Foxl1 Cas9-KO *Strategy*

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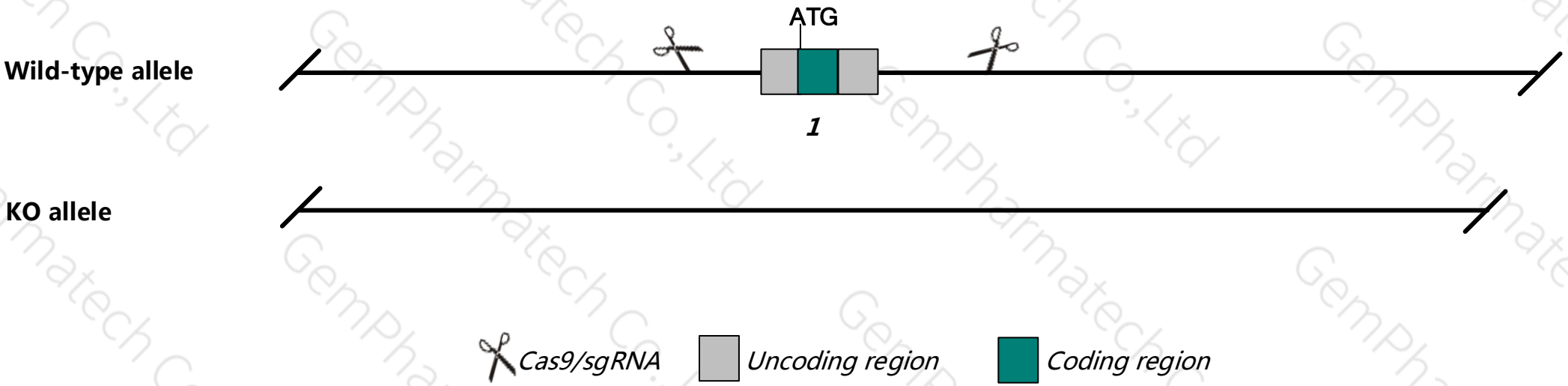
Project Overview

Project Name	*Foxl1*
Project type	Cas9-KO
Animal background	C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Foxl1* gene. The schematic diagram is as follows:



Technical routes

- The *Foxl1* gene has 1 transcript, According to the structure of Foxl1 gene, exon1 of Foxl1-201(ENSMUST00000181609.1*)* transcript is recommended as the knockout region.The region contains all of the coding seqence.Knock out the region,result in destruction of protein.

- This project uses CRISPR/Cas9 technology to modify *Foxl1* gene. The brief process is as follows: sgRNA was transcribed in vitro, Cas9, sgRNA were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.

Notice

- According to the existing MGI data，Mice homozygous for disruptions in this gene exhibit impaired stomach and intestine development, including impaired parietal cell differentiation, abnormal intestinal epithelium and crypt structure, gastric mucosal hyperplasia, growth retardation, and sometimes postnatal lethality.
- The target gene coincides with the intron of *Gm20388* gene. Knocking out the target gene will also knock out part of the intron of *Gm20388*.
- The *Foxl1* gene is located in the Chr8. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information （NCBI）

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Foxl1 forkhead box L1 [*Mus musculus* (house mouse)]

Gene ID: 14241, updated on 8-Dec-2018

Summary

Official Symbol	Foxl1 provided by MGI
Official Full Name	forkhead box L1 provided by MGI
Primary source	MGI:MGI:1347469
See related	Ensembl:ENSMUSG00000097084
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	Fkh6; fkh-6; FREAC7
Orthologs	human all

