Elp6 Cas9-KO Strategy

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Reviewer: Ruirui Zhang

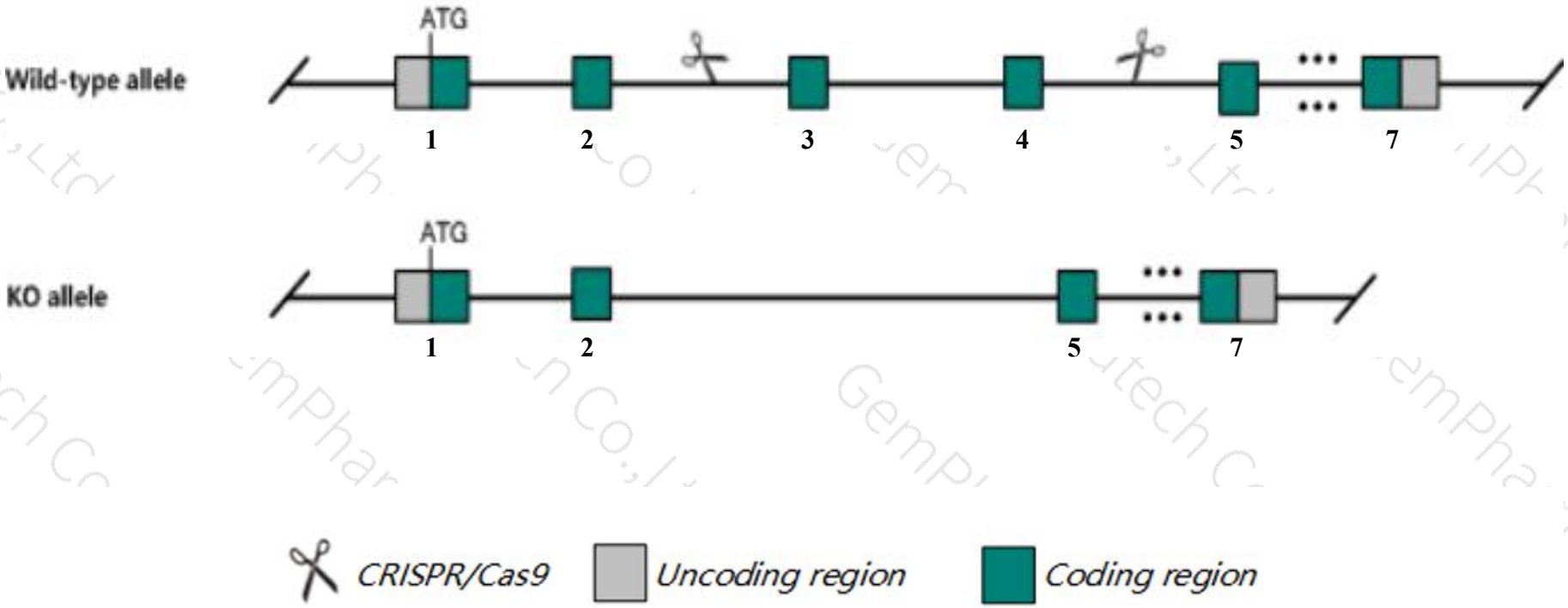
Design Date: 2020-10-10

Project Overview

Project Name	***Elp6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Elp6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Elp6* gene has 5 transcripts. According to the structure of *Elp6* gene, exon3-exon4 of *Elp6-205*(ENSMUST00000199592.4) transcript is recommended as the knockout region.The region contains 190bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Elp6* 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 an ENU-induced single point mutation exhibit impaired coordination.

➢ The *Elp6* gene is located on the Chr9. 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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Elp6 elongator acetyltransferase complex subunit 6 [Mus musculus (house mouse)]

Gene ID: 72341, updated on 13-Mar-2020

Summary

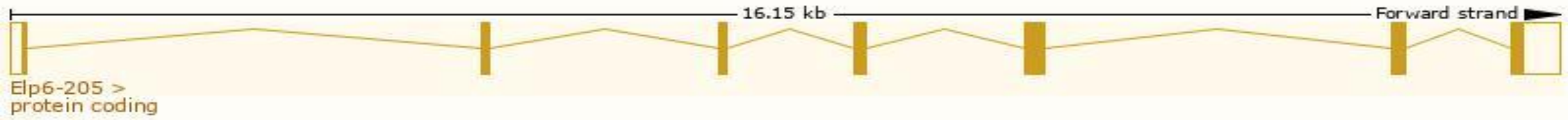
Official Symbol	Elp6 provided by MGI
Official Full Name	elongator acetyltransferase complex subunit 6 provided by MGI
Primary source	MGI:MGI:1919349
See related	Ensembl:ENSMUSG00000054836
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610001P13Rik, 2610002I17Rik, AV159994, Tmem103
Expression	Ubiquitous expression in CNS E11.5 (RPKM 9.9), CNS E14 (RPKM 8.7) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

