Irx2 Cas9-KO Strategy

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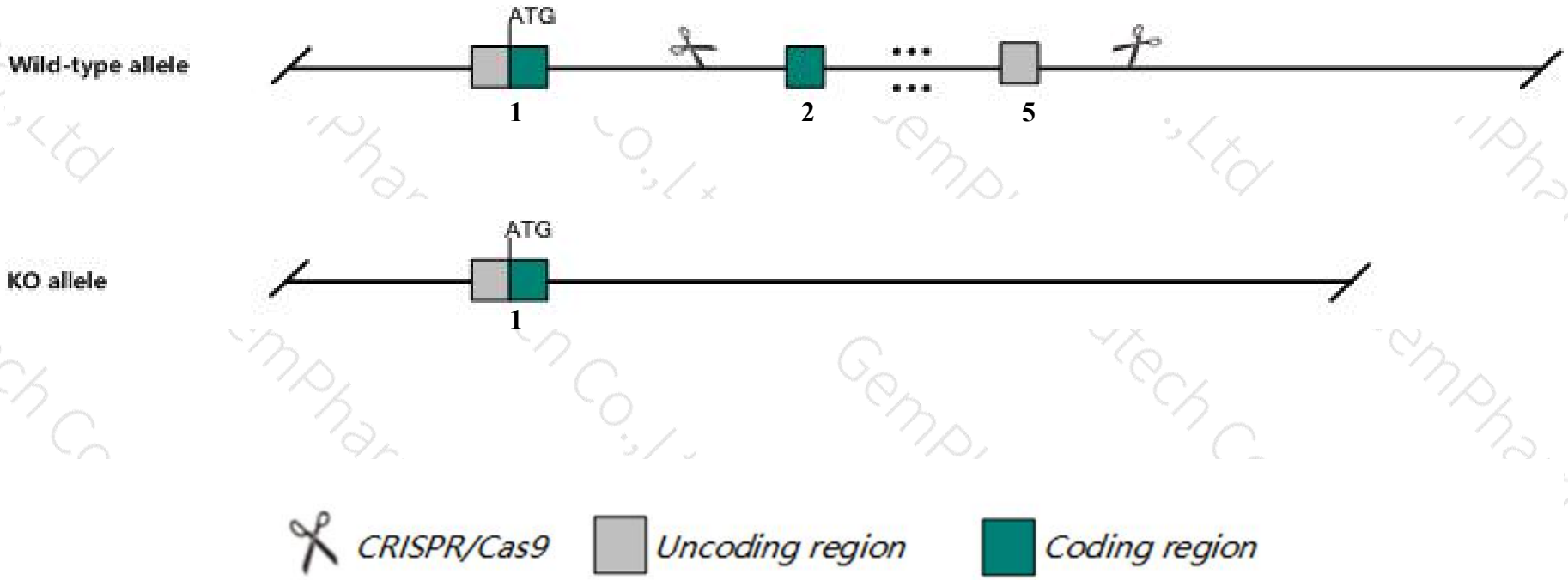
Project Overview

Project Name	***Irx2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Irx2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Irx2* gene has 5 transcripts. According to the structure of *Irx2* gene, exon2-exon5 of *Irx2-201* (ENSMUST00000074372.5) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Irx2* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

➢ According to the existing MGI data,Mice homozygous for disruptions in this gene are phenotypically normal.

➢This strategy may affect the 5-terminal regulation of Gm20554.

➢ The *Irx2* gene is located on the Chr13. 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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Irx2 Iroquois homeobox 2 [Mus musculus (house mouse)]

Gene ID: 16372, updated on 31-Jan-2019

Summary

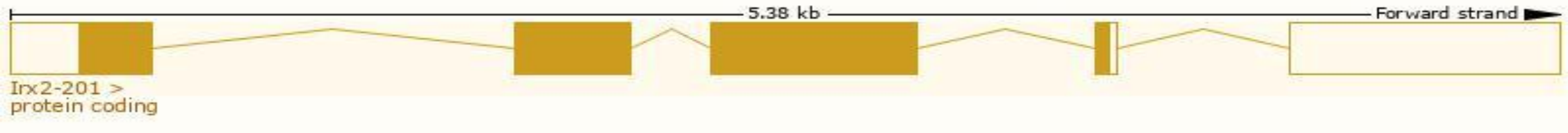
Official Symbol	Irx2 provided by MGI
Official Full Name	Iroquois homeobox 2 provided by MGI
Primary source	MGI:MGI:1197526
See related	Ensembl:ENSMUSG00000001504
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in lung adult (RPKM 35.9), mammary gland adult (RPKM 23.4) and 9 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

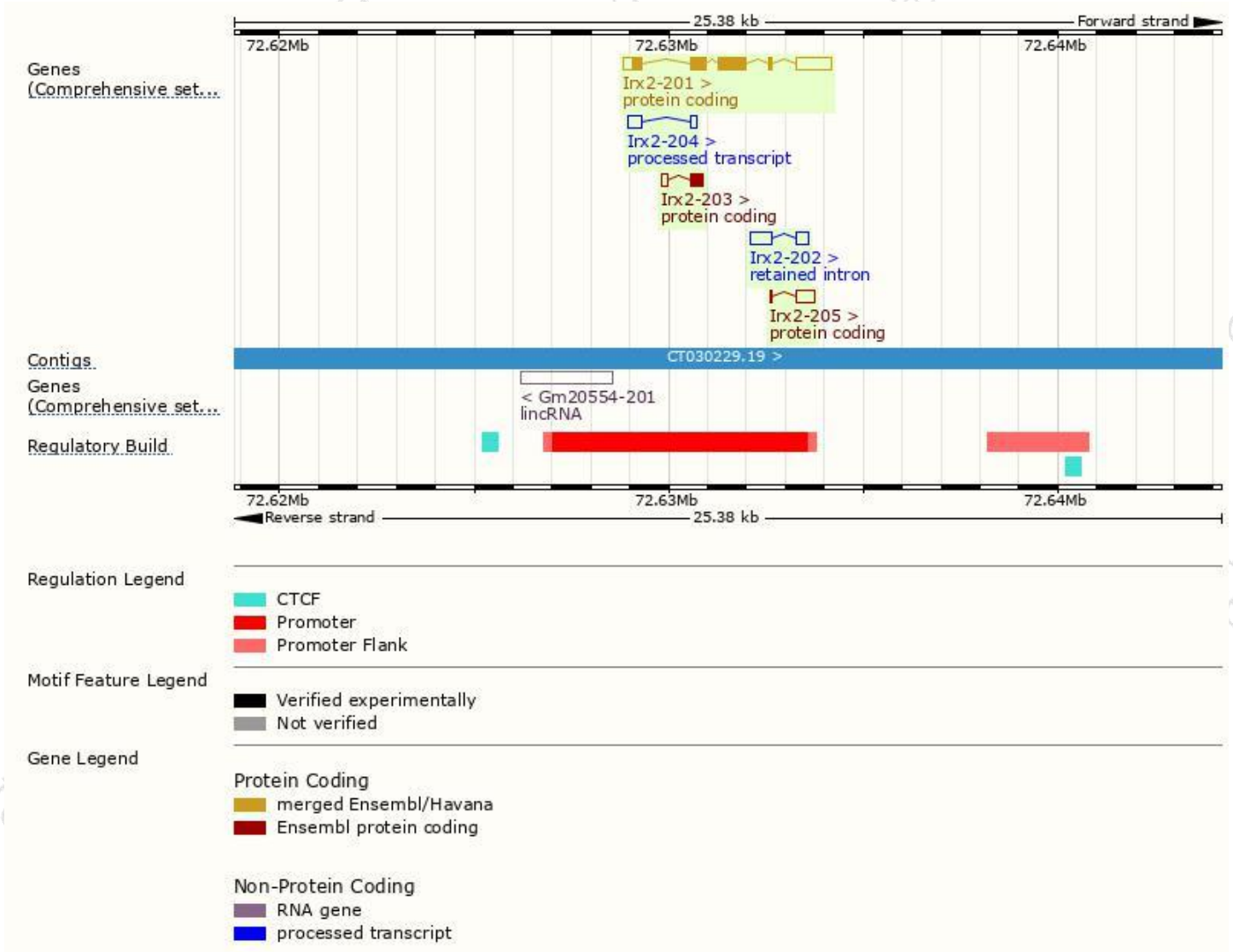
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Irx2-201	ENSMUST00000074372.5	2625	474aa	Protein coding	CCDS26628	P81066	TSL:1 GENCODE basic APPRIS P1
Irx2-205	ENSMUST00000172353.2	559	13aa	Protein coding	-	F6ZTI9	CDS 5' incomplete TSL:3
Irx2-203	ENSMUST00000167067.1	449	93aa	Protein coding	-	E9PZB5	CDS 3' incomplete TSL:3
Irx2-204	ENSMUST00000169028.1	515	No protein	Processed transcript	-	-	TSL:3
Irx2-202	ENSMUST00000163393.1	927	No protein	Retained intron	-	-	TSL:2

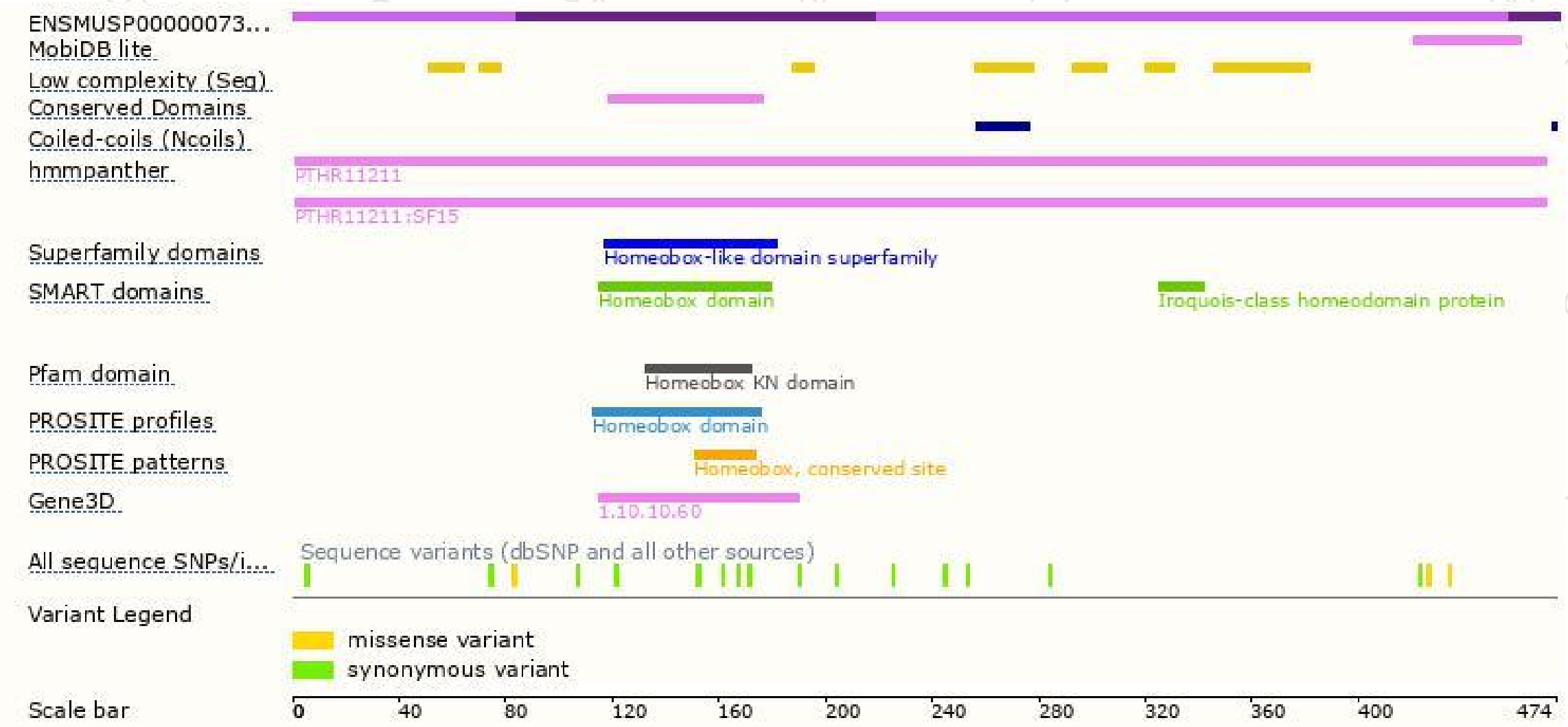
The strategy is based on the design of *Irx2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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