

Wnt6 Cas9-KO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Wnt6

Project type

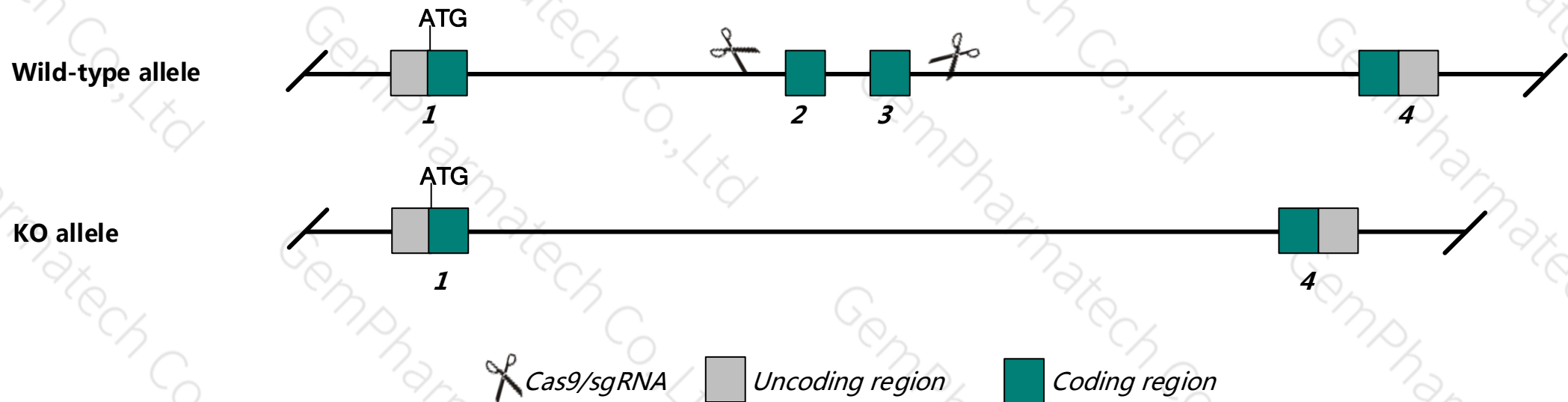
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wnt6* gene. The schematic diagram is as follows:



Technical routes

- The *Wnt6* gene has 2 transcripts. According to the structure of *Wnt6* gene, exon2-exon3 of *Wnt6*-201 (ENSMUST00000006716.7) transcript is recommended as the knockout region. The region contains 556bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wnt6* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9, sgRNA 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.

- According to the existing MGI data , Mice homozygous for a knock-out allele exhibit impaired decidualization with reduced uterine stromal cell proliferation.
- The *Wnt6* gene is located on the Chr1. 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.

Gene information (NCBI)

Wnt6 wingless-type MMTV integration site family, member 6 [*Mus musculus* (house mouse)]

Gene ID: 22420, updated on 28-Aug-2018

Summary

Official Symbol Wnt6 provided by [MGI](#)

Official Full Name wingless-type MMTV integration site family, member 6 provided by [MGI](#)

Primary source [MGI:MGI:98960](#)

See related [Ensembl:ENSMUSG00000033227](#) [Vega:OTTMUSG00000048253](#)

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 Wnt-6; AA409270

Expression Biased expression in ovary adult (RPKM 26.4), limb E14.5 (RPKM 9.9) and 8 other tissues [See more](#)

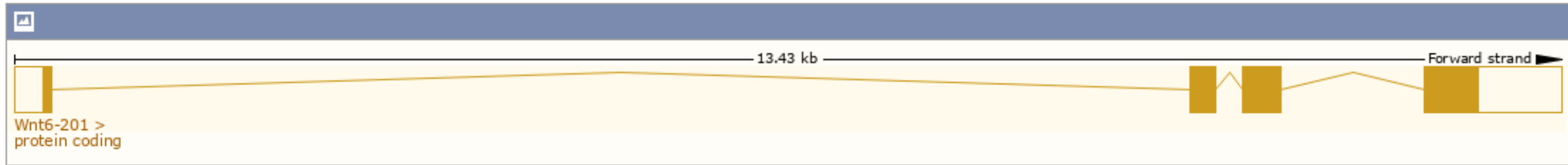
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