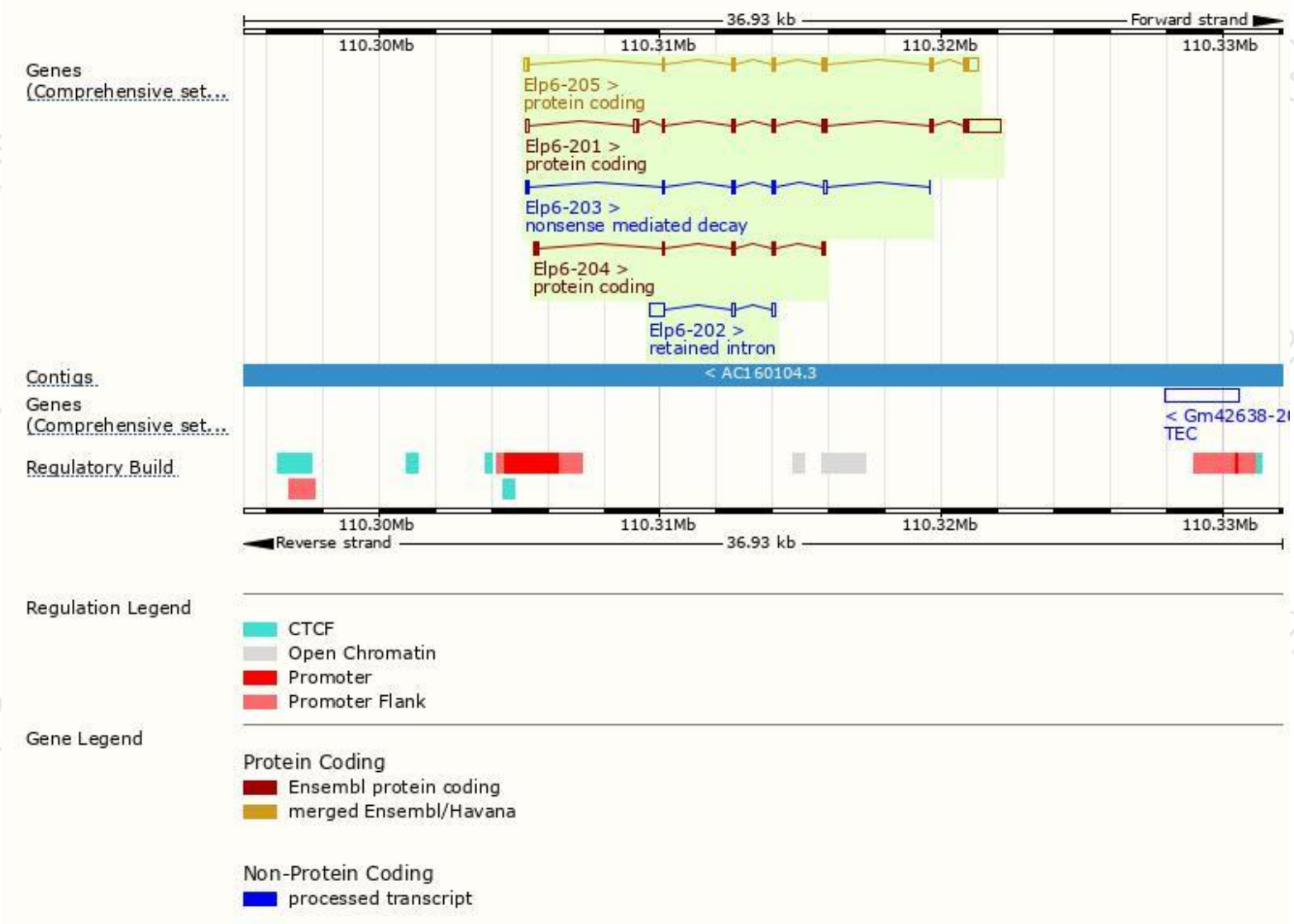
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Elp6-205	ENSMUST00000199592.4	1304	266aa	Protein coding	CCDS52937	Q8BK75	TSL:1 GENCODE basic APPRIS P1
Elp6-201	ENSMUST00000068071.11	2219	263aa	Protein coding	-	A0A0H2UH13	TSL:1 GENCODE basic
Elp6-204	ENSMUST00000199114.1	567	166aa	Protein coding	-	A0A0G2JGM4	CDS 3' incomplete TSL:2
Elp6-203	ENSMUST00000198247.4	538	110aa	Nonsense mediated decay	-	A0A0G2JGK0	TSL:5
Elp6-202	ENSMUST00000196855.1	717	No protein	Retained intron	-	-	TSL:3

