

Ep400 Cas9-CKO Strategy

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Overview

Target Gene Name

- *Ep400*

Project Type

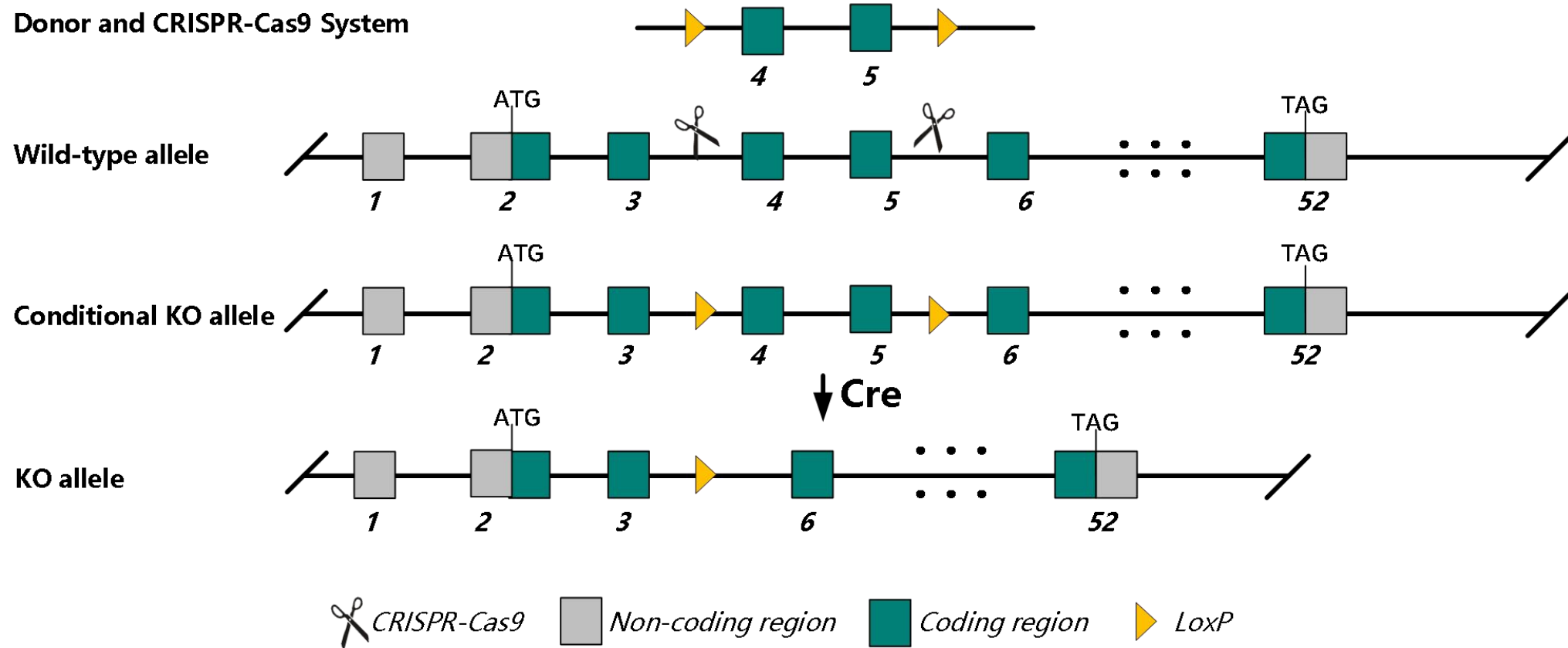
- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy

Donor and CRISPR-Cas9 System



Schematic representation of CRISPR-Cas9 engineering used to edit the *Ep400* gene.

