Eno1 Cas9-KO Strategy

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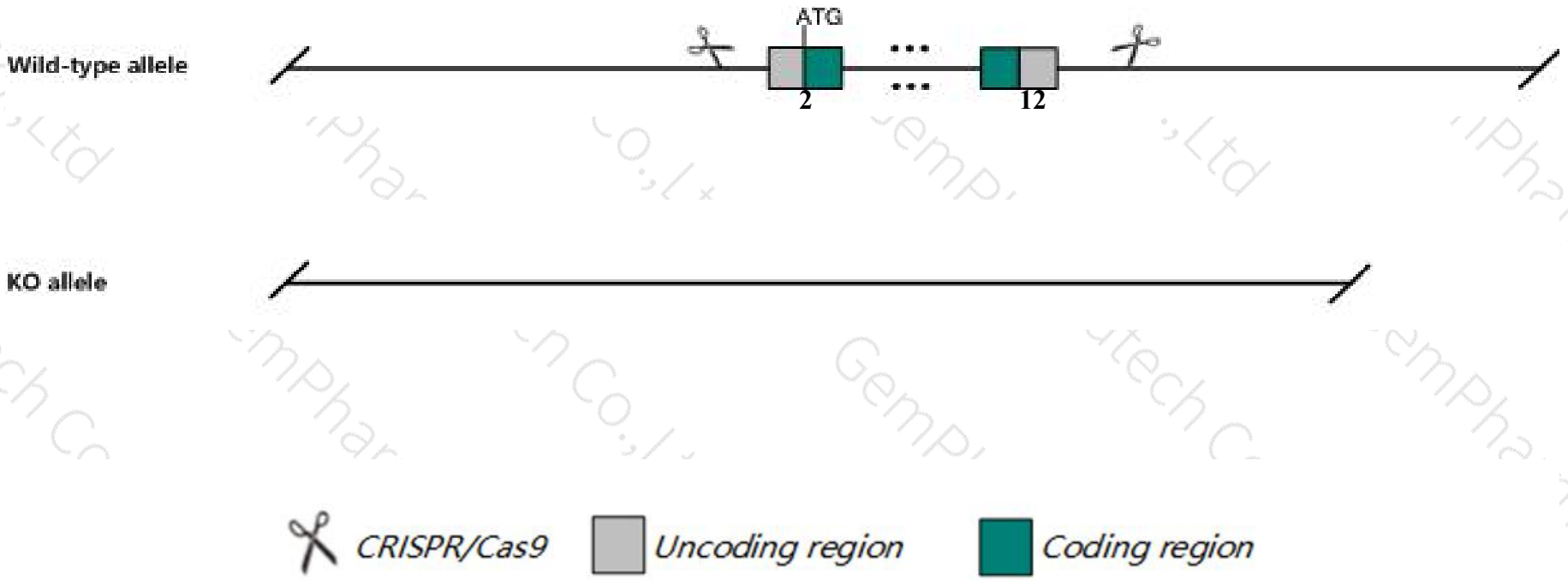
Project Overview

Project Name	***Eno1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Eno1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Eno1* gene has 11 transcripts. According to the structure of *Eno1* gene, exon2-exon12 of *Eno1-202* (ENSMUST00000080926.12) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Eno1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygous animals exhibit growth arrest and embryonic lethality at approximately E6.5.

