Etv1 Cas9-KO Strategy

Designer: Daohua Xu

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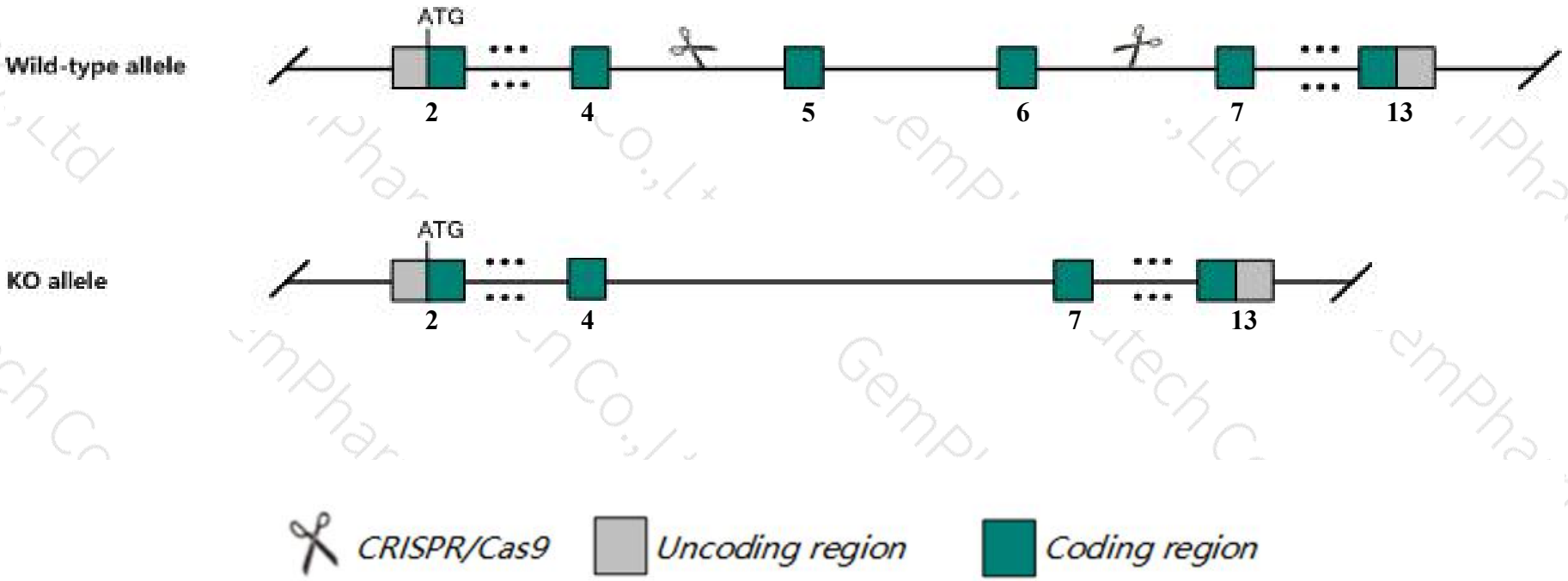
GemPharmatech Co.,Ltd

Project Overview

Project Name	***Etv1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Etv1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Etv1* gene has 13 transcripts. According to the structure of *Etv1* gene, exon5-exon6 of *Etv1-201* (ENSMUST00000095767.10) transcript is recommended as the knockout region.The region contains 184bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Etv1* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Homozygous inactivation of this gene leads to premature death, ataxia, impaired limb coordination, defects in muscle innervation, muscle spindle differentiation and sensory-motor connectivity, deficient golgi tendon organs, and absence of Pacinian corpuscles and their afferents.

- The *Etv1* gene is located on the Chr12. 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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Etv1 ets variant 1 [Mus musculus (house mouse)]

Gene ID: 14009, updated on 2-Apr-2019

Summary

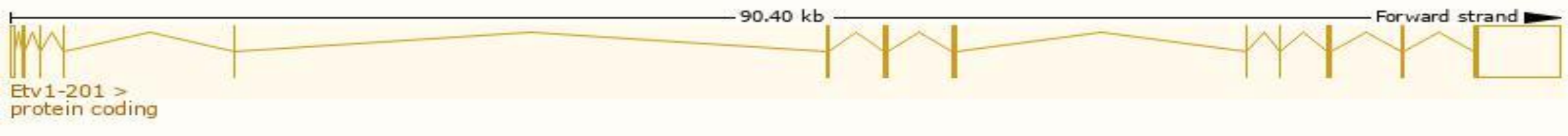
Official Symbol	Etv1 provided by MGI
Official Full Name	ets variant 1 provided by MGI
Primary source	MGI:MGI:99254
See related	Ensembl:ENSMUSG00000004151
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ER81, Etsrp81
Expression	Biased expression in cerebellum adult (RPKM 13.2), frontal lobe adult (RPKM 4.0) and 9 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