Technical Information

- The *Ep400* gene has 11 transcripts. According to the structure of *Ep400* gene, exon4-5 of *Ep400-201* (ENSMUST00000041558.15) transcript is recommended as the knockout region. The region contains 494 bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Ep400* 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

Ep400 E1A binding protein p400 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 75560, updated on 18-May-2023

Summary

Official Symbol	Ep400 provided by MGI
Official Full Name	E1A binding protein p400 provided by MGI
Primary source	MGI:MGI:1276124
See related	Ensembl:ENSMUSG00000029505 AllianceGenome:MGI:1276124
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	p400; mDomino; mKIAA1498; 1700020J09Rik
Summary	Predicted to enable chromatin binding activity and protein antigen binding activity. Predicted to be involved in histone H2A acetylation and histone H4 acetylation. Predicted to act upstream of or within chromatin organization. Located in nuclear speck. Is expressed in several structures, including adrenal gland; central nervous system; genitourinary system; gut; and trachea. Orthologous to human EP400 (E1A binding protein p400). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Ubiquitous expression in testis adult (RPKM 36.8), thymus adult (RPKM 23.6) and 28 other tissues See more
Orthologs	human all
NEW	Try the new Gene table Try the new Transcript table

Genomic context

Location: 5; 5 F

See Ep400 in [Genome Data Viewer](#)

Exon count: 52

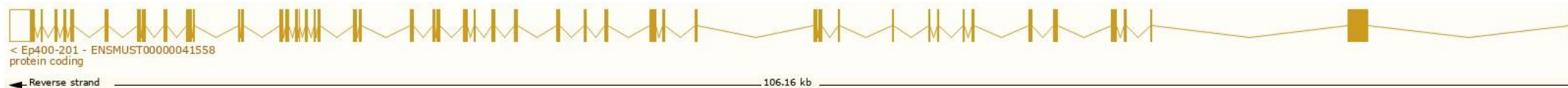
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

