

***Wnk2* Cas9-CKO Strategy**

Designer: Yun Li
Reviewer: Jiayuan Yao
Design Date: 2019-8-22

Project Overview

Project Name

Wnk2

Project type

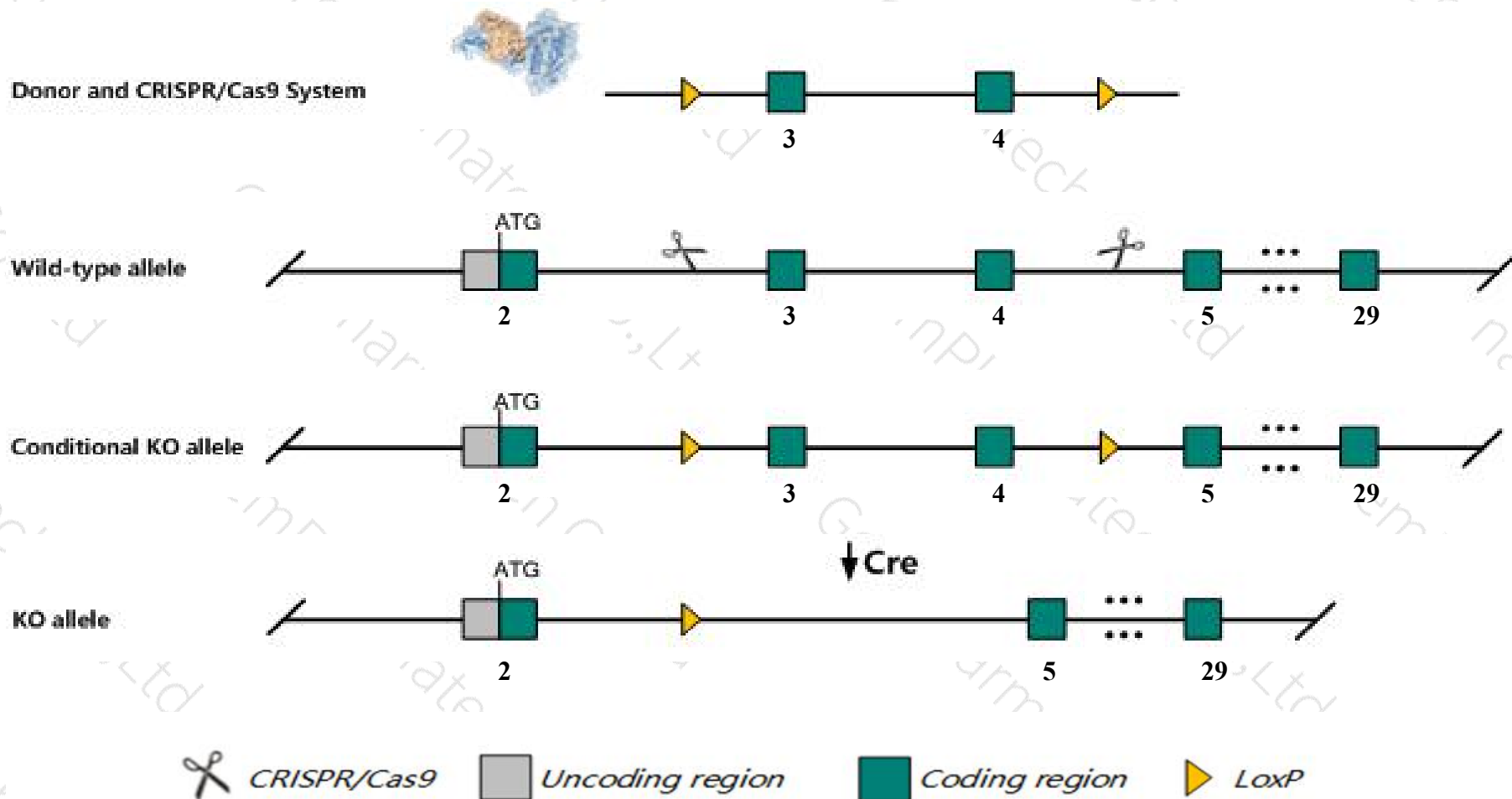
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wnk2* gene. The schematic diagram is as follows:



- The *Wnk2* gene has 11 transcripts. According to the structure of *Wnk2* gene, exon3-exon4 of *Wnk2*-203 (ENSMUST00000091623.9) transcript is recommended as the knockout region. The region contains 394bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wnk2* gene. The brief process is as follows: CRISPR/Cas9 system 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 and cell types.

