Pax3 Cas9-KO *Strategy*

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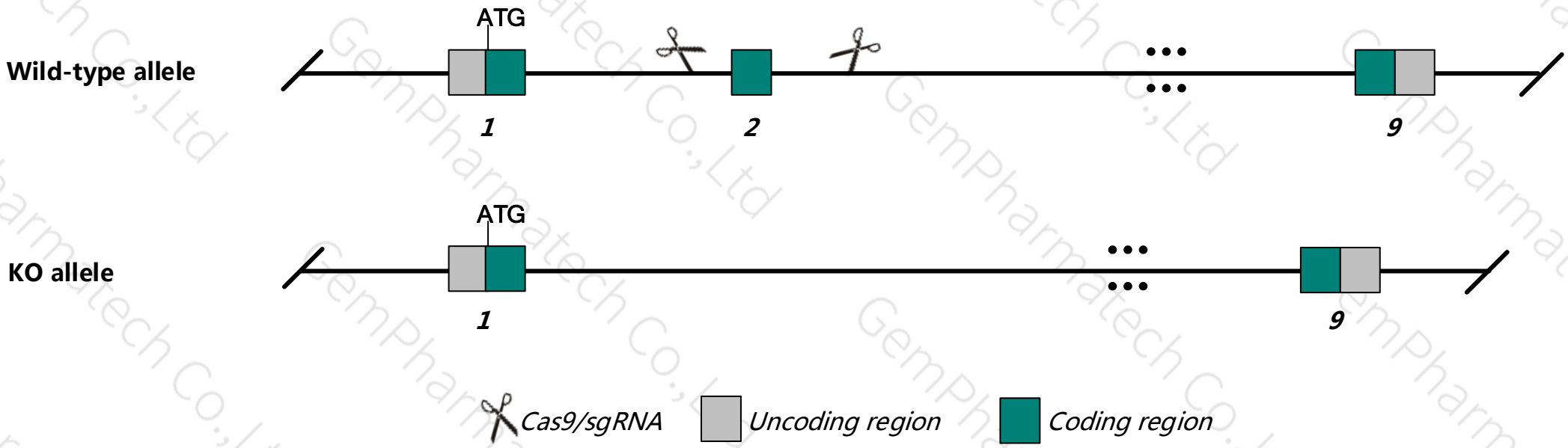
Project Overview

Project Name	***Pax3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pax3* gene. The schematic diagram is as follows:



Technical routes

- The *Pax3* gene has 3 transcripts.According to the structure of *Pax3* gene, exon2 of *Pax3*-201 (ENSMUST00000004994.15) transcript is recommended as the knockout region.The region contains 236bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pax3* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9, sgRNA 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.

Notice

- According to the existing MGI data，Effects on homozygotes for mutations in this gene vary in severity and include embryonic to perinatal death, malformations of neural tube, spinal ganglia, heart, vertebral column, hindbrain and limb musculature. Heterozygotes have white belly spots and variable spotting on the back and extremeties.
- The *Pax3* 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）

集萃药康 GemPharmatech

Pax3 paired box 3 [*Mus musculus* (house mouse)]

Gene ID: 18505, updated on 9-Jul-2019

Summary

Official Symbol	Pax3 provided by MGI
Official Full Name	paired box 3 provided by MGI
Primary source	MGI:MGI:97487
See related	Ensembl:ENSMUSG00000004872
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	Sp; Pax-3; Splchl2; splotch
Expression	Biased expression in CNS E11.5 (RPKM 7.2), whole brain E14.5 (RPKM 2.1) and 3 other tissues See more
Orthologs	human all

