

Wtap Cas9-CKO Strategy

Designer:

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Design Date:

2019-7-18

Project Overview

Project Name

Wtap

Project type

Cas9-CKO

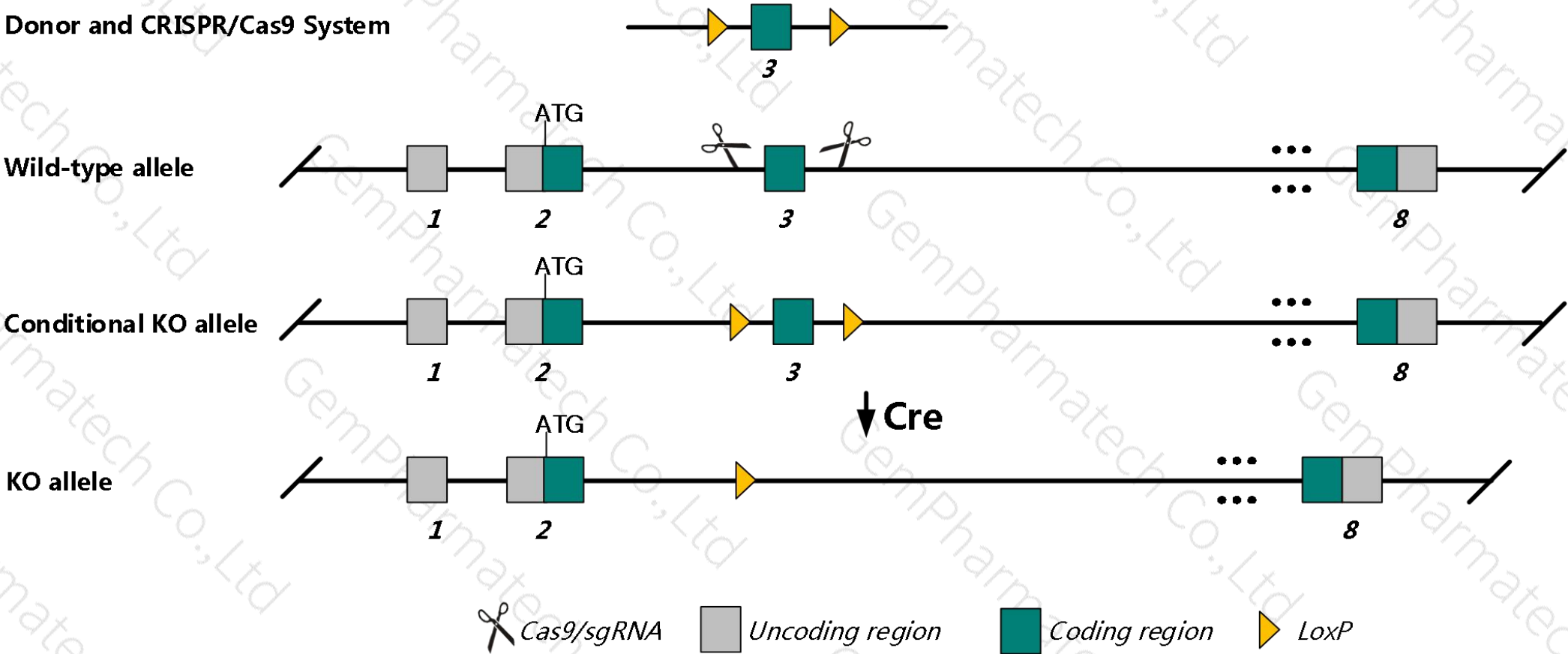
Strain background

C57BL/6JGpt

Conditional Knockout strategy

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

Donor and CRISPR/Cas9 System



- The *Wtap* gene has 9 transcripts. According to the structure of *Wtap* gene, exon3 of *Wtap*-201 (ENSMUST00000007007.13) transcript is recommended as the knockout region. The region contains 56bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wtap* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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 will be 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.

- According to the existing MGI data , Mice homozygous for a mutation display lethality during embryogenesis with abnormalities appearing during gastrulation.
- The *Wtap* gene is located on the Chr17. 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)

Wtap Wilms tumour 1-associating protein [*Mus musculus* (house mouse)]

Gene ID: 60532, updated on 5-Aug-2018

Summary

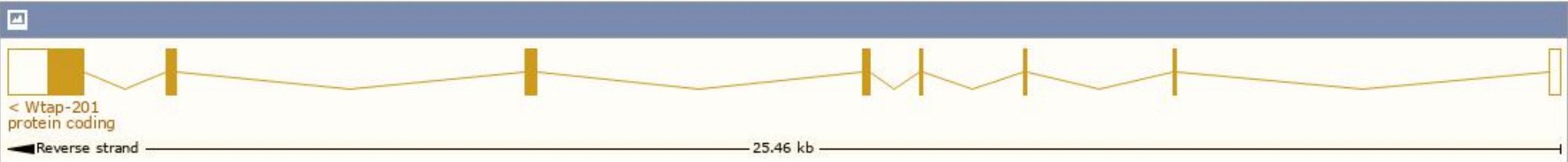
Official Symbol	Wtap provided by MGI
Official Full Name	Wilms tumour 1-associating protein provided by MGI
Primary source	MGI:MGI:1926395
See related	Ensembl:ENSMUSG00000060475 Vega:OTTMUSG00000034274
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810408K05Rik; 9430038B09Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 10.9), CNS E18 (RPKM 10.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