Notice

- The *Wnk2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Wnk2 WNK lysine deficient protein kinase 2 [Mus musculus (house mouse)]

Gene ID: 75607, updated on 31-Jan-2019

Summary



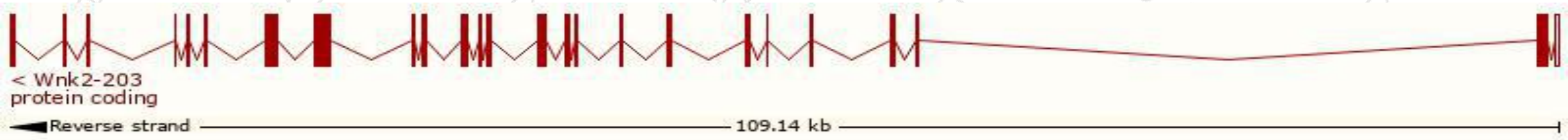
Official Symbol	Wnk2 provided by MGI
Official Full Name	WNK lysine deficient protein kinase 2 provided by MGI
Primary source	MGI:MGI:1922857
See related	Ensembl:ENSMUSG000000037989
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810073P09Rik, AW122246, ESTM15, X83337, mKIAA1760
Expression	Broad expression in whole brain E14.5 (RPKM 9.8), cerebellum adult (RPKM 9.2) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

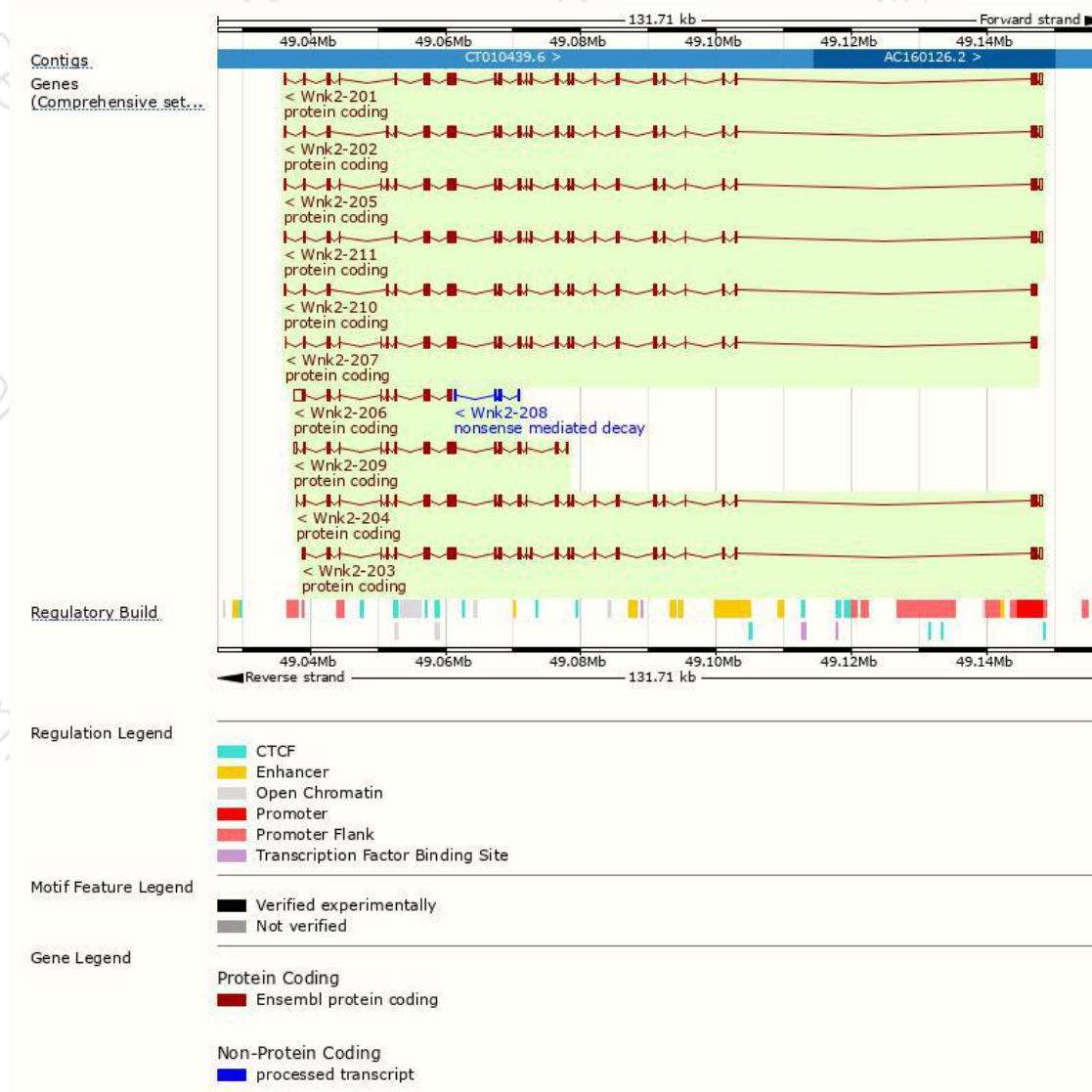
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wnk2-203	ENSMUST00000091623.9	6897	2213aa	Protein coding	CCDS70454	E9QM73	TSL:5 GENCODE basic APPRIS P4
Wnk2-205	ENSMUST00000110097.8	6882	2149aa	Protein coding	CCDS70455	E9QMI8	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-202	ENSMUST00000049265.14	6738	2101aa	Protein coding	-	E9QJQ9	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-201	ENSMUST00000035538.12	6630	2065aa	Protein coding	-	E0CZE3	TSL:1 GENCODE basic APPRIS ALT2
Wnk2-211	ENSMUST00000162581.7	6628	2065aa	Protein coding	-	E0CZE3	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-207	ENSMUST00000159559.7	6584	2137aa	Protein coding	-	E0CYT1	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-204	ENSMUST00000110096.7	6534	2092aa	Protein coding	-	E9QMI9	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-210	ENSMUST00000162403.7	6147	1991aa	Protein coding	-	E9Q6Q2	TSL:5 GENCODE basic APPRIS ALT2
Wnk2-209	ENSMUST00000160087.7	4360	1332aa	Protein coding	-	A0A0R4J1Z1	CDS 5' incomplete TSL:1
Wnk2-206	ENSMUST00000159196.7	3392	708aa	Protein coding	-	F6SRP4	CDS 5' incomplete TSL:1
Wnk2-208	ENSMUST00000159633.1	682	138aa	Nonsense mediated decay	-	F7BQG5	CDS 5' incomplete TSL:3

