

# ***Vbp1 Cas9-CKO Strategy***

**Designer:**

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# Project Overview

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**Project Name**

***Vbp1***

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**Project type**

**Cas9-CKO**

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**Strain background**

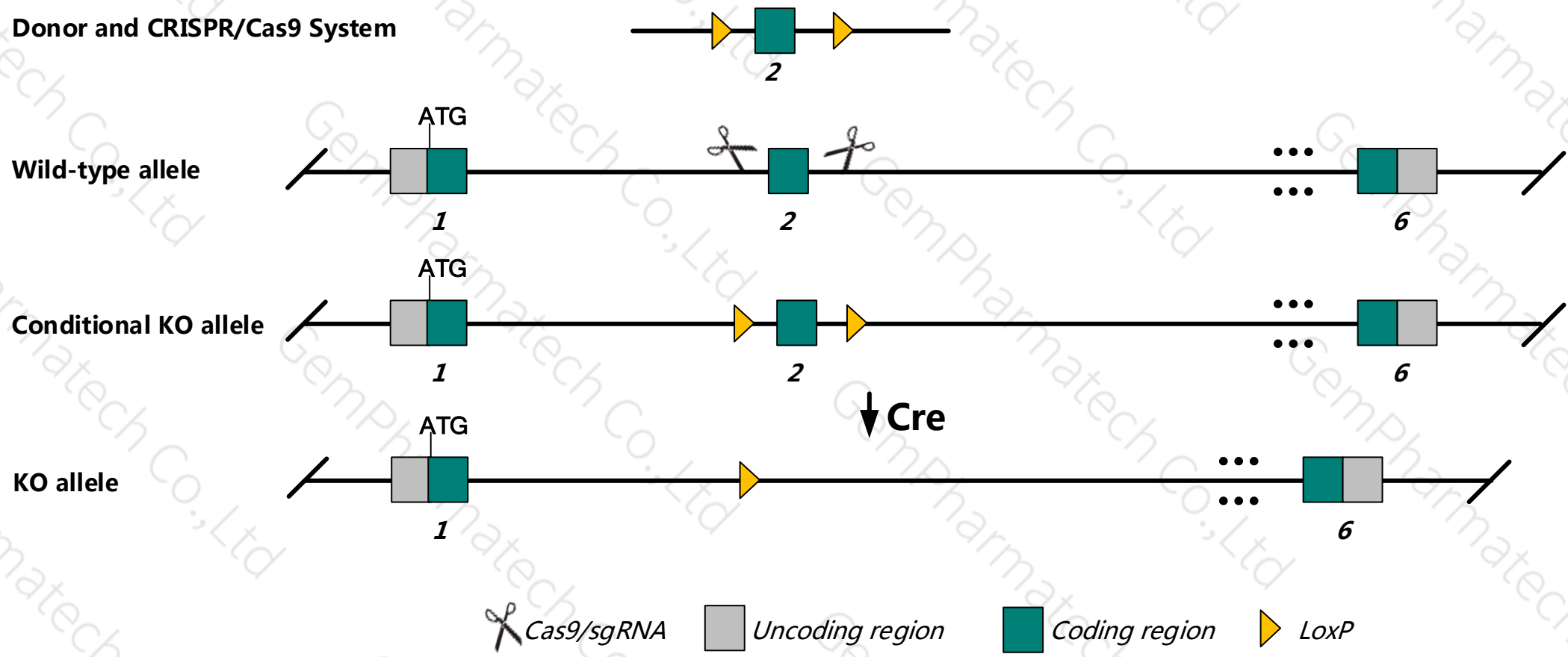
**C57BL/6JGpt**

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# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vbp1* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Vbp1* gene has 3 transcripts. According to the structure of *Vbp1* gene, exon2 of *Vbp1*-201 (ENSMUST00000033540.5) transcript is recommended as the knockout region. The region contains 125bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vbp1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data , Male chimeras hemizygous for a gene trapped allele appear normal at E9.5.
- The *Vbp1* gene is located on the ChrX. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information ( NCBI )

## Vbp1 von Hippel-Lindau binding protein 1 [ *Mus musculus* (house mouse) ]

Gene ID: 22327, updated on 5-Aug-2018

### Summary

Official Symbol	Vbp1 provided by <a href="#">MGI</a>
Official Full Name	von Hippel-Lindau binding protein 1 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1333804</a>
See related	<a href="#">Ensembl:ENSMUSG00000031197</a> <a href="#">Vega:OTTMUSG00000020873</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	VBP-1
Expression	Broad expression in CNS E18 (RPKM 30.1), CNS E14 (RPKM 25.7) and 15 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