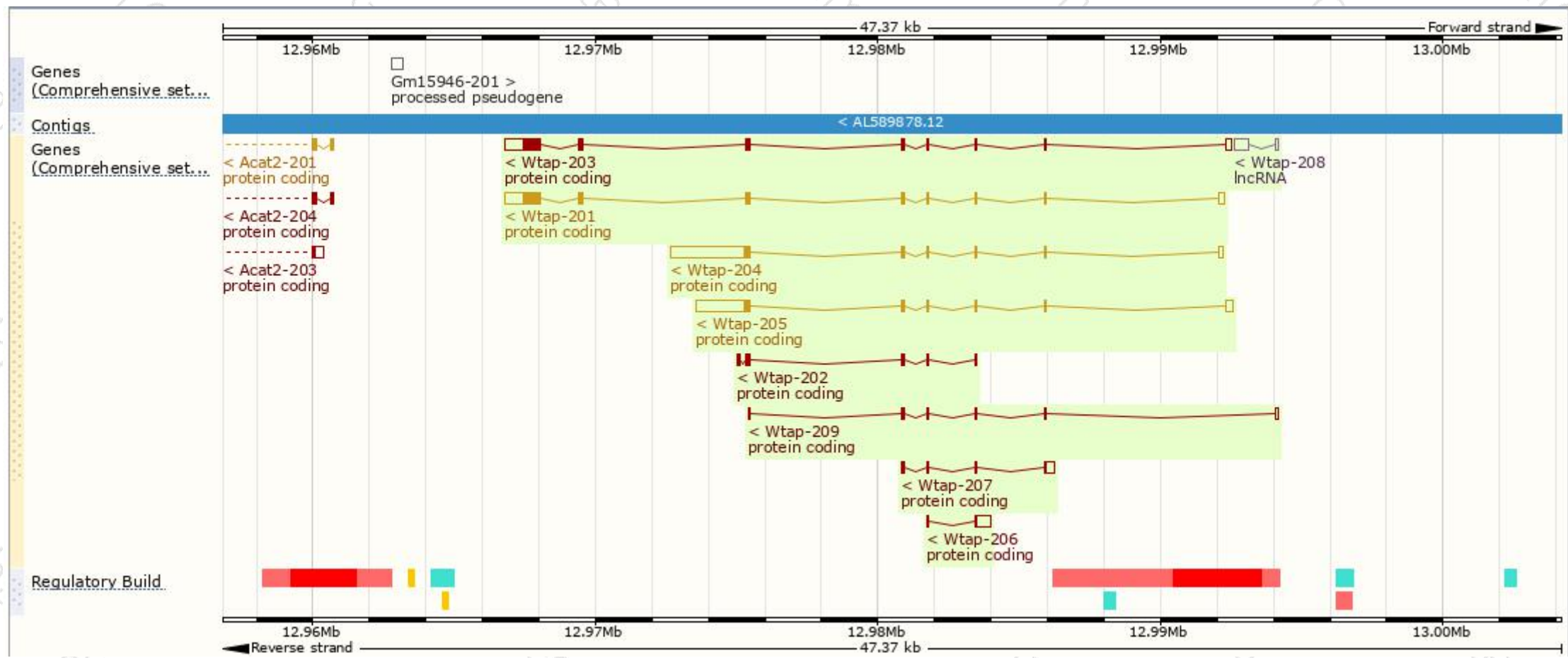
The gene has 9 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Wtap-204	ENSMUST00000159986.7	3187	151aa	Protein coding	CCDS49949	Q9ER69	NM_001113532 NP_001107004	TSL:1	GENCODE basic
Wtap-205	ENSMUST00000160781.7	2442	151aa	Protein coding	CCDS49949	Q9ER69	NM_175394 NP_780603	TSL:1	GENCODE basic
Wtap-203	ENSMUST00000159551.7	2060	396aa	Protein coding	CCDS49950	E0CYH0	-	TSL:5	GENCODE basic APPRIS P1
Wtap-201	ENSMUST00000007007.13	2051	396aa	Protein coding	CCDS49950	E0CYH0	NM_001113533 NP_001107005	TSL:1	GENCODE basic APPRIS P1
Wtap-206	ENSMUST00000161901.1	574	28aa	Protein coding	-	-	-	CDS 3' incomplete	TSL:3
Wtap-207	ENSMUST00000162395.1	536	80aa	Protein coding	-	E0CZF5	-	CDS 3' incomplete	TSL:3
Wtap-202	ENSMUST00000159104.7	495	139aa	Protein coding	-	F7CCI4	-	CDS 5' incomplete	TSL:5
Wtap-209	ENSMUST00000233867.1	446	110aa	Protein coding	-	-	-	CDS 3' incomplete	
Wtap-208	ENSMUST00000233467.1	593	No protein	Processed transcript	-	-	-		