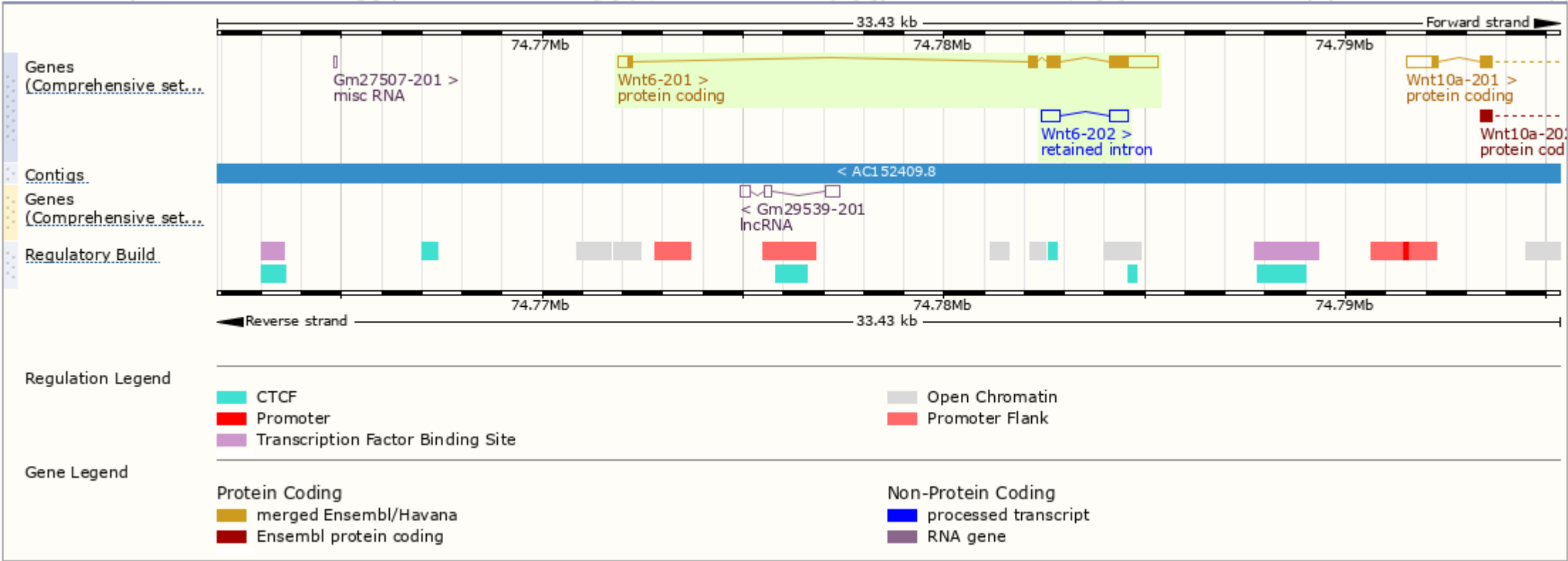
The gene has 2 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Wnt6-201	ENSMUST00000006716.7	2071	364aa	Protein coding	CCDS15056	P22727	NM_009526 NP_033552	TSL:1	GENCODE basic APPRIS P1
Wnt6-202	ENSMUST00000189544.1	920	No protein	Retained intron	-	-	-	TSL:2	