- The *Eno1* gene is located on the Chr4. 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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Eno1 enolase 1, alpha non-neuron [Mus musculus (house mouse)]

Gene ID: 13806, updated on 7-Apr-2019

Summary

Official Symbol	Eno1 provided by MGI
Official Full Name	enolase 1, alpha non-neuron provided byMGI
Primary source	MGI:MGI:95393
See related	Ensembl:ENSMUSG00000063524
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	0610008I15, AL022784, Eno-1, MBP-1
Expression	Ubiquitous expression in kidney adult (RPKM 310.6), subcutaneous fat pad adult (RPKM 285.5) and 28 other tissuesSee more
Orthologs	human all

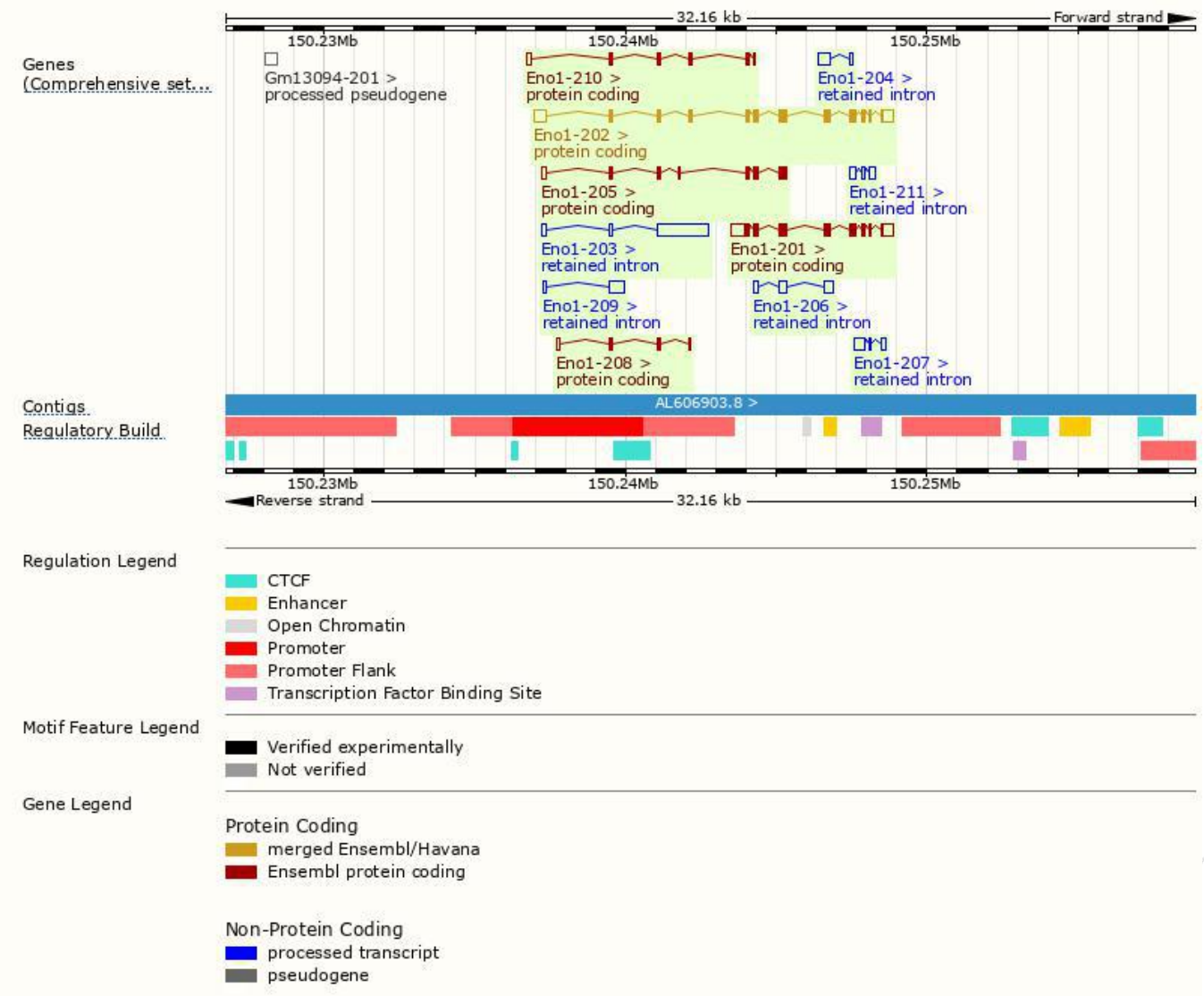
Transcript information（Ensembl）

The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Eno1-202	ENSMUST00000080926.12	2027	434aa	Protein coding	CCDS18971	P17182 Q5FW97	TSL:1 GENCODE basic APPRIS P1
Eno1-201	ENSMUST00000080149.5	1902	366aa	Protein coding	-	Q6PHC1	TSL:1 GENCODE basic
