Wdr81 Cas9-CKO *Strategy*

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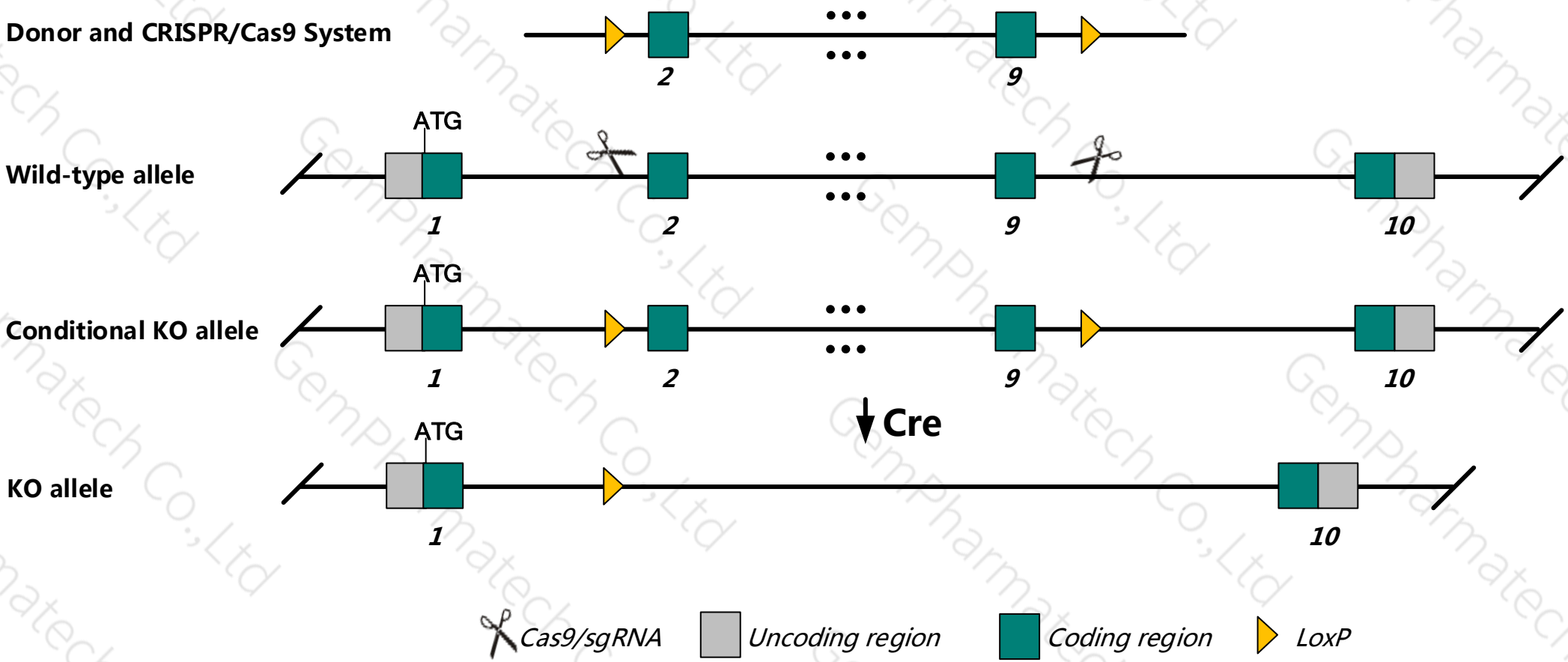
Project Overview

Project Name	***Wdr81***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr81* gene. The schematic diagram is as follows:



Technical routes

- The *Wdr81* gene has 4 transcripts.According to the structure of *Wdr81* gene, exon2-exon9 of *Wdr81*-204 (ENSMUST00000173320.7) transcript is recommended as the knockout region.The region contains 1838bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Wdr81* 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

- According to the existing MGI data，Mice homozygous for an ENU-induced mutation exhibit weight loss, tremors, ataxia and an abnormal gait, as well as abnormal mitochondria in Purkinje cell dendrites, Purkinje cell degeneration, photoreceptor cell loss, and decreased total retina thickness.
- The *Wdr81* gene is located on the Chr11. 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）

