Vcpip1 Cas9-KO Strategy

Designer:	**Baocheng Zhuang**
Reviewer:	**Yang Zeng**
Design Date:	**2018-5-30**

Project Overview

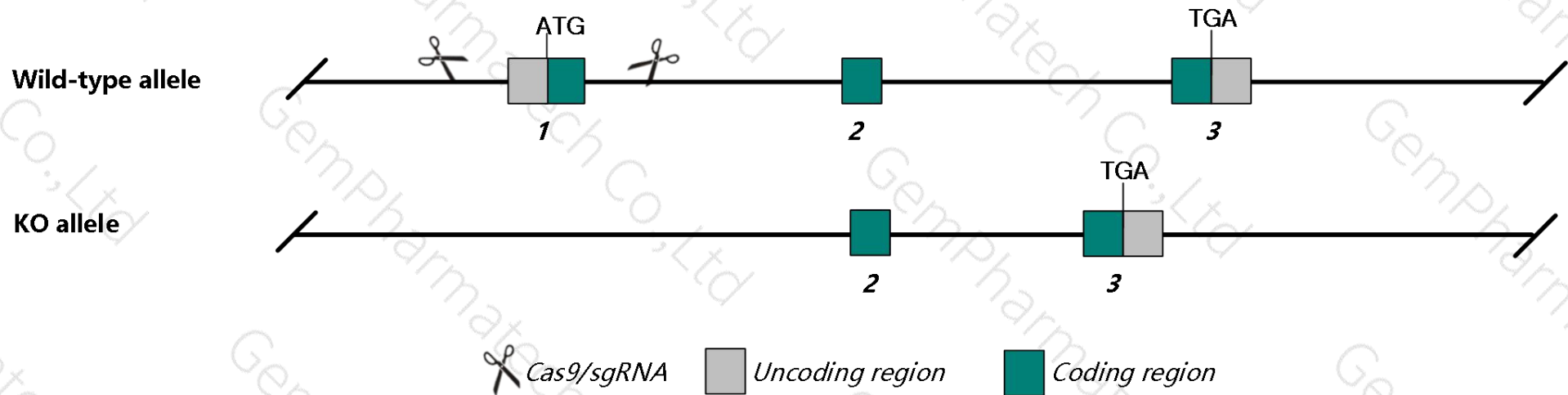|	
Project Name	*Vcpip1*
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vcpip1* gene. The schematic diagram is as follows:

Technical routes

➢ The *Vcpip1* gene has 1 transcript. According to the structure of *Vcpip1* gene, exon1 of *Vcpip1-201* (ENSMUST00000057438.6) transcript is recommended as the knockout region.The region contains ATG start coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Vcpip1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

➢ The KO region is close to 5'UTR region of the *1700034P13Rik* gene.Knockout the region may affect the function of *1700034P13Rik* gene.

➢ The *Vcpip1* gene is located on the Chr1. 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）

Vcpip1　valosin containing protein (p97)/p47 complex interacting protein 1 [*Mus musculus* (house mouse)]