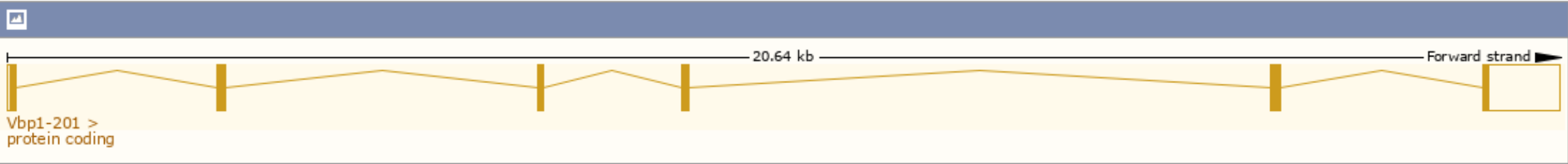


# Transcript information ( Ensembl )

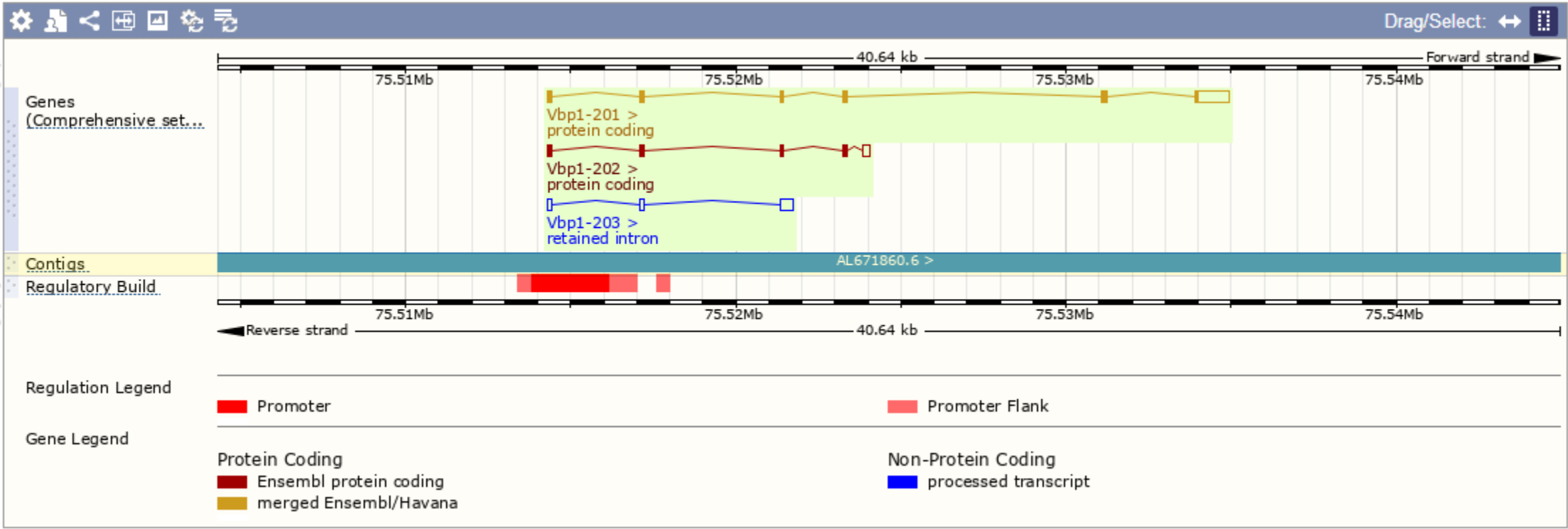
The gene has 3 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Vbp1-201	<a href="#">ENSMUST00000033540.5</a>	1595	<a href="#">196aa</a>	Protein coding	<a href="#">CCDS41032</a>	<a href="#">P61759</a>	<a href="#">NM_011692</a> <a href="#">NP_035822</a>	TSL:1	GENCODE basic APPRIS P1
Vbp1-202	<a href="#">ENSMUST00000114070.9</a>	632	<a href="#">130aa</a>	Protein coding	-	<a href="#">Q3TIR6</a>	-	TSL:1	GENCODE basic
Vbp1-203	<a href="#">ENSMUST00000123419.1</a>	630	No protein	Retained intron	-	-	-	TSL:2	

The strategy is based on the design of *Vbp1*-201 transcript, The transcription is shown below

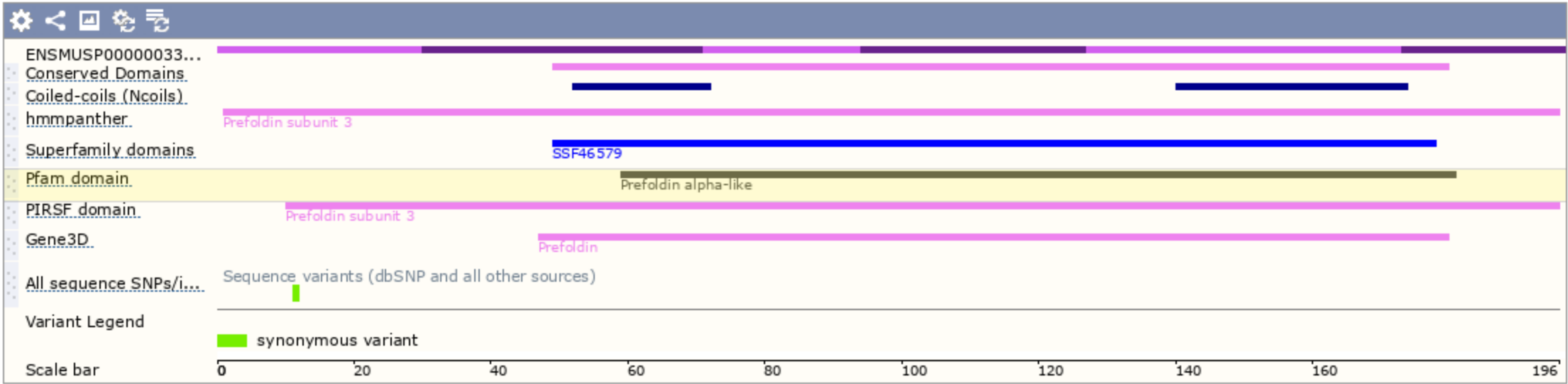


# Genomic location distribution





# 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, Male chimeras hemizygous for a gene trapped allele appear normal at E9.5.

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