

Zyx Cas9-KO Strategy

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Project Overview

Project Name

Zyx

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The Zyx gene has 11 transcripts. According to the structure of Zyx gene, exon6-exon8 of Zyx-202 (ENSMUST00000164375.3) transcript is recommended as the knockout region. The region contains 470bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify Zyx gene. The brief process is as follows: CRISPR/Cas9 system we

- According to the existing MGI data, Mice lacking functional copies of this gene are viable, fertile, and develop normally.
- Transcript Zyx-204/206/ 208/209 may not be affected. The KO region is close to *Ephal* gene, Knockout the region may affect the regulatory function of *Ephal* gene.
- The Zyx gene is located on the Chr6. 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.

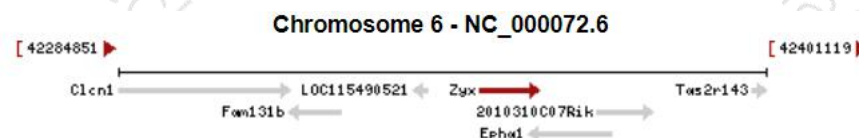
Gene information (NCBI)

Zyx zyxin [*Mus musculus* (house mouse)]

Gene ID: 22793, updated on 3-Sep-2019

Summary

Official Symbol	Zyx provided by MGI
Official Full Name	zyxin provided by MGI
Primary source	MGI:MGI:103072
See related	Ensembl:ENSMUSG00000029860
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	R75157; 9530098H06Rik
Expression	Ubiquitous expression in lung adult (RPKM 88.7), ovary adult (RPKM 71.5) and 28 other tissues See more
Orthologs	human all

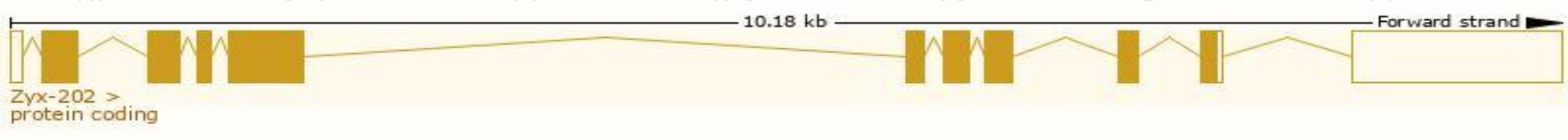


Transcript information (Ensembl)

