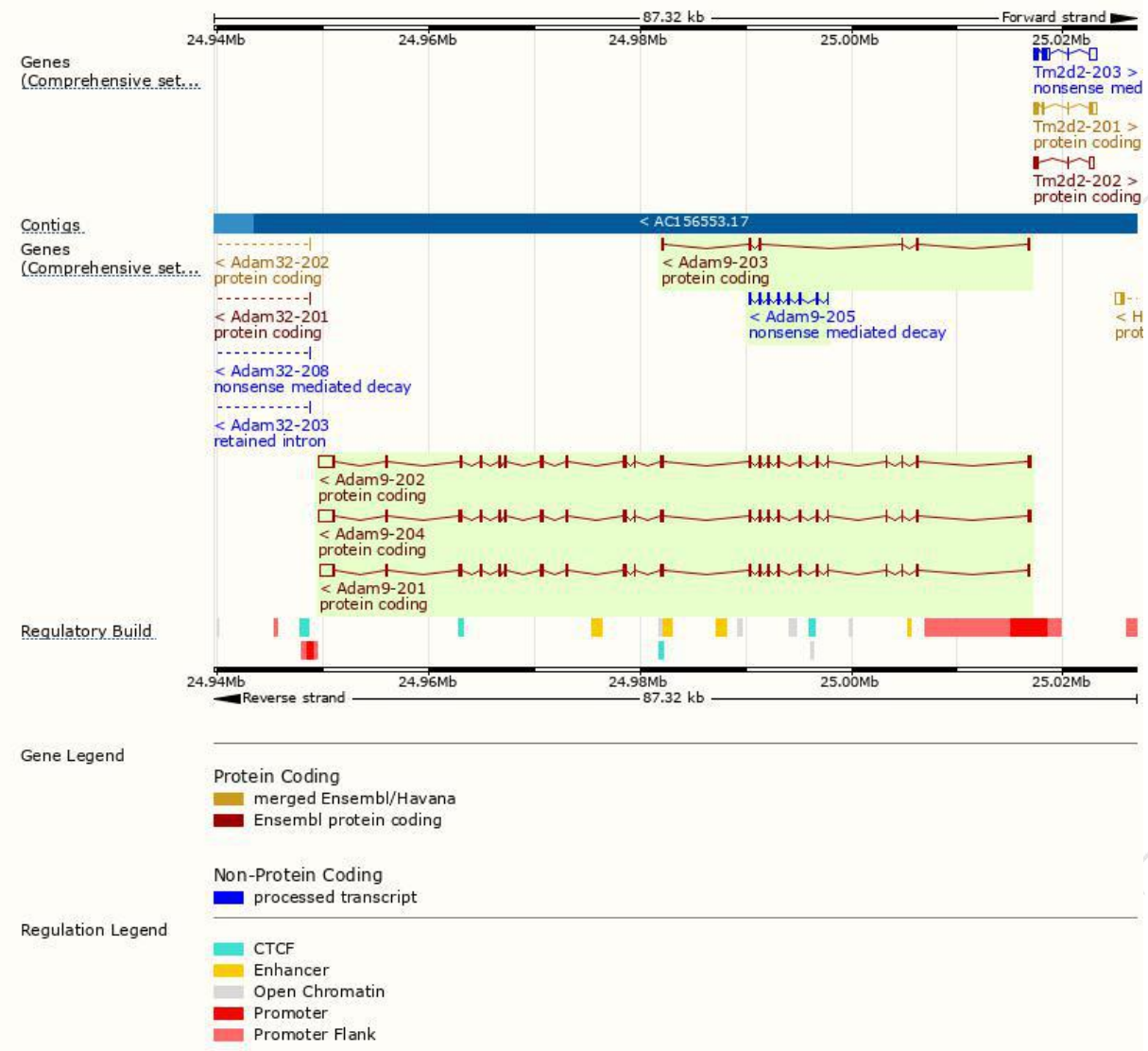
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adam9-204	ENSMUST00000208247.2	4044	863aa	Protein coding	CCDS85516	A0A140LHU0	TSL:1 GENCODE basic APPRIS P2
Adam9-202	ENSMUST00000084035.11	3985	845aa	Protein coding	-	Q61072	TSL:1 GENCODE basic APPRIS ALT2
Adam9-201	ENSMUST00000084032.5	3834	841aa	Protein coding	-	E9Q638	TSL:1 GENCODE basic APPRIS ALT2
Adam9-203	ENSMUST00000207132.1	516	159aa	Protein coding	-	A0A140LJC9	CDS 3' incomplete TSL:5
Adam9-205	ENSMUST00000211319.1	834	130aa	Nonsense mediated decay	-	A0A1B0GSW1	CDS 5' incomplete TSL:5