Eno1-205	ENSMUST00000133839.7	773	221aa	Protein coding	-	B0QZL1	CDS 3' incomplete TSL:3
Eno1-210	ENSMUST00000150175.7	519	119aa	Protein coding	-	B1ARR7	CDS 3' incomplete TSL:2
Eno1-208	ENSMUST00000141931.1	345	67aa	Protein coding	-	B1ARR6	CDS 3' incomplete TSL:5
Eno1-203	ENSMUST00000130632.7	1878	No protein	Retained intron	-	-	TSL:1
Eno1-206	ENSMUST00000135063.1	686	No protein	Retained intron	-	-	TSL:2
Eno1-207	ENSMUST00000136310.1	578	No protein	Retained intron	-	-	TSL:1
Eno1-209	ENSMUST00000148605.1	562	No protein	Retained intron	-	-	TSL:1
Eno1-211	ENSMUST00000151057.1	529	No protein	Retained intron	-	-	TSL:1
Eno1-204	ENSMUST00000133789.1	478	No protein	Retained intron	-	-	TSL:1

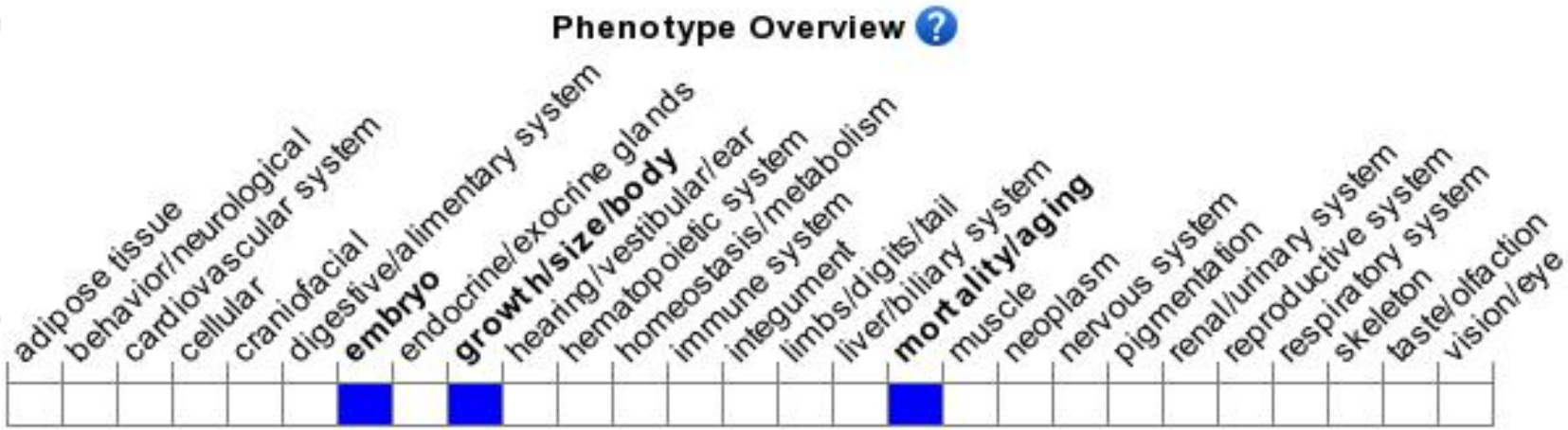
The strategy is based on the design of *Eno1-202* transcript,The transcription is shown below

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

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