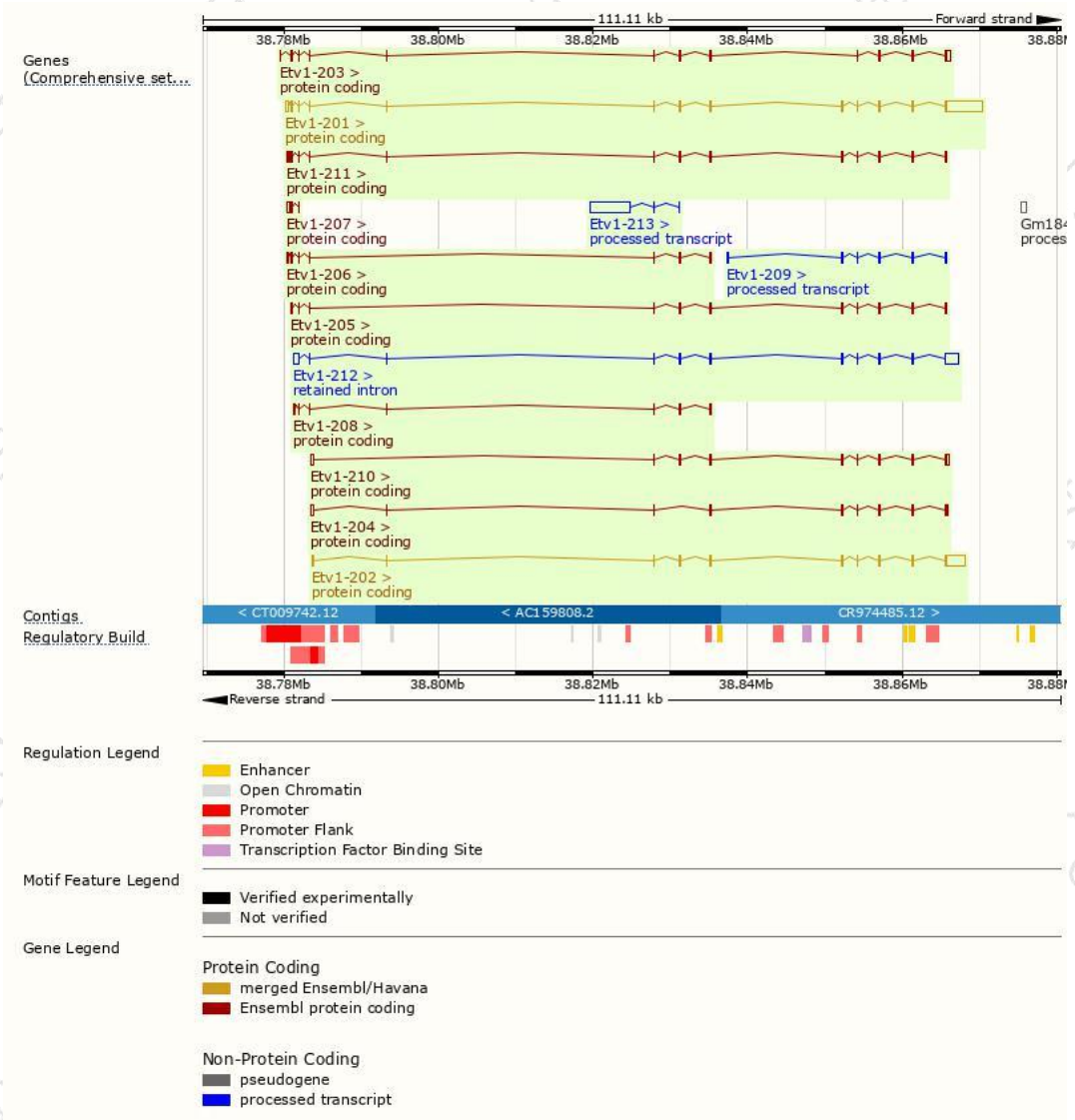
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Etv1-201	ENSMUST00000095767.10	6576	477aa	Protein coding	CCDS49053	P41164 Q549J8	TSL:1 GENCODE basic APPRIS P1
Etv1-202	ENSMUST00000159334.7	3981	437aa	Protein coding	CCDS49054	Q8CCR6	TSL:1 GENCODE basic
Etv1-211	ENSMUST00000162563.7	1865	477aa	Protein coding	CCDS49053	P41164 Q549J8	TSL:5 GENCODE basic APPRIS P1
Etv1-205	ENSMUST00000160856.7	1474	459aa	Protein coding	CCDS83959	E0CZ54	TSL:5 GENCODE basic
Etv1-203	ENSMUST00000160244.7	2032	454aa	Protein coding	-	E0CZ37	TSL:5 GENCODE basic
Etv1-210	ENSMUST00000161980.7	1939	419aa	Protein coding	-	E0CXD2	TSL:5 GENCODE basic
Etv1-204	ENSMUST00000160701.7	1578	374aa	Protein coding	-	E0CYN8	TSL:5 GENCODE basic
Etv1-206	ENSMUST00000160996.7	850	230aa	Protein coding	-	E0CXE6	CDS 3' incomplete TSL:3
Etv1-208	ENSMUST00000161513.8	828	249aa	Protein coding	-	E0CYI1	CDS 3' incomplete TSL:5
Etv1-207	ENSMUST00000161164.7	544	20aa	Protein coding	-	E0CXX3	CDS 3' incomplete TSL:5
Etv1-213	ENSMUST00000220492.1	5482	No protein	Processed transcript	-	-	TSL:2
Etv1-209	ENSMUST00000161591.1	670	No protein	Processed transcript	-	-	TSL:5
Etv1-212	ENSMUST00000162730.9	3605	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Etv1-201* transcript,The transcription is shown below