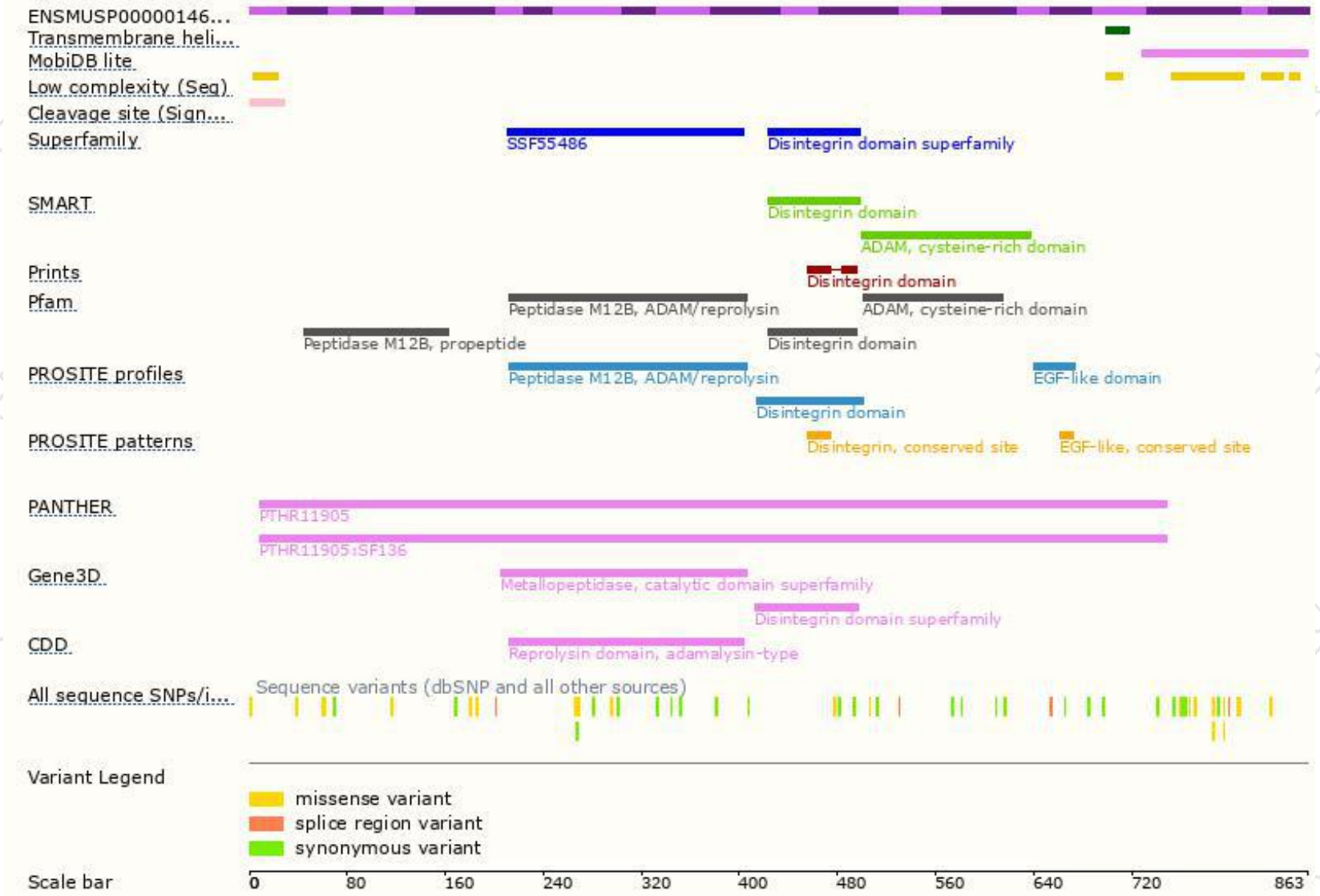
The strategy is based on the design of *Adam9-204* transcript,The transcription is shown below



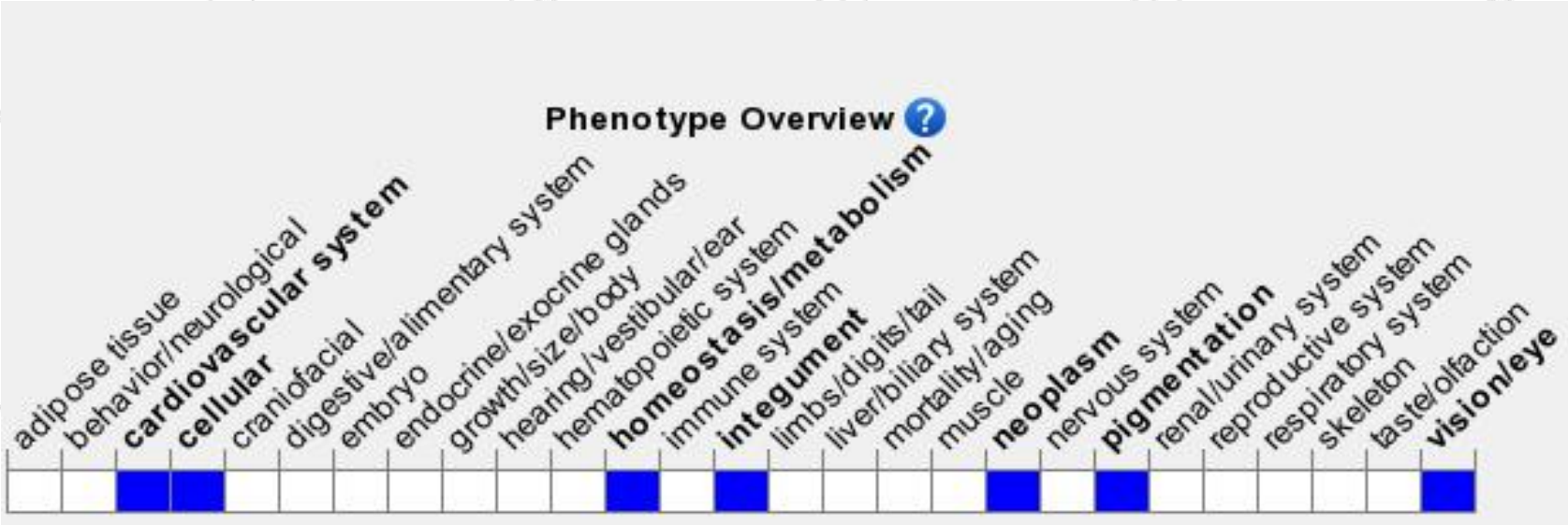
Genomic location distribution



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

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