Wdr81 WD repeat domain 81 [*Mus musculus* (house mouse)]

Gene ID: 192652, updated on 5-Aug-2018

Summary

Official Symbol	Wdr81 provided by MGI
Official Full Name	WD repeat domain 81 provided by MGI
Primary source	MGI:MGI:2681828
See related	Ensembl:ENSMUSG00000045374 Vega:OTTMUSG00000006200
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	nur5; Gm883; BC054822; mFLJ00182
Expression	Ubiquitous expression in spleen adult (RPKM 9.0), thymus adult (RPKM 8.4) and 28 other tissues See more
Orthologs	human all

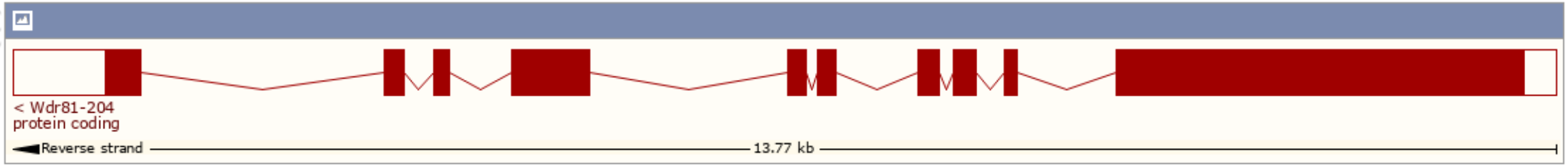
Transcript information（ Ensembl ）

The gene has 4 transcripts, and all transcripts are shown below:

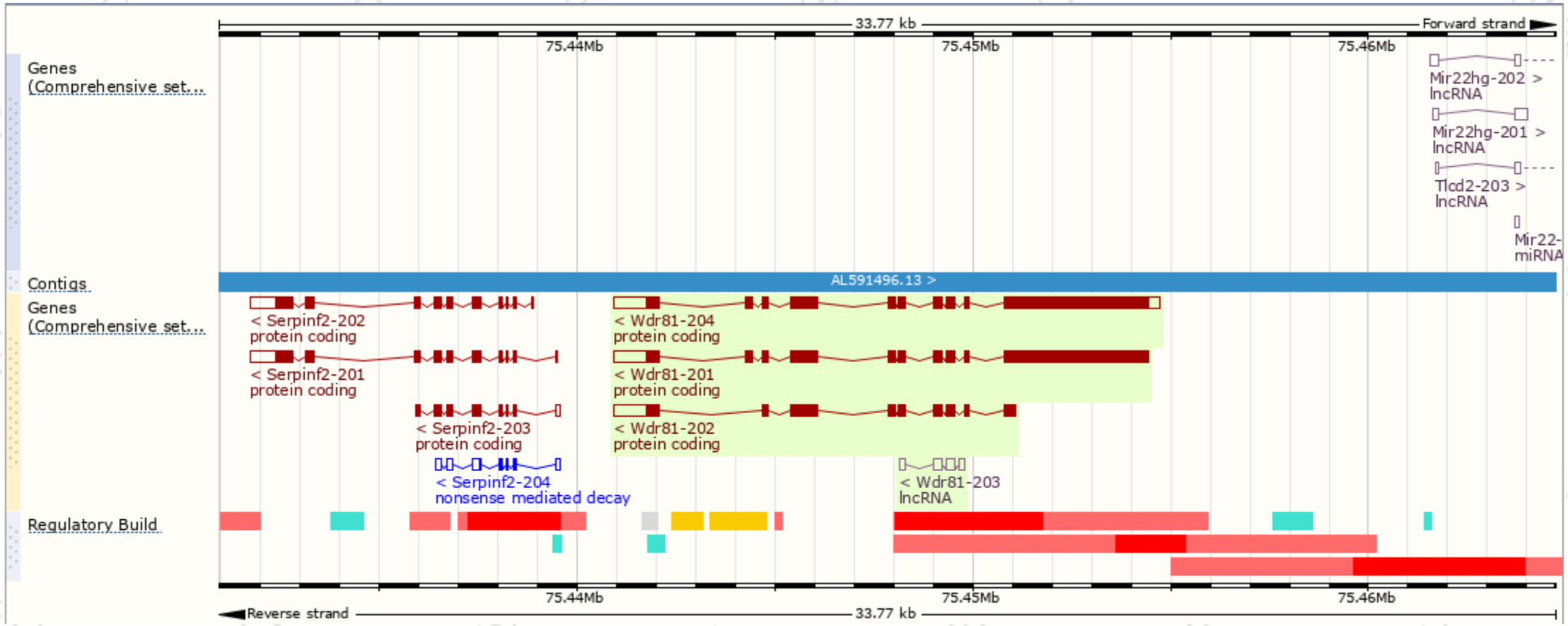
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr81-204	ENSMUST00000173320.7	6908	1934aa	Protein coding	CCDS48849	Q5ND34	TSL:5 GENCODE basic APPRIS P1
Wdr81-201	ENSMUST00000117392.8	6625	1934aa	Protein coding	-	K4DI77	CDS 5' incomplete TSL:5
Wdr81-202	ENSMUST00000132442.1	3088	756aa	Protein coding	-	F6XD87	CDS 5' incomplete TSL:1
Wdr81-203	ENSMUST00000135804.1	634	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Wdr81*-204 transcript,The transcription is shown below