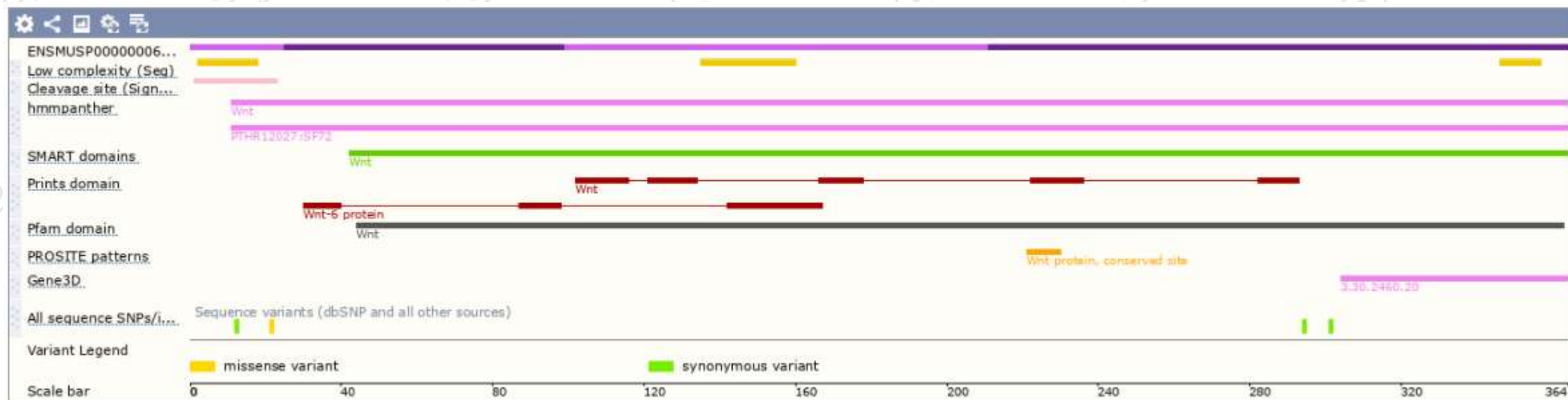
The strategy is based on the design of Wnt6-201 transcript,The transcription is shown below



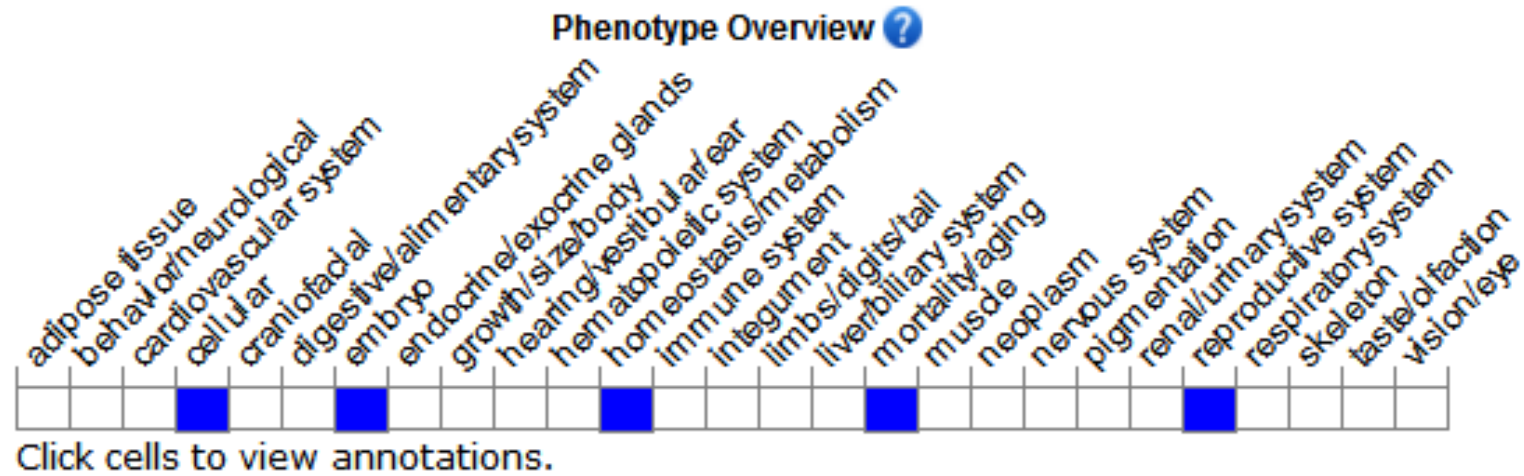
Genomic location distribution



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 knock-out allele exhibit impaired decidualization with reduced uterine stromal cell proliferation.

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