

Elf1 Cas9-CKO Strategy

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Overview

Target Gene Name

- Elf1

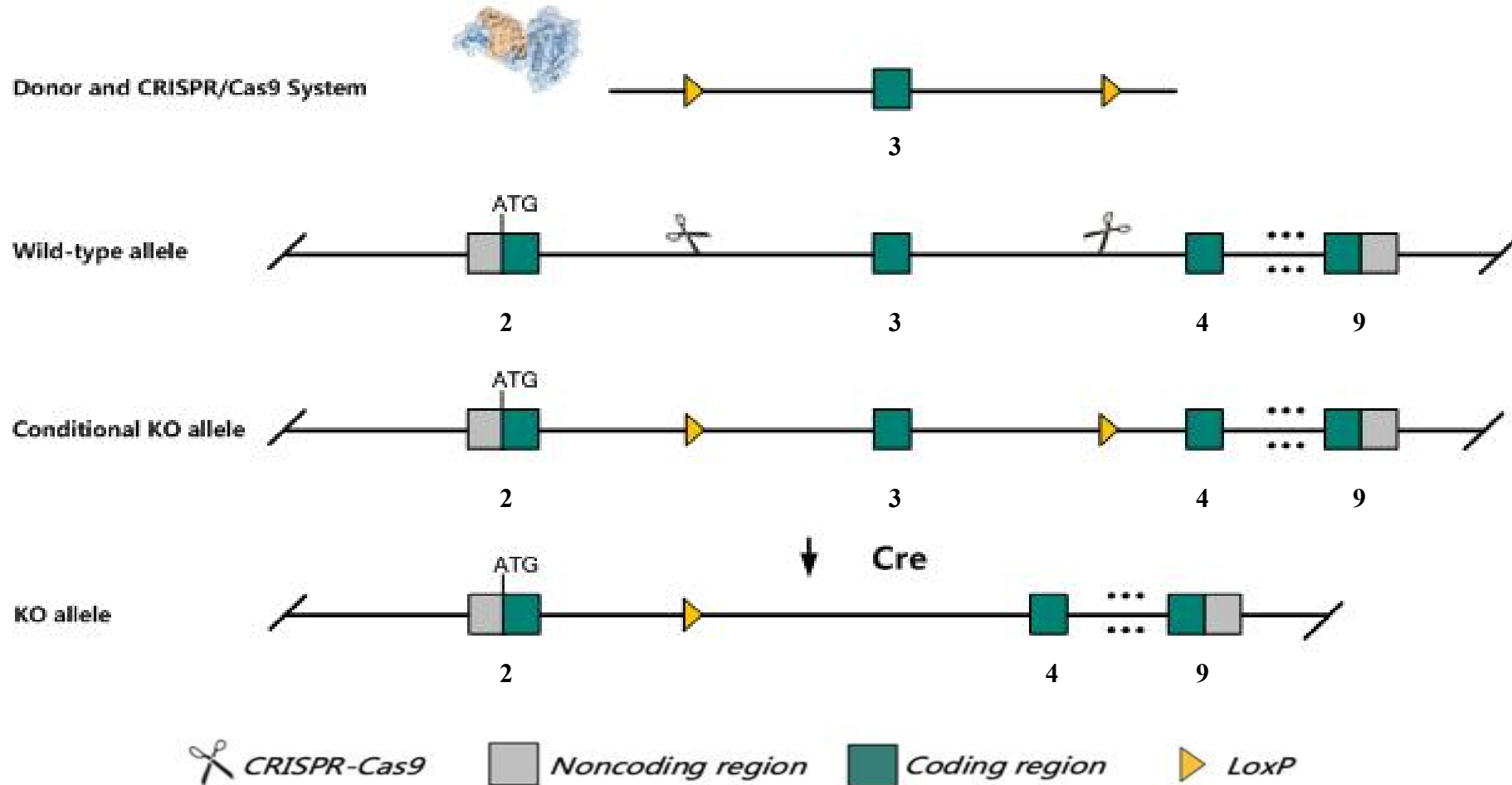
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Elf1* gene.

Technical Information

- The *Elf1* gene has 4 transcripts. According to the structure of *Elf1* gene, exon3 of *Elf1*-201 (ENSMUST00000040131.13) transcript is recommended as the knockout region. The region contains 181bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Elf1* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Elf1 E74-like factor 1 [Mus musculus (house mouse)]

Gene ID: 13709, updated on 13-Mar-2020

Summary

Official Symbol	Elf1 <small>provided by MGI</small>
Official Full Name	E74-like factor 1 <small>provided by MGI</small>
Primary source	MGI:MGI:107180
See related	Ensembl:ENSMUSG00000036461
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	Elf-1, Sts1, mElf-1, p70
Expression	Ubiquitous expression in thymus adult (RPKM 22.3), bladder adult (RPKM 13.4) and 26 other tissues See more
Orthologs	human all