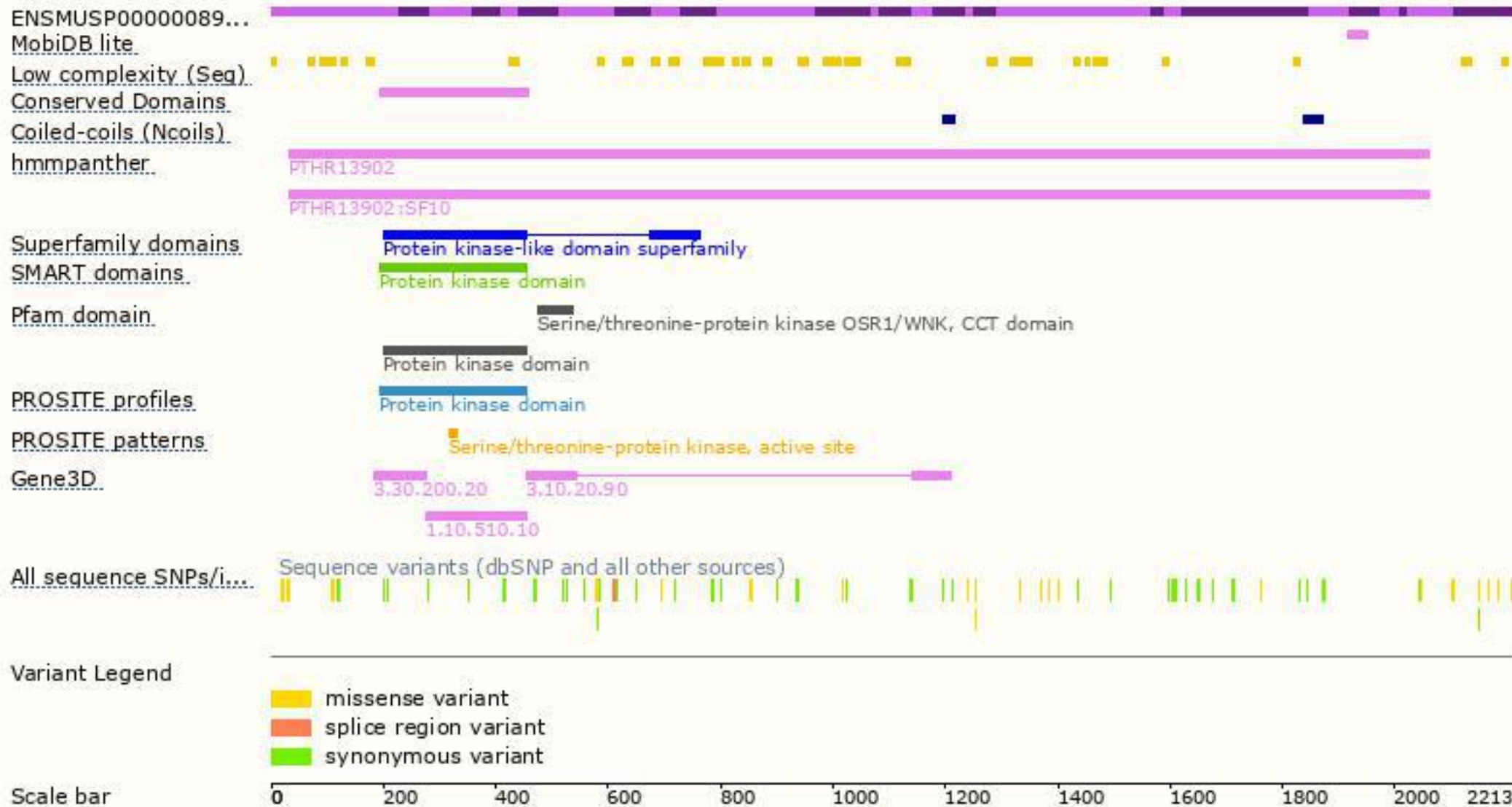
The strategy is based on the design of *Wnk2-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