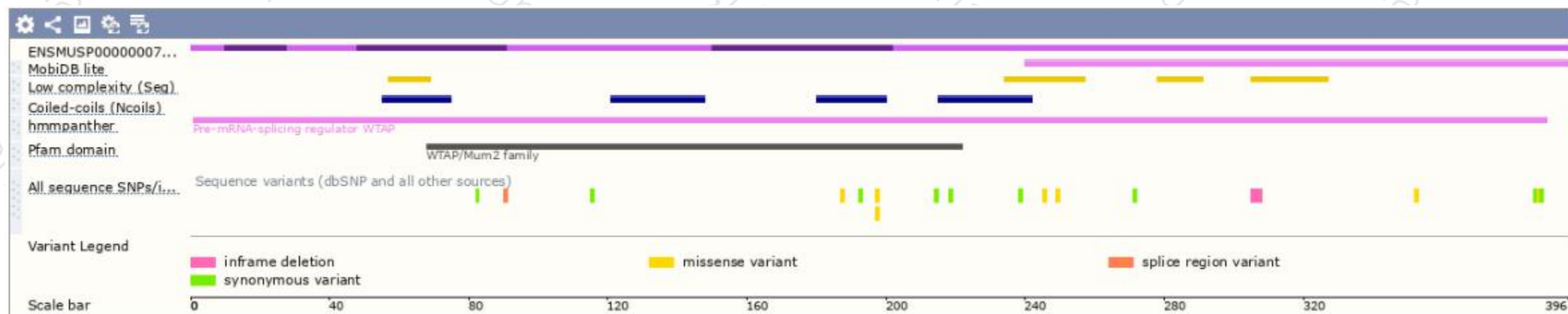
The strategy is based on the design of *Wtap-201* transcript, The transcription is shown below



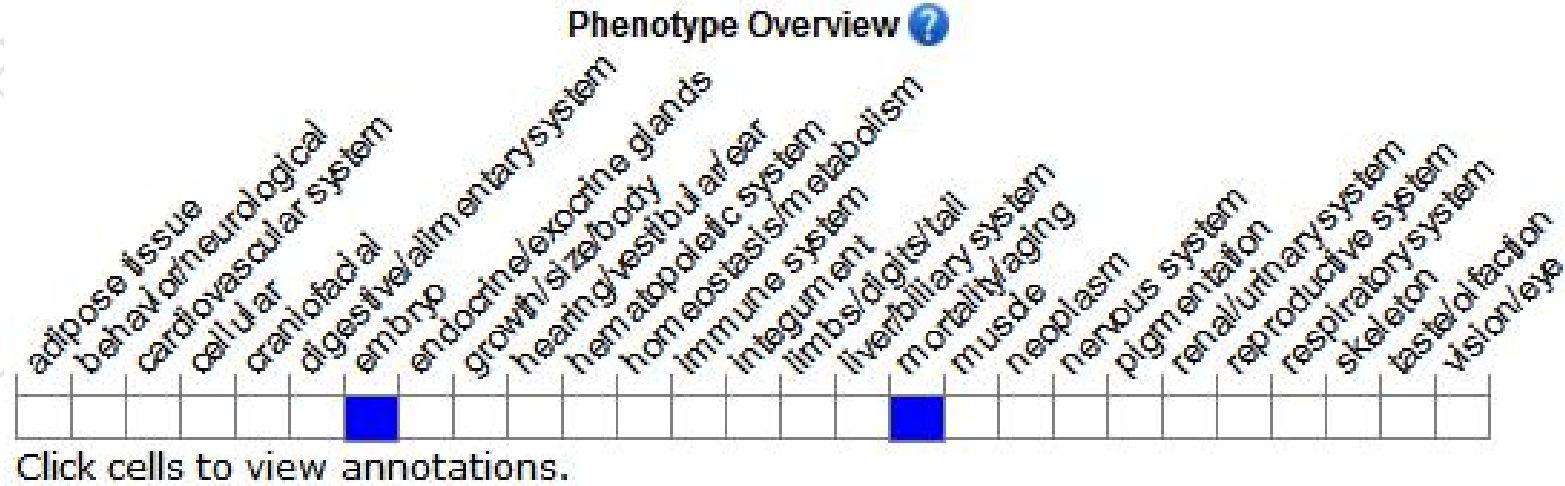
Genomic location distribution



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/>) .

According to the existing MGI data, Mice homozygous for a mutation display lethality during embryogenesis with abnormalities appearing during gastrulation.

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