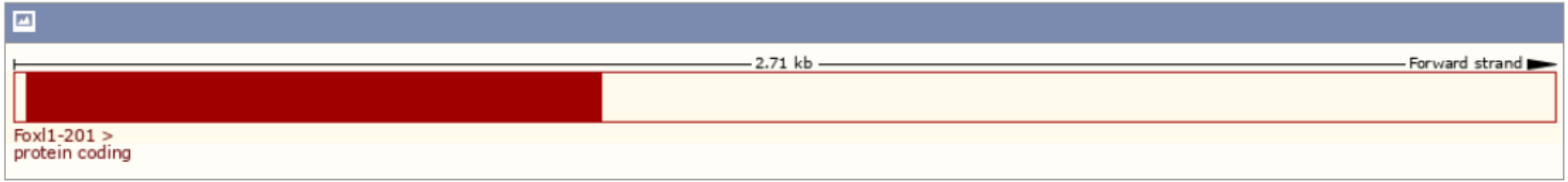
Transcript information （Ensembl）

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

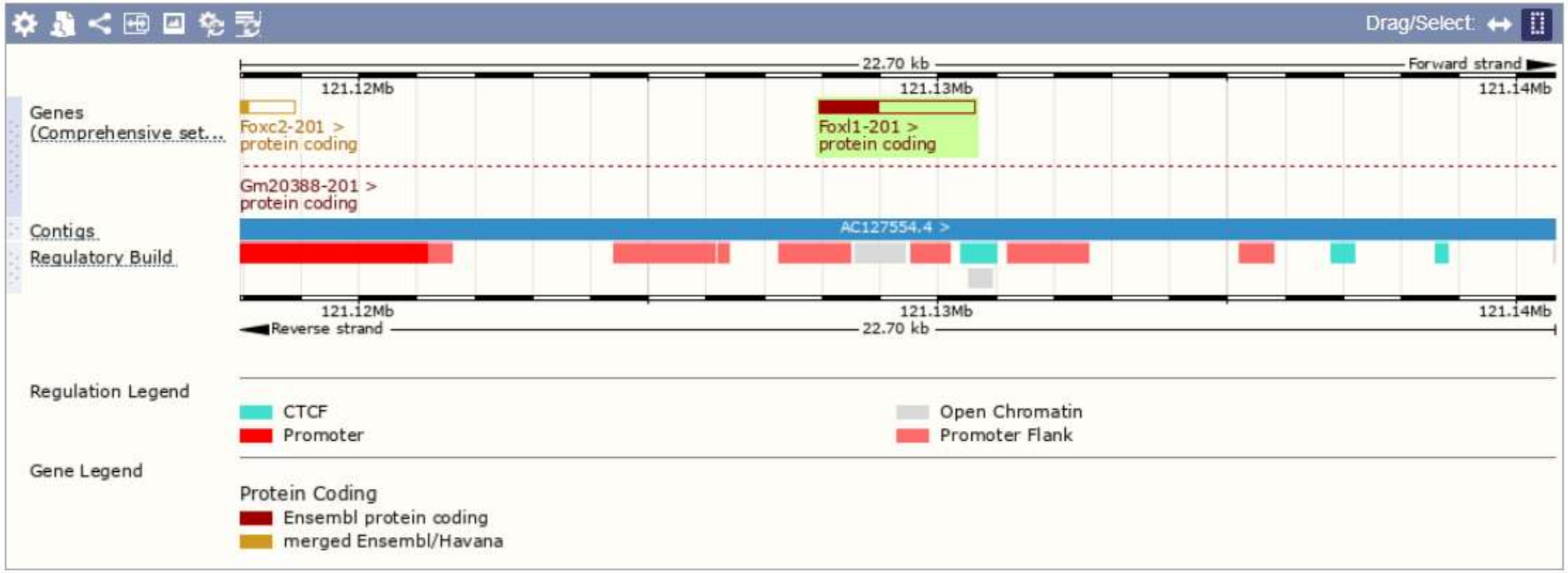
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Foxl1-201	ENSMUST00000181609.1	2705	336aa	Protein coding	CCDS59744	Q64731	NM_008024 NP_032050	TSL:NA GENCODE basic APPRIS P1

The strategy is based on the design of *Foxl1-201* transcript,The transcription is shown below

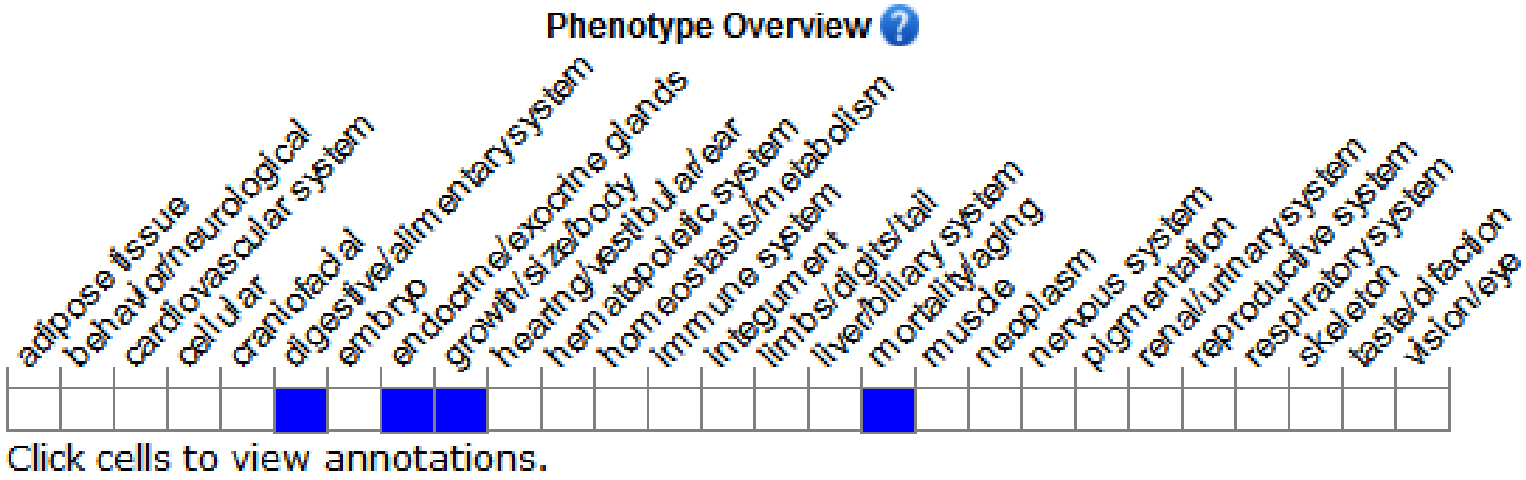


Genomic location distribution



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,Mice homozygous for disruptions in this gene exhibit impaired stomach and intestine development, including impaired parietal cell differentiation, abnormal intestinal epithelium and crypt structure, gastric mucosal hyperplasia, growth retardation, and sometimes postnatal lethality.

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