Gene ID: 70675, updated on 12-Aug-2019

▲ Summary

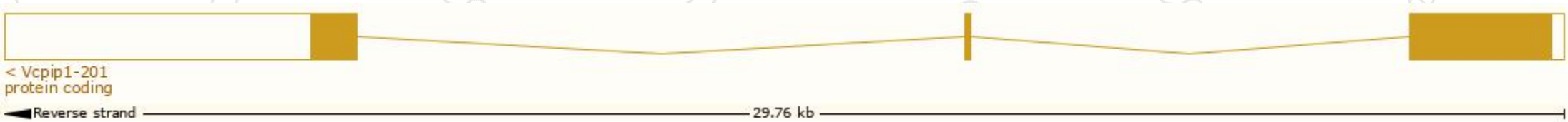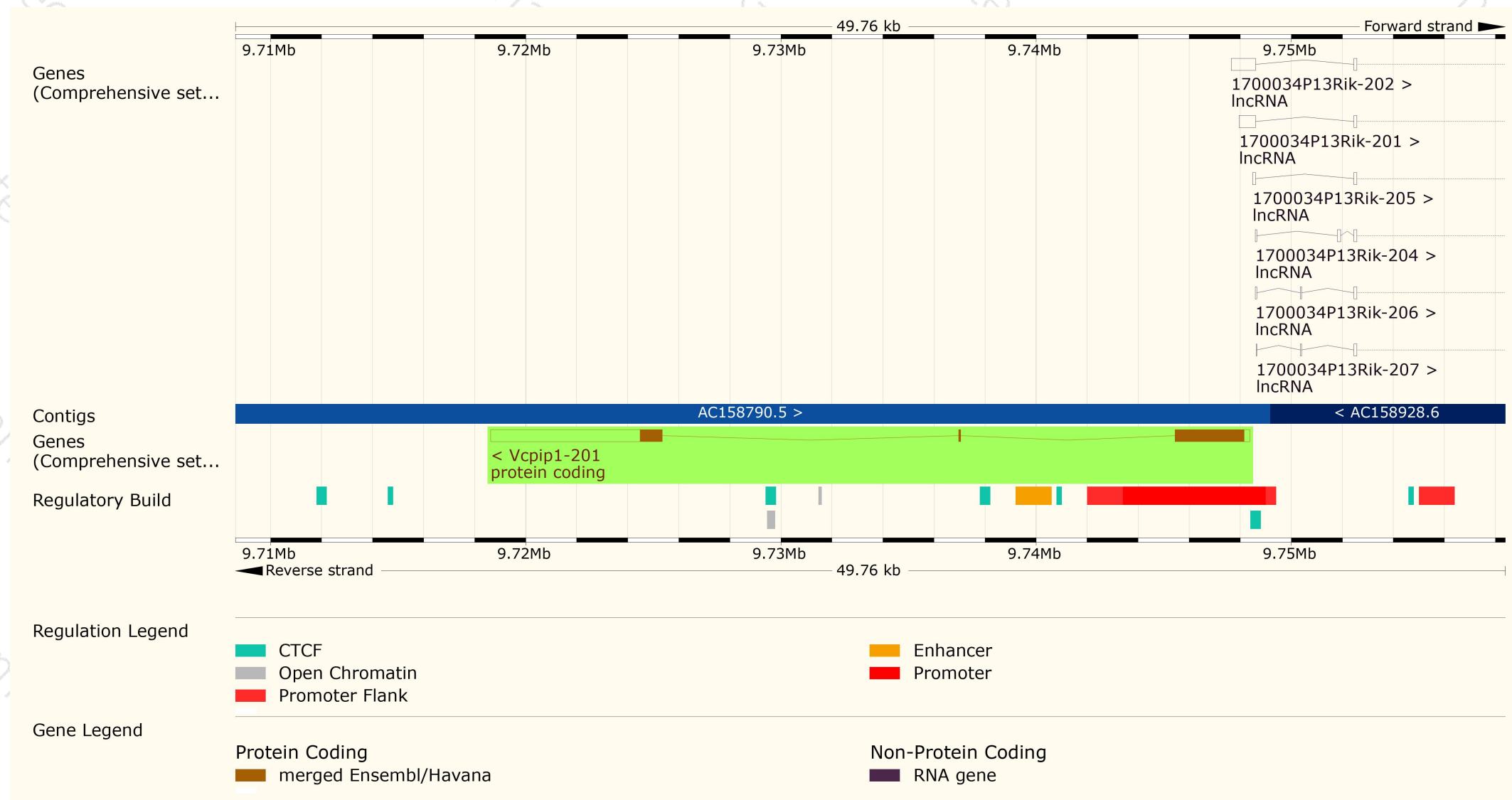|	
Official Symbol	Vcpip1 provided by MGI
Official Full Name	valosin containing protein (p97)/p47 complex interacting protein 1 provided by MGI
Primary source	MGI:MGI:1917925
See related	Ensembl:ENSMUSG00000045210
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	VCIP135; mKIAA1850; 4932442A08; 5730421J18Rik; 5730538E15Rik
Summary	This gene encodes a deubiquitinating enzyme that interacts with valosin containing protein p97 and plays a role in the assembly of Golgi apparatus during mitosis. [provided by RefSeq, Dec 2014]
Expression	Ubiquitous expression in placenta adult (RPKM 3.5), frontal lobe adult (RPKM 3.2) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 1 transcript, the transcript is shown below:

Name ▲	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags		
Vcpip1-201	ENSMUST00000057438.6	9749	1220aa	ENSMUSP00000051248.6	Protein coding	CCDS14814	A0A0R4J0M9	TSL:1	GENCODE basic	APPRIS P1

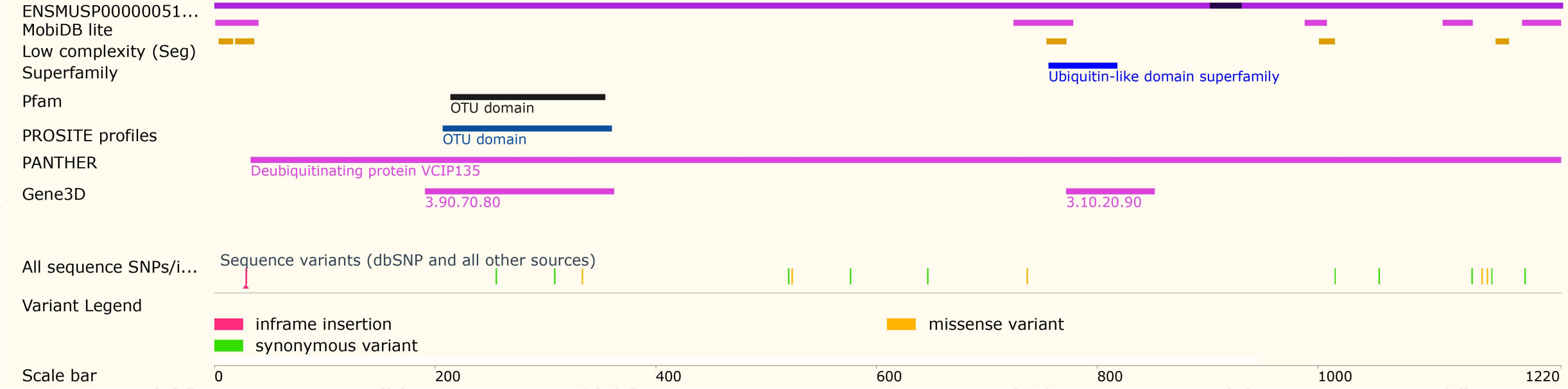The strategy is based on the design of *Vcpip1-201* transcript,The transcription is shown below

< Vcpip1-201
protein coding

◄ Reverse strand

29.76 kb

Genomic location distribution

Protein domain

ENSMUSP00000051...	
MobiDB lite	
Low complexity (Seg)	
Superfamily	Ubiquitin-like domain superfamily
Pfam	OTU domain
PROSITE profiles	OTU domain
PANTHER	Deubiquitinating protein VCIP135
Gene3D	3.90.70.80 3.10.20.90
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)

Variant Legend

- inframe insertion
- synonymous variant
- missense variant

Scale bar: 0   200   400   600   800   1000   1220

If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd