Uox Cas9-KO Strategy

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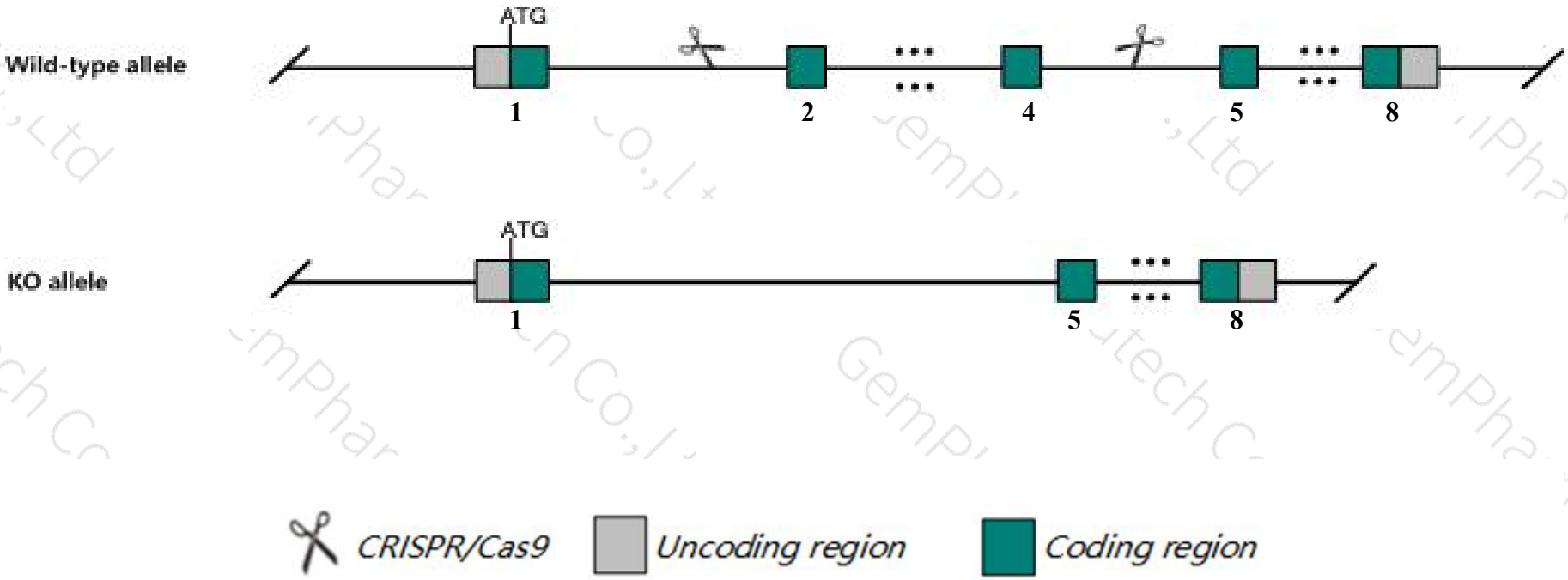
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Uox* gene has 6 transcripts. According to the structure of *Uox* gene, exon2-exon4 of *Uox-201* (ENSMUST00000029837.13) transcript is recommended as the knockout region.The region contains 415bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Homozygous null mutants exhibit marked hyperuricemia and urate nephropathy. Most mutants die prior to four weeks of age. Homozygotes for a large paracentric inversion disrupting this same gene exhibit a similar phenotype.

- The *Uox* gene is located on the Chr3. 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.
- This strategy destroyed the Dnase2b-202 transcript.

Gene information（NCBI）

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Uox urate oxidase [Mus musculus (house mouse)]

Gene ID: 22262, updated on 19-Mar-2019

Summary

Official Symbol	Uox provided by MGI
Official Full Name	urate oxidase provided byMGI
Primary source	MGI:MGI:98907
See related	Ensembl:ENSMUSG00000028186
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI663847
Expression	Biased expression in liver E18 (RPKM 291.5) and liver adult (RPKM 169.5)See more