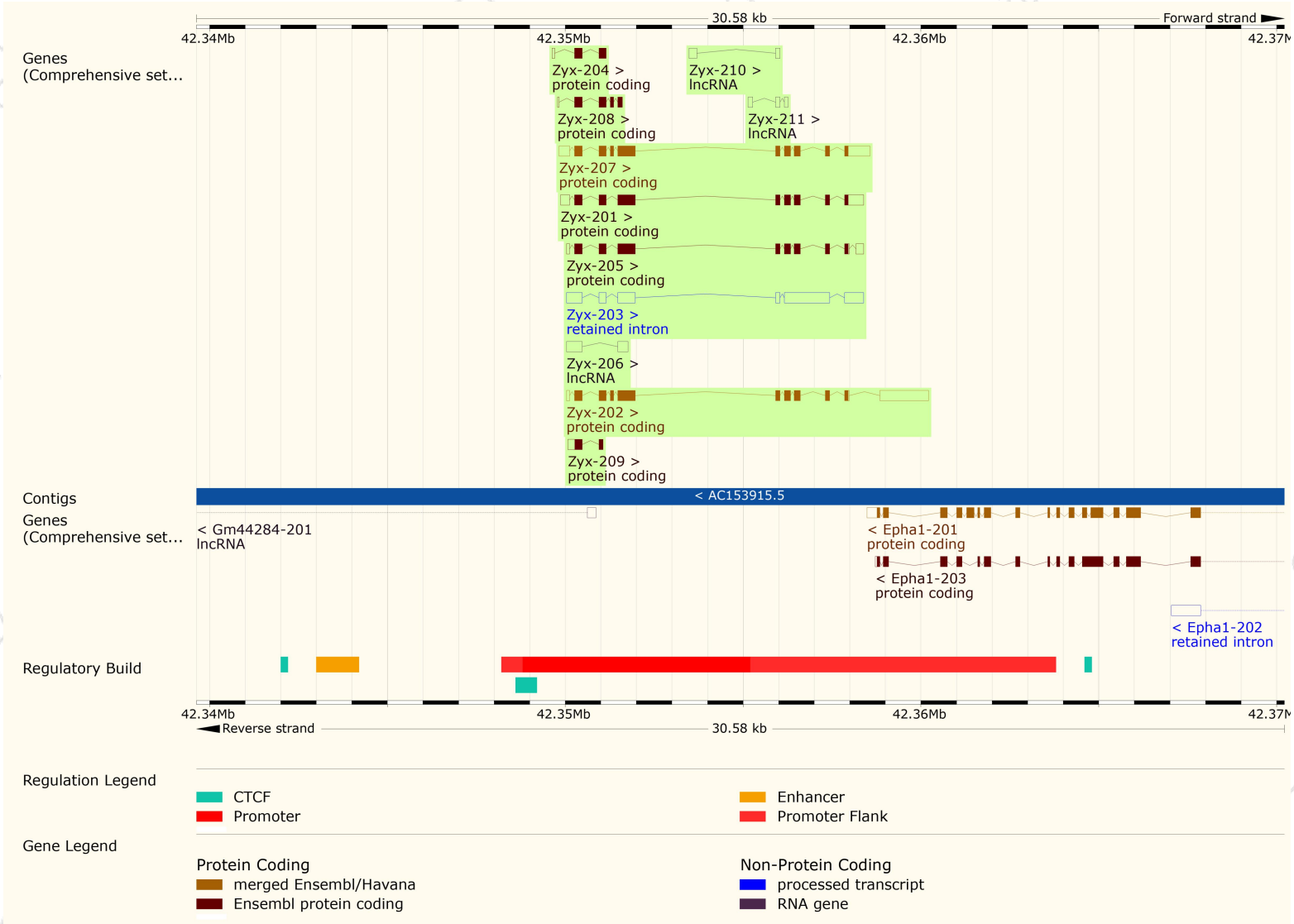
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Zyx-202	ENSMUST00000164375.3	3188	564aa	ENSMUSP00000126622.1	Protein coding	CCDS20066	Q62523	TSL:1 GENCODE basic APPRIS P3
Zyx-207	ENSMUST00000203652.2	2605	564aa	ENSMUSP00000145451.1	Protein coding	CCDS20066	Q62523	TSL:1 GENCODE basic APPRIS P3
Zyx-201	ENSMUST00000070635.12	2301	533aa	ENSMUSP00000070427.7	Protein coding	CCDS85034	Q7TQE2	TSL:1 GENCODE basic APPRIS ALT2
Zyx-205	ENSMUST00000203401.2	1954	533aa	ENSMUSP00000145236.1	Protein coding	CCDS85034	Q7TQE2	TSL:1 GENCODE basic APPRIS ALT2
Zyx-208	ENSMUST00000203846.2	695	212aa	ENSMUSP00000145189.1	Protein coding	-	A0A0N4SVP4	CDS 3' incomplete TSL:3
Zyx-209	ENSMUST00000203849.1	525	109aa	ENSMUSP00000145052.1	Protein coding	-	A0A0N4SVD2	CDS 3' incomplete TSL:2
Zyx-204	ENSMUST00000203329.2	499	137aa	ENSMUSP00000144863.1	Protein coding	-	A0A0N4SUX7	CDS 3' incomplete TSL:3
Zyx-203	ENSMUST00000203290.2	3076	No protein	-	Retained intron	-	-	TSL:2
Zyx-206	ENSMUST00000203626.1	729	No protein	-	lncRNA	-	-	TSL:2
Zyx-211	ENSMUST00000204480.1	351	No protein	-	lncRNA	-	-	TSL:3
Zyx-210	ENSMUST00000204270.2	344	No protein	-	lncRNA	-	-	TSL:2