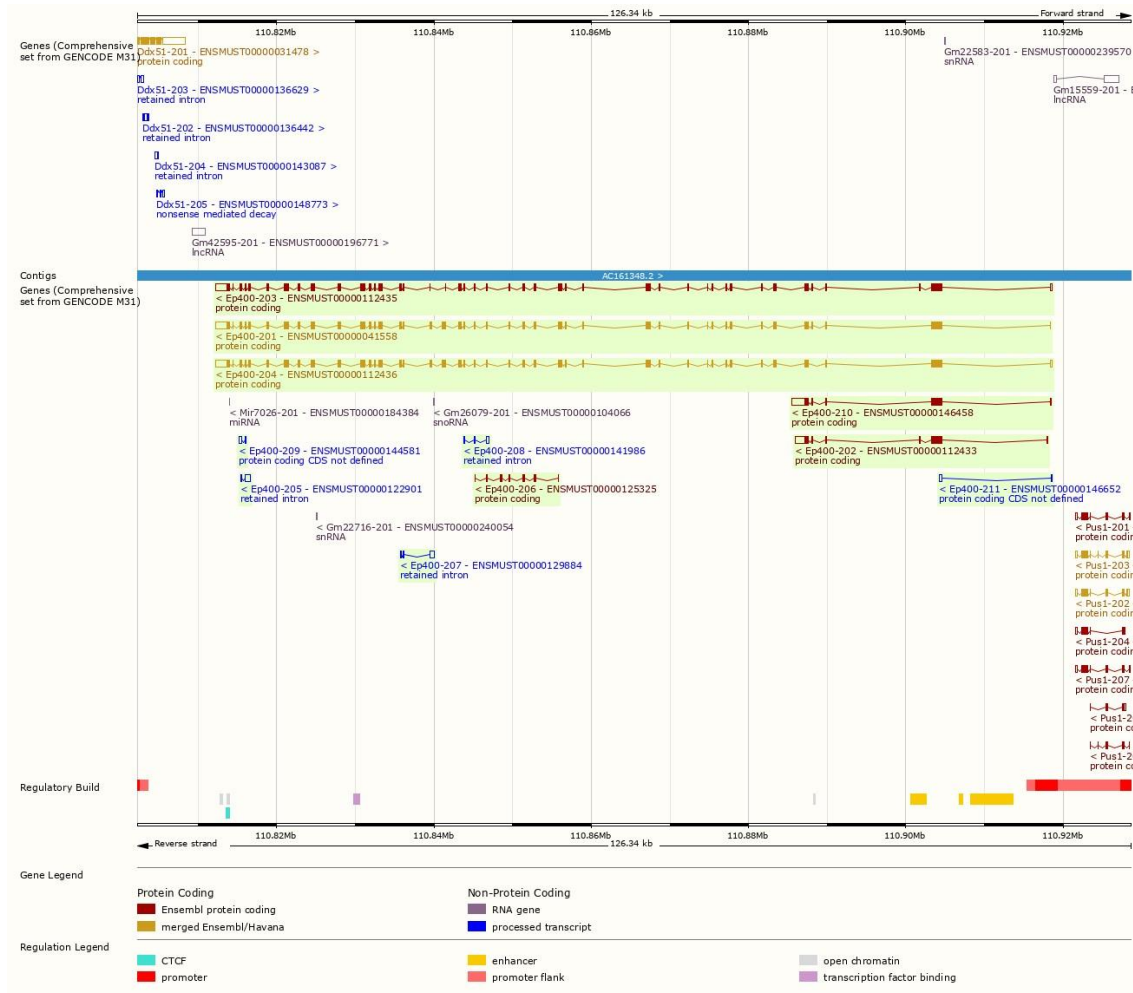
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST0000041558.15	Ep400-201	10608	3035aa	Protein coding	CCDS19529	Q8CHI8-2	Ensembl Canonical Gencode basic APPRIS P2 TSL:1
ENSMUST00000112436.9	Ep400-204	10685	2999aa	Protein coding	CCDS51612	Q8CHI8-3	Gencode basic APPRIS ALT2 TSL:1
ENSMUST00000112435.9	Ep400-203	10420	2909aa	Protein coding		Q8CHI8-5	Gencode basic TSL:5
ENSMUST00000146458.9	Ep400-210	3673	649aa	Protein coding		Q641K9	Gencode basic TSL:1
ENSMUST00000112433.2	Ep400-202	3399	686aa	Protein coding		D3Z6R8	Gencode basic TSL:1
ENSMUST00000125325.2	Ep400-206	974	325aa	Protein coding		F6R9G0	TSL:5 CDS 5' and 3' incomplete
ENSMUST00000146652.2	Ep400-211	394	No protein	Protein coding CDS not defined		-	TSL:2
ENSMUST00000144581.2	Ep400-209	371	No protein	Protein coding CDS not defined		-	TSL:2
ENSMUST00000122901.2	Ep400-205	826	No protein	Retained intron		-	TSL:2
ENSMUST00000129884.2	Ep400-207	729	No protein	Retained intron		-	TSL:2
ENSMUST00000141986.2	Ep400-208	627	No protein	Retained intron		-	TSL:3

The strategy is based on the design of *Ep400-201* transcript, the transcription is shown below:

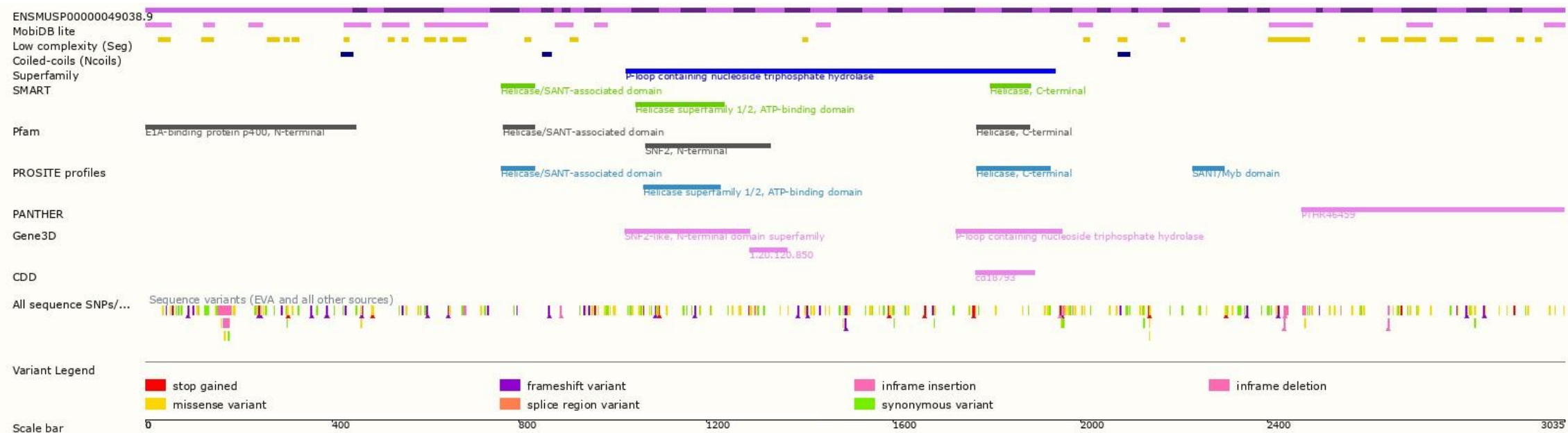


Source: <https://www.ensembl.org>

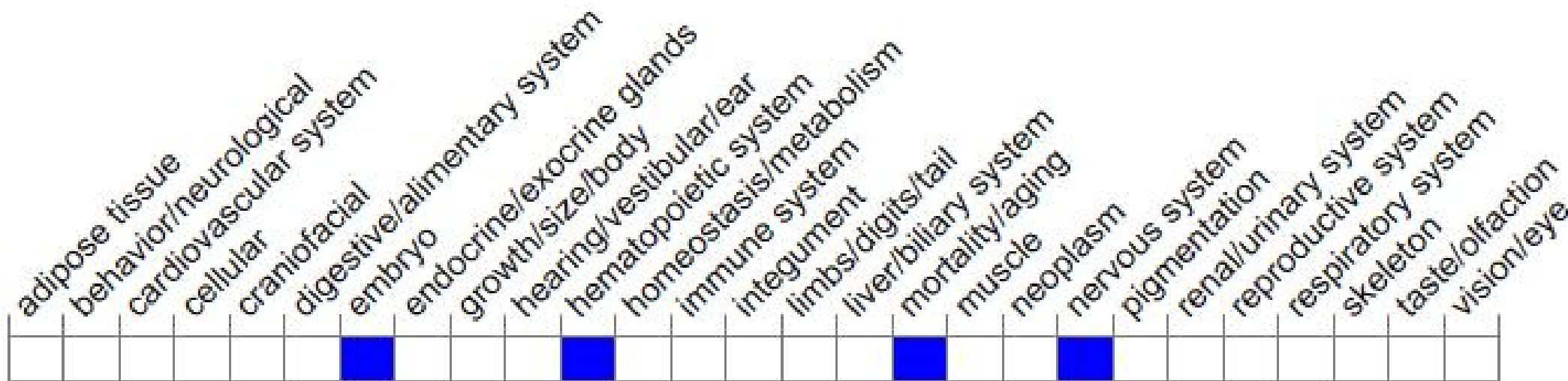
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



Mice homozygous for a knock-out allele die at E11.5 and display severe defects in yolk sac erythropoiesis, anemia, and a slight deformity of the neural tube.

Important Information

- According to the existing MGI data, mice homozygous for a knock-out allele die at E11.5 and display severe defects in yolk sac erythropoiesis, anemia, and a slight deformity of the neural tube.
- This strategy may not affect *Ep400-206* transcript.
- *Ep400* is located on Chr5. 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.