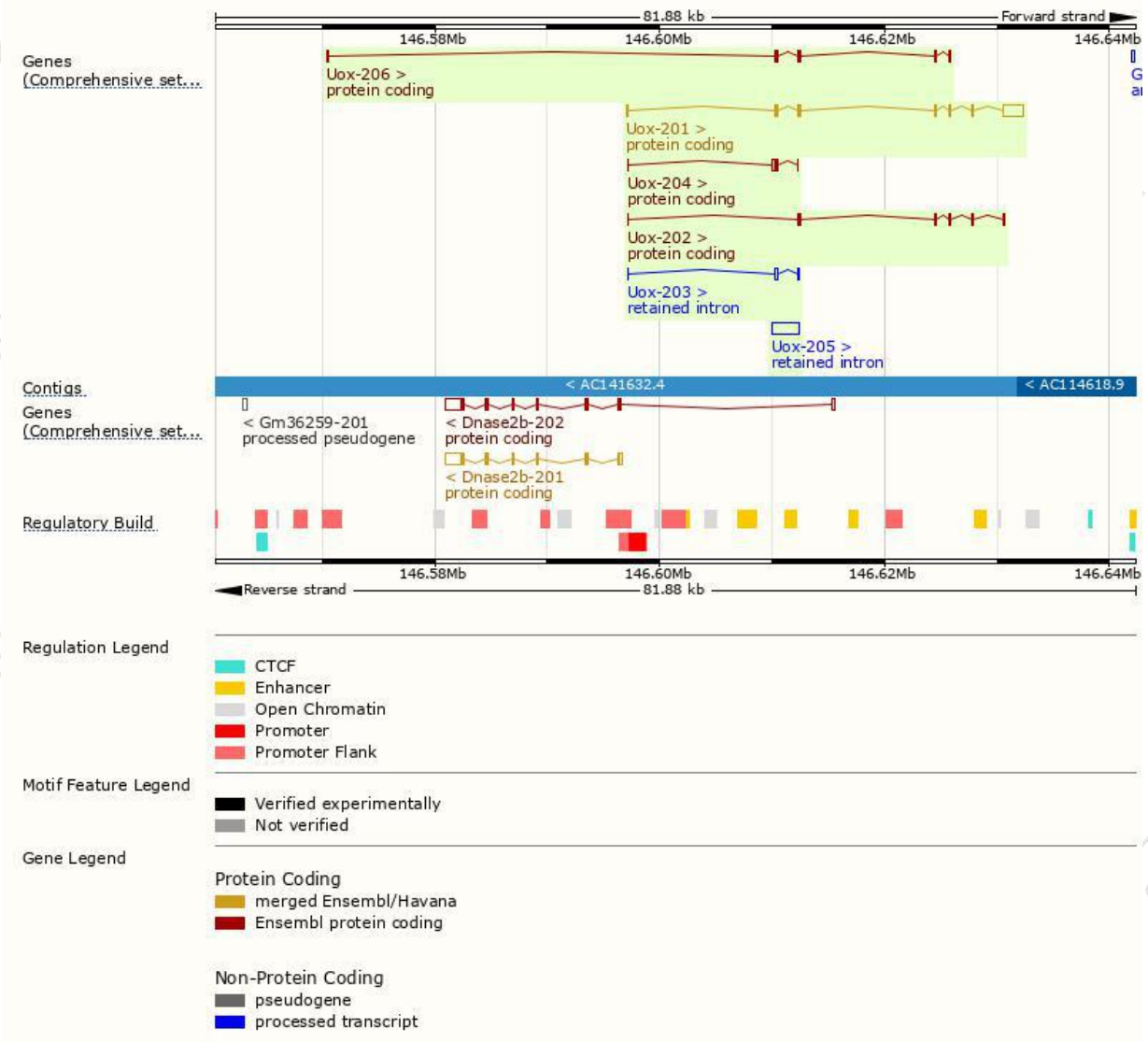
Transcript information（Ensembl）

The gene has 6 transcripts,all transcripts are shown below:

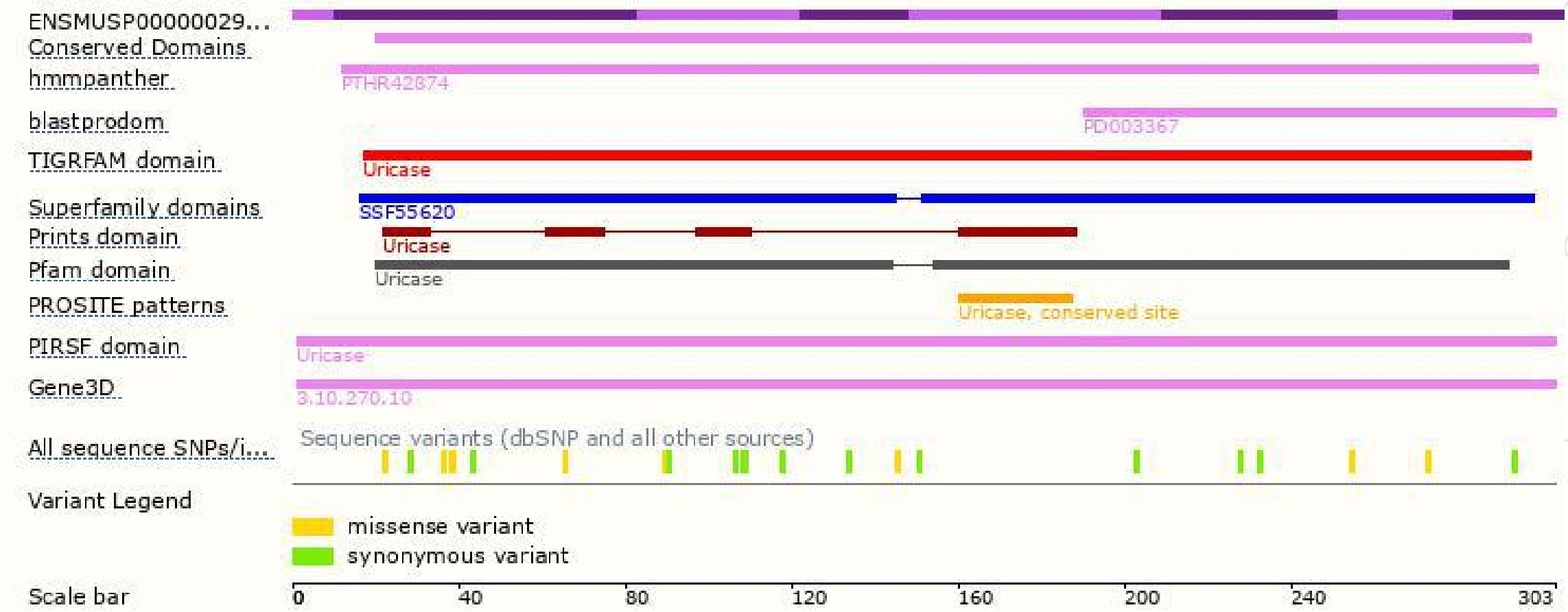
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Uox-201	ENSMUST00000029837.13	2737	303aa	Protein coding	CCDS17905	P25688 Q543J0	TSL:1 GENCODE basic APPRIS P1
Uox-206	ENSMUST00000199489.4	864	228aa	Protein coding	-	A0A0G2JG44	CDS 3' incomplete TSL:3
Uox-202	ENSMUST00000121133.1	768	199aa	Protein coding	-	D3Z4U1	TSL:5 GENCODE basic
Uox-204	ENSMUST00000147409.1	639	73aa	Protein coding	-	A0A0G2JFT6	CDS 3' incomplete TSL:3
Uox-205	ENSMUST00000197320.1	2364	No protein	Retained intron	-	-	TSL:NA
Uox-203	ENSMUST00000138921.1	448	No protein	Retained intron	-	-	TSL:2

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

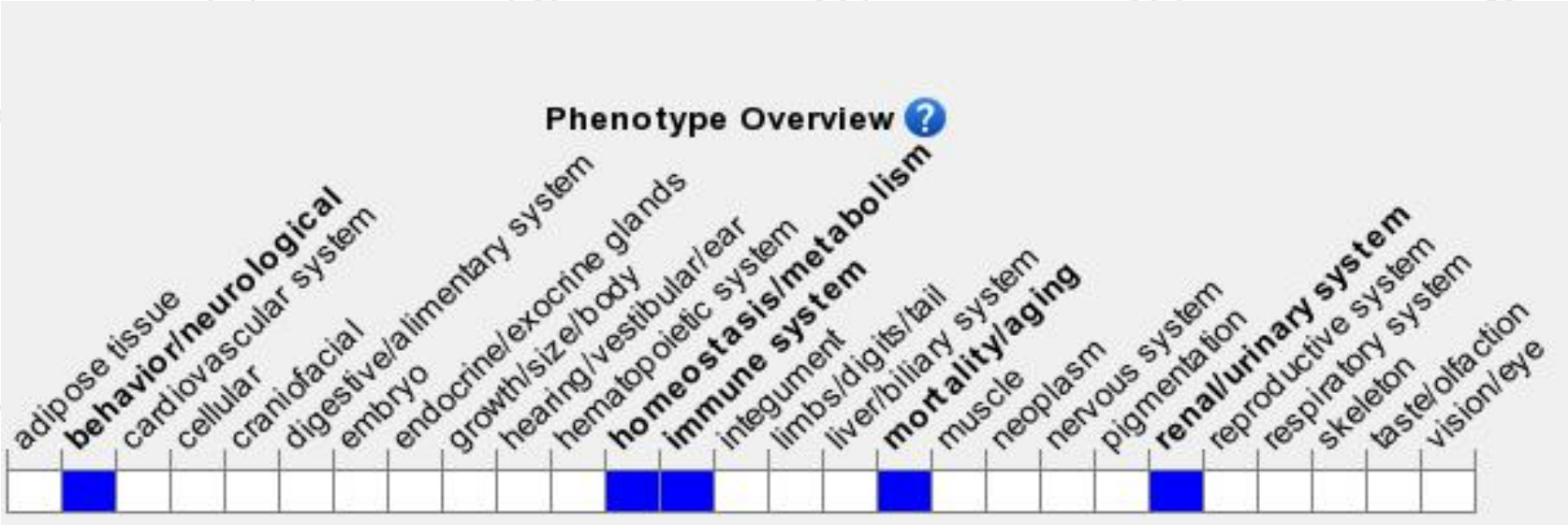
Genomic location distribution



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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