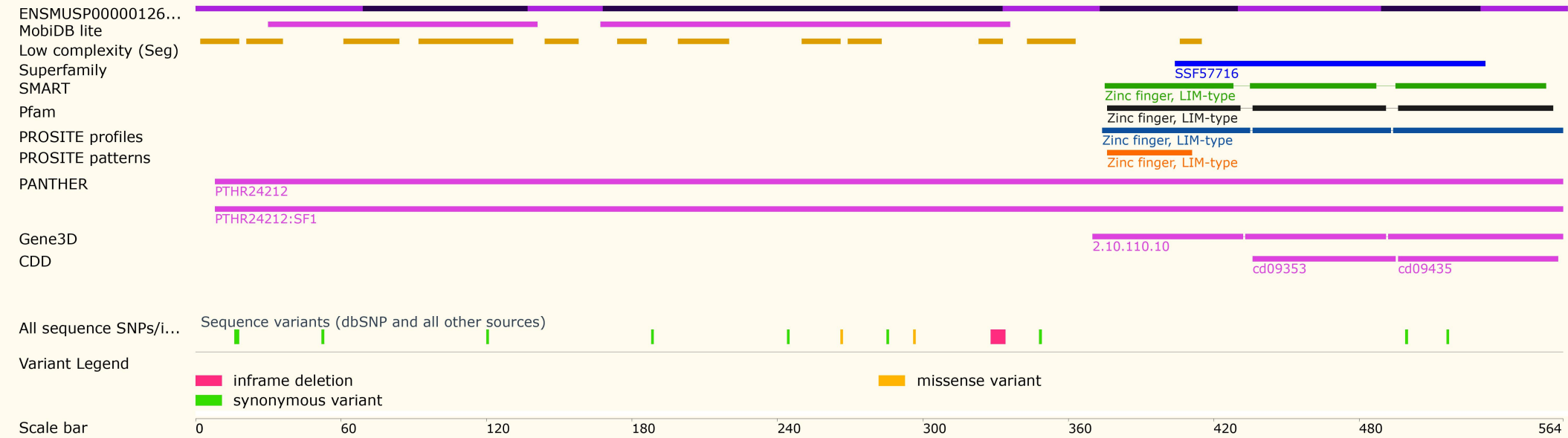
The strategy is based on the design of Zyx-202 transcript,The transcription is shown below



Genomic location distribution

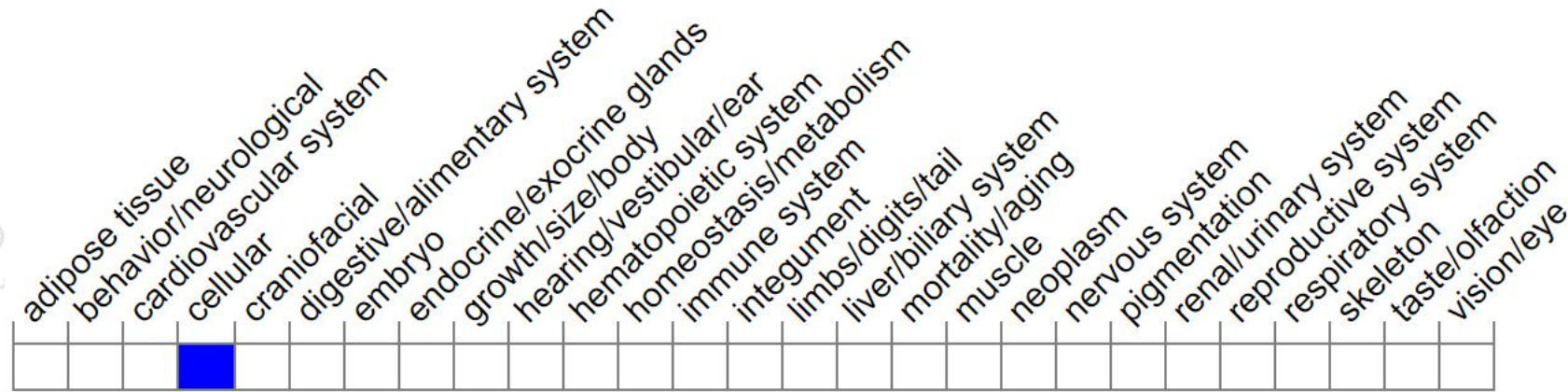


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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 lacking functional copies of this gene are viable, fertile, and develop normally.

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

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