Ubap1 Cas9-CKO *Strategy*

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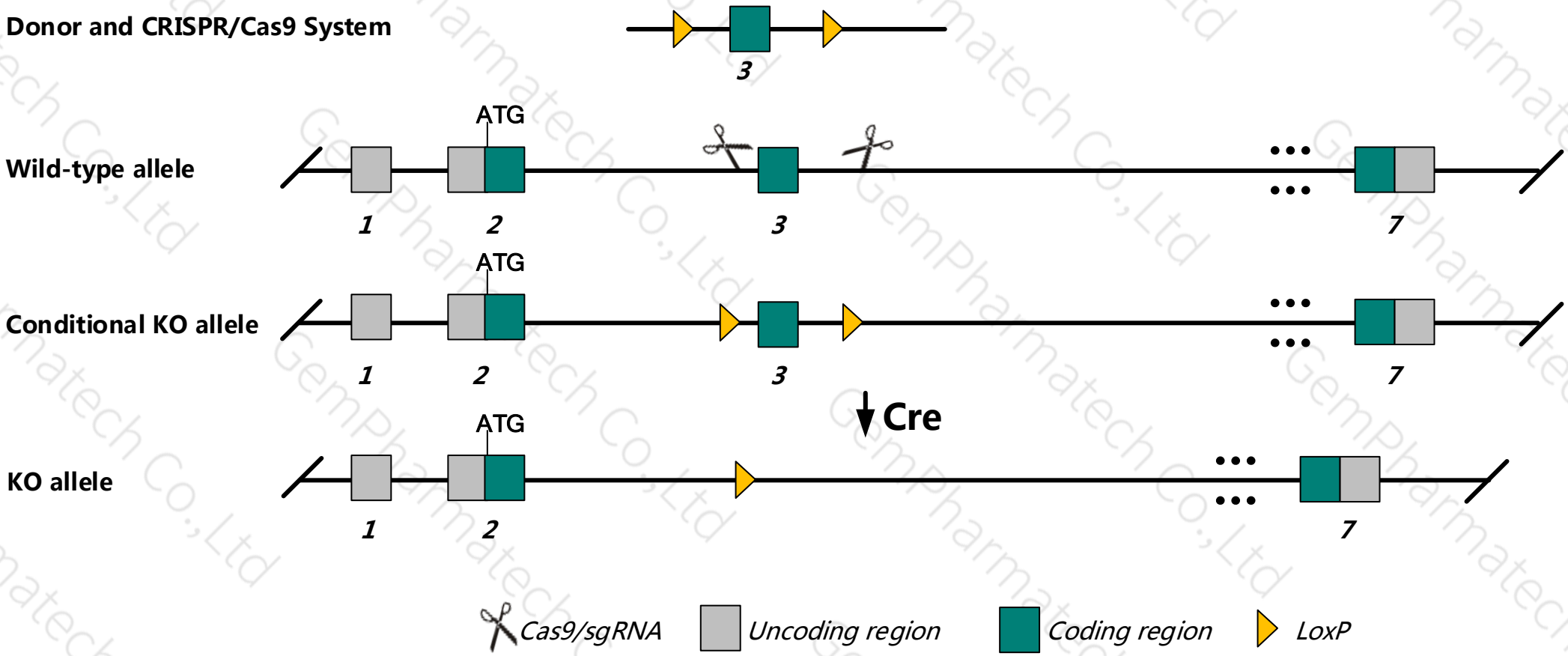
Project Overview

Project Name	***Ubap1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ubap1* gene. The schematic diagram is as follows:



Technical routes

- The *Ubap1* gene has 5 transcripts.According to the structure of *Ubap1* gene, exon3 of *Ubap1*-201 (ENSMUST00000072866.11) transcript is recommended as the knockout region.The region contains 125bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ubap1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA and Donor 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.

- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

Notice

- The *Ubap1* gene is located on the Chr4. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Ubap1 ubiquitin-associated protein 1 [*Mus musculus* (house mouse)]

Gene ID: 67123, updated on 5-Aug-2018

Summary

Official Symbol	Ubap1 provided by MGI
Official Full Name	ubiquitin-associated protein 1 provided by MGI
Primary source	MGI:MGI:2149543
See related	Ensembl:ENSMUSG00000028437 Vega:OTTMUSG00000006663
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	Ubap; NAG20; UBAP-1; 2700092A01Rik
Expression	Ubiquitous expression in testis adult (RPKM 11.0), kidney adult (RPKM 8.7) and 28 other tissues See more
Orthologs	human all

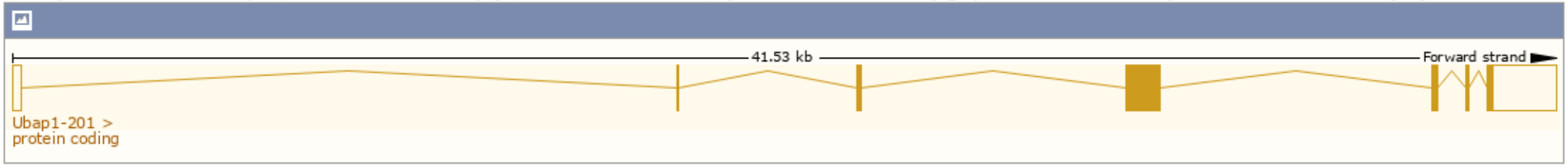
Transcript information（Ensembl）

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

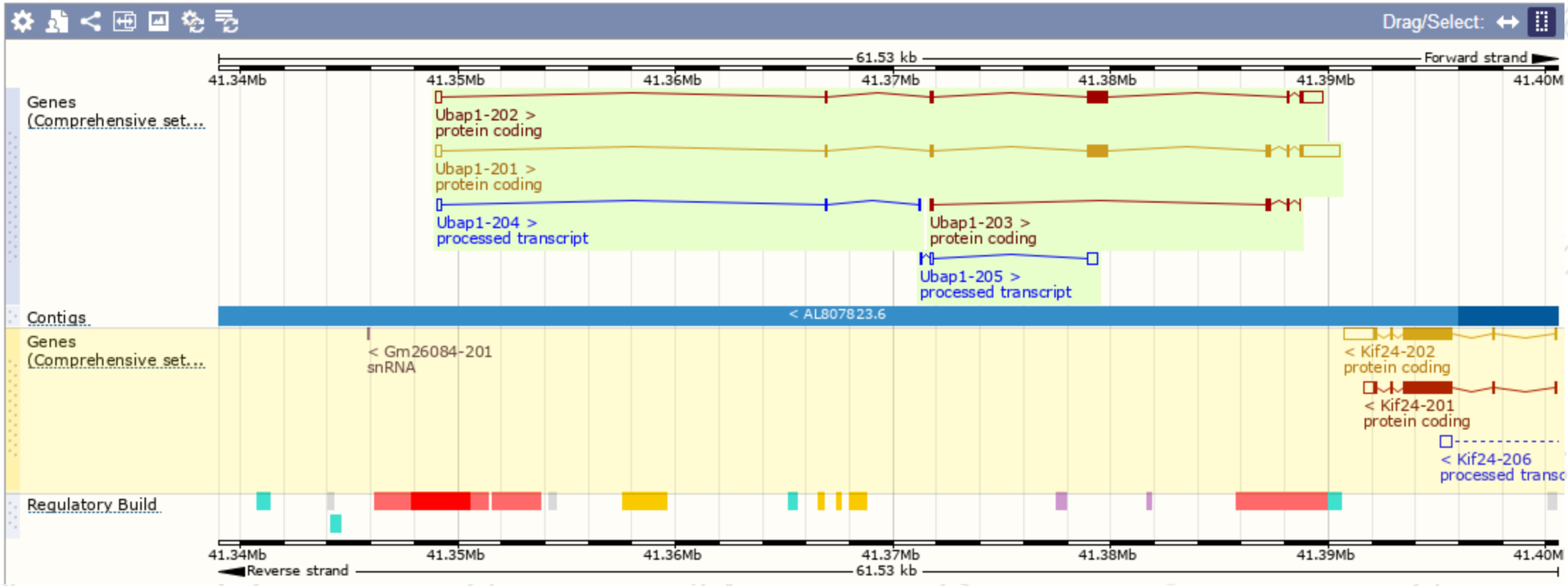
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Ubap1-201	ENSMUST00000072866.11	3456	502aa	Protein coding	CCDS51140	Q8BH48	NM_023305 NP_001342437 NP_075794	TSL:1 GENCODE basic APPRIS P1
Ubap1-202	ENSMUST00000108060.9	2514	441aa	Protein coding	CCDS71361	Q8BH48	NM_001290454 NP_001277383	TSL:1 GENCODE basic
Ubap1-203	ENSMUST00000132235.1	422	141aa	Protein coding	-	F6WHE1	-	CDS 5' and 3' incomplete TSL:5
Ubap1-205	ENSMUST00000154529.1	671	No protein	Processed transcript	-	-	-	TSL:3
Ubap1-204	ENSMUST00000136705.1	314	No protein	Processed transcript	-	-	-	TSL:3

The strategy is based on the design of *Ubap1*-201 transcript,The transcription is shown below

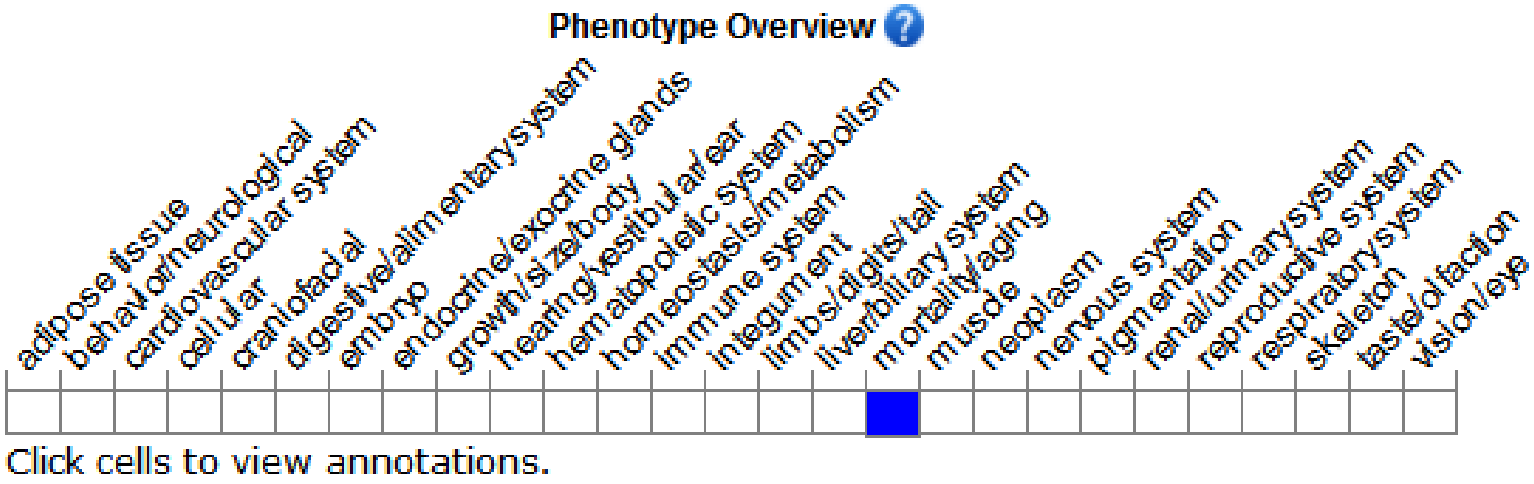


Genomic location distribution



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/) .

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

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