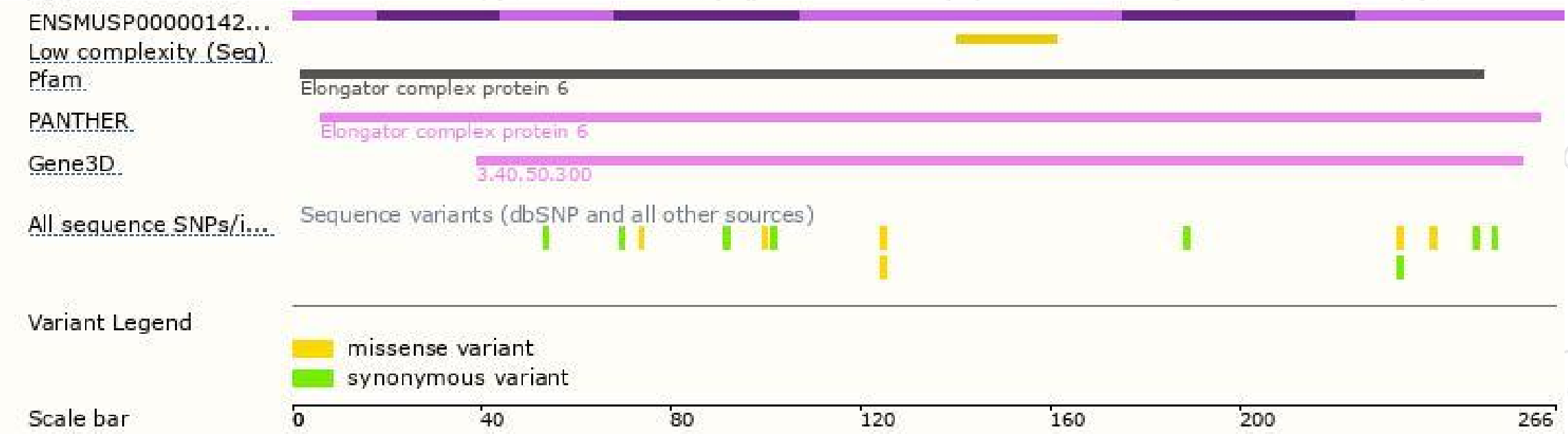
The strategy is based on the design of *Elp6-205* transcript,the transcription is shown below:



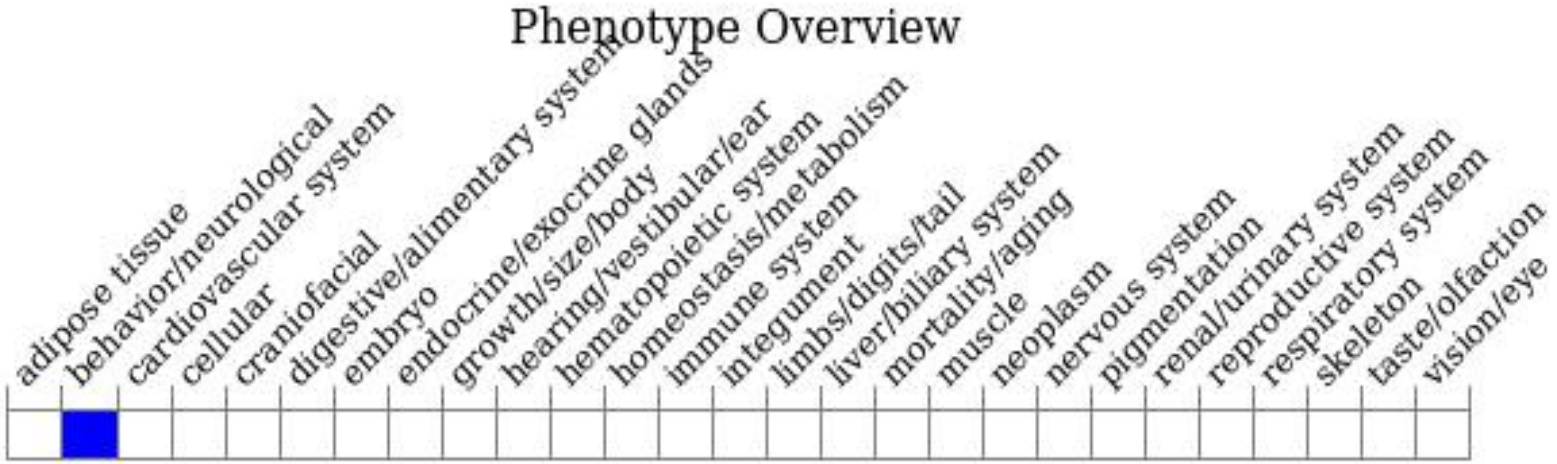
Genomic location distribution



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,mice homozygous for an ENU-induced single point mutation exhibit impaired coordination.

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

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