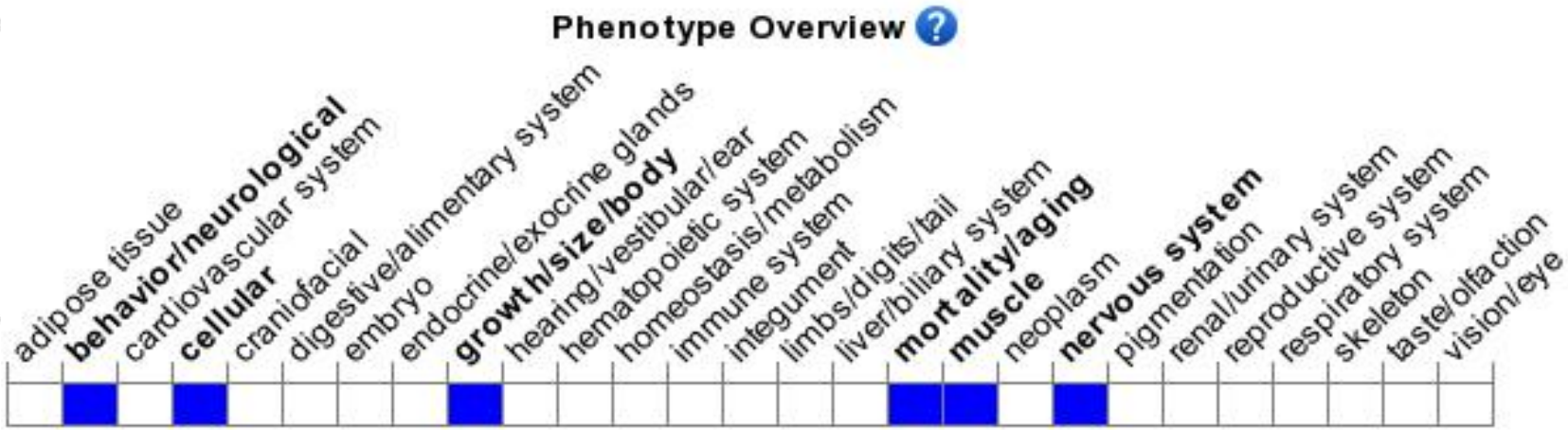


Genomic location distribution



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/).

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

Tel: 400-9660890

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