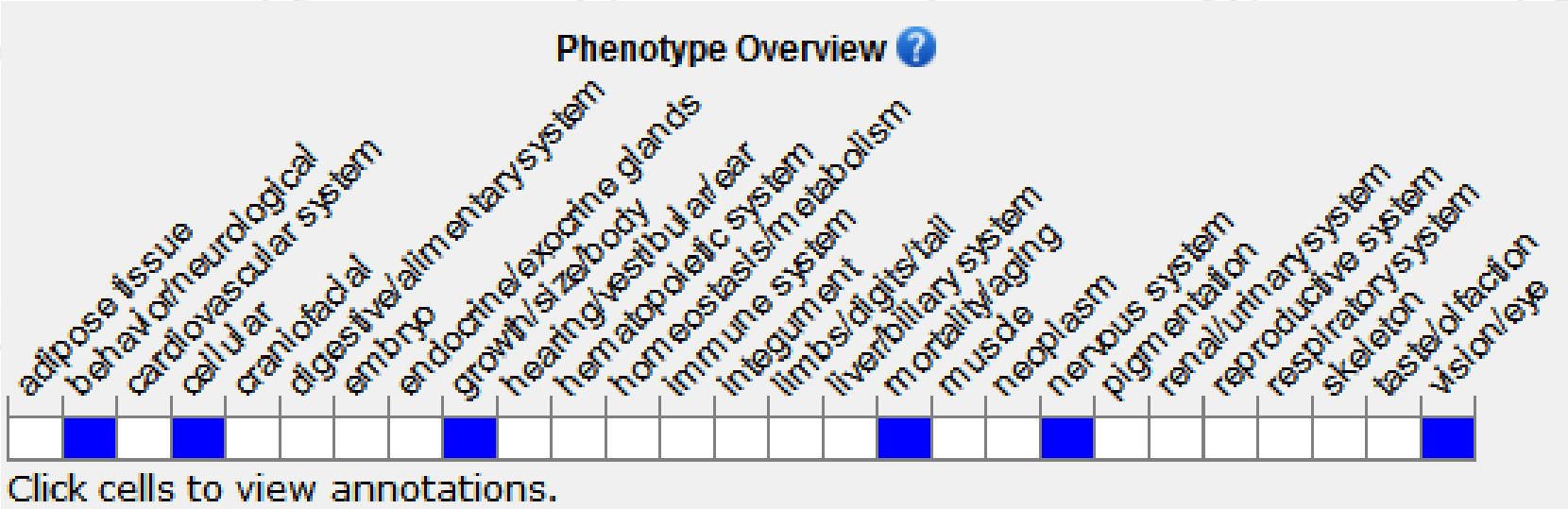


Genomic location distribution



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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