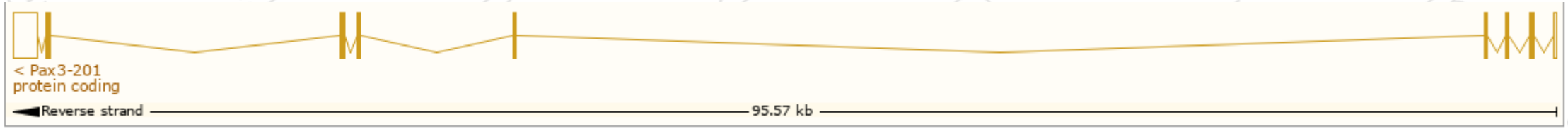
Transcript information（Ensembl）

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

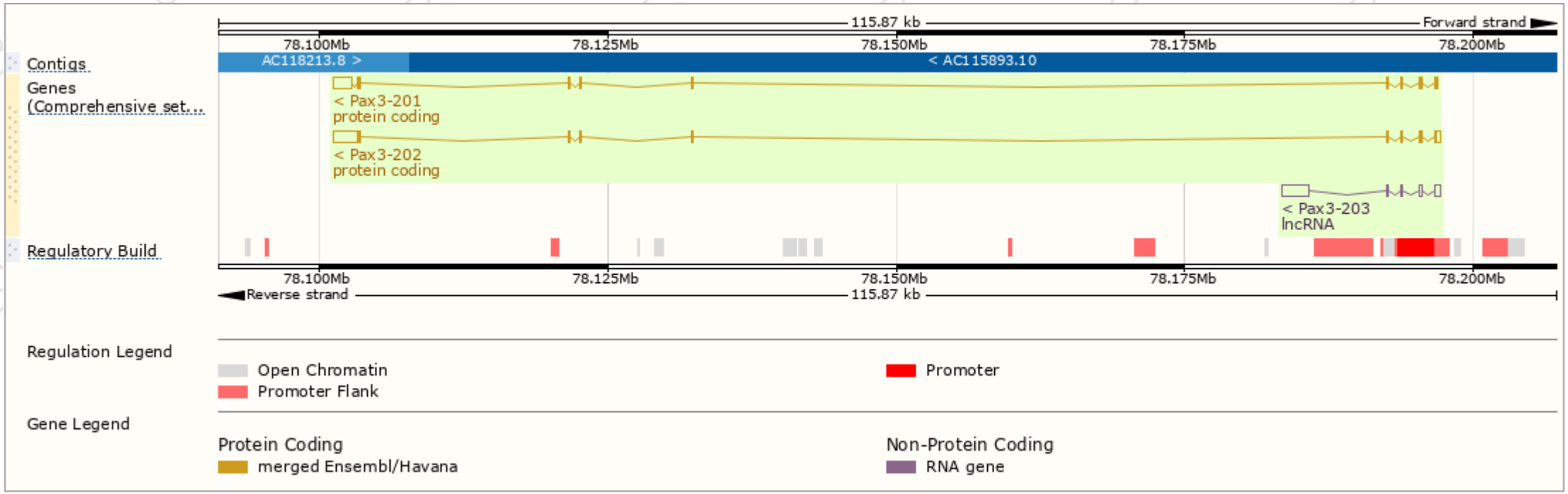
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pax3-202	ENSMUST00000087086.6	3863	479aa	Protein coding	CCDS15082	P24610	TSL:1 GENCODE basic
Pax3-201	ENSMUST00000004994.15	3078	484aa	Protein coding	CCDS48294	Q8BRF1	TSL:1 GENCODE basic APPRIS P1
Pax3-203	ENSMUST00000172555.1	3271	No protein	lncRNA	-	-	TSL:1

The strategy is based on the design of *Pax3*-201 transcript,The transcription is shown below

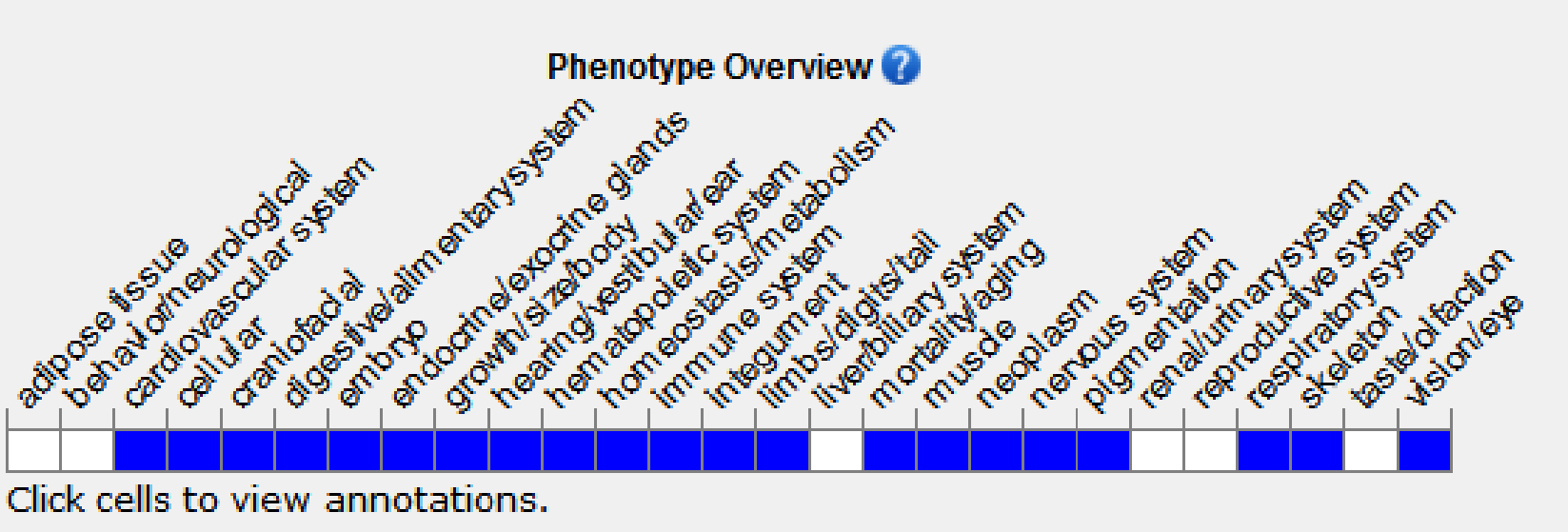


Genomic location distribution



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.

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