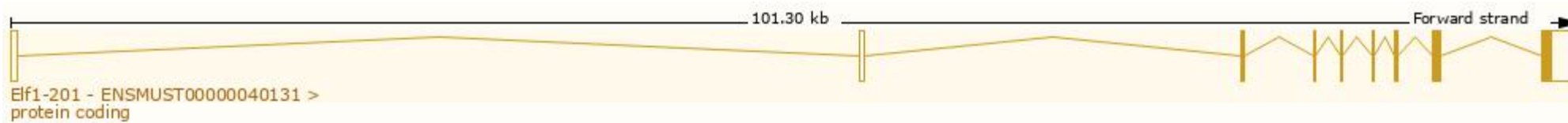
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 4 transcripts, all transcripts are shown below:

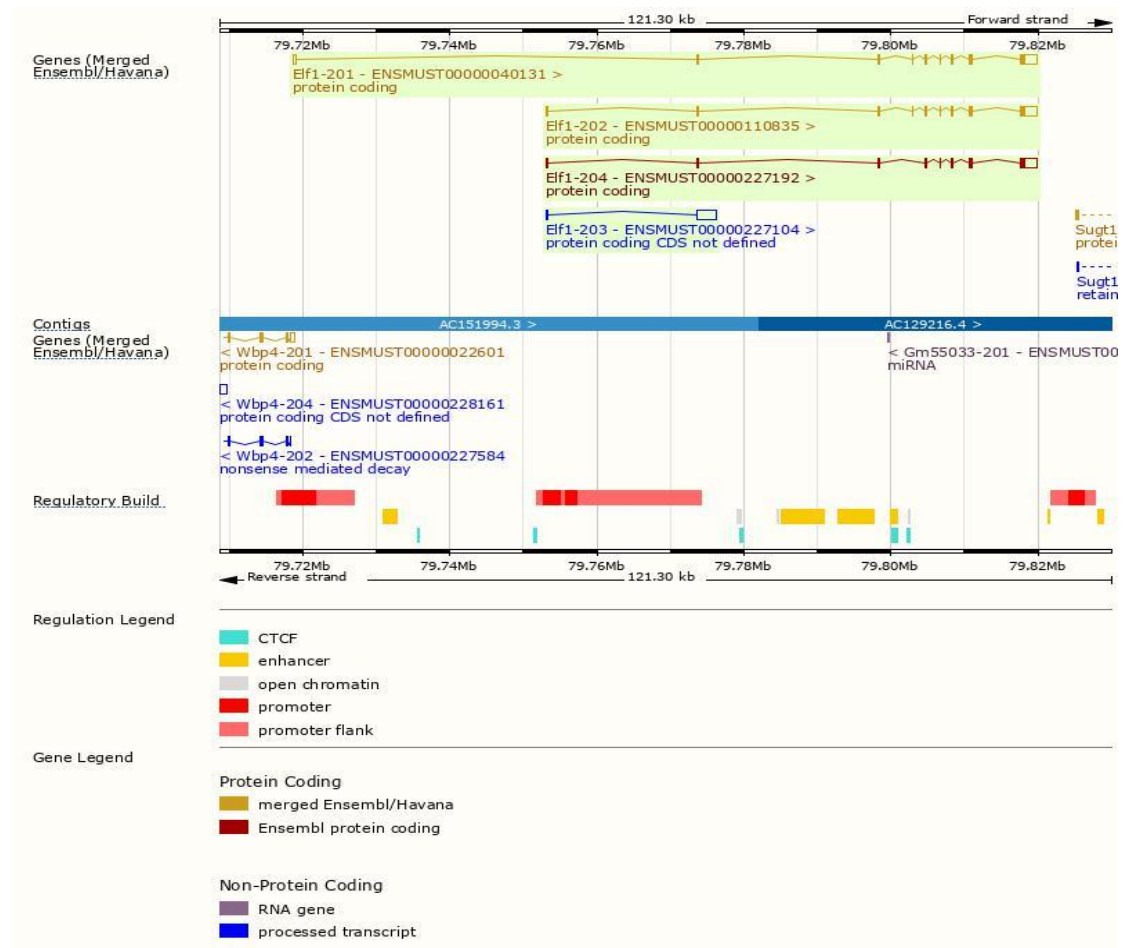
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000040131.13	Elf1-201	4235	612aa	Protein coding	CCDS27301	Q3V1H4 Q60775	Ensembl Canonical GENCODE basic APPRIS P1 TSL:1
ENSMUST00000110835.3	Elf1-202	3888	612aa	Protein coding	CCDS27301	Q3V1H4 Q60775	GENCODE basic APPRIS P1 TSL:1
ENSMUST00000227192.2	Elf1-204	3765	575aa	Protein coding		A0A2I3BPX9	GENCODE basic
ENSMUST00000227104.2	Elf1-203	2778	No protein	Protein coding CDS not defined		-	-

The strategy is based on the design of *Elf1-201* transcript, the transcription is shown below:

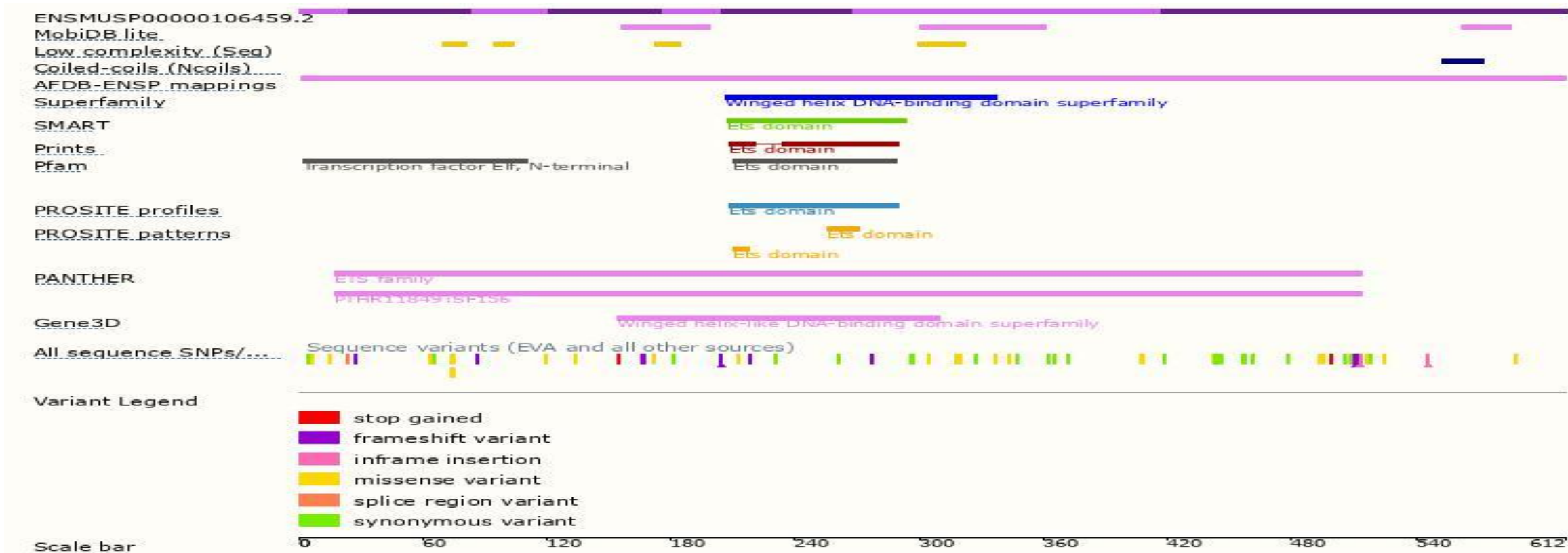


Source: <https://www.ensembl.org>

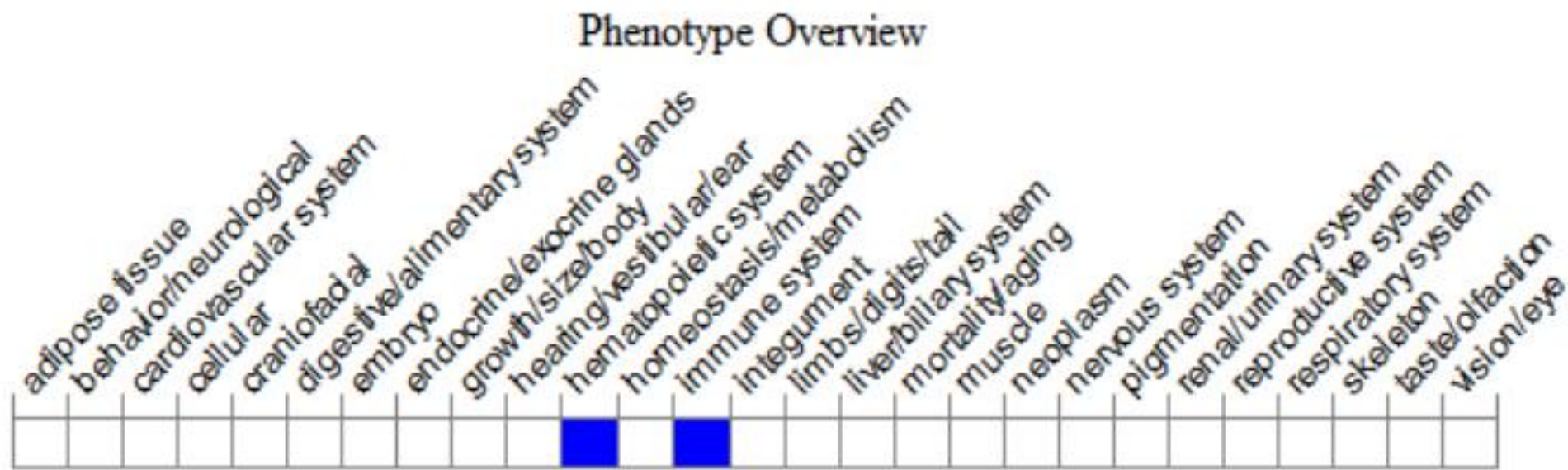
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Mice homozygous for disruptions in this gene show no obvious phenotypic abnormalities.

Important Information

- According to the existing MGI data, mice homozygous for disruptions in this gene show no obvious phenotypic abnormalities.
- *Gm55033* gene may be destroyed directly.
- *Elf1* is located on Chr14. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.