Wnt6 Cas9-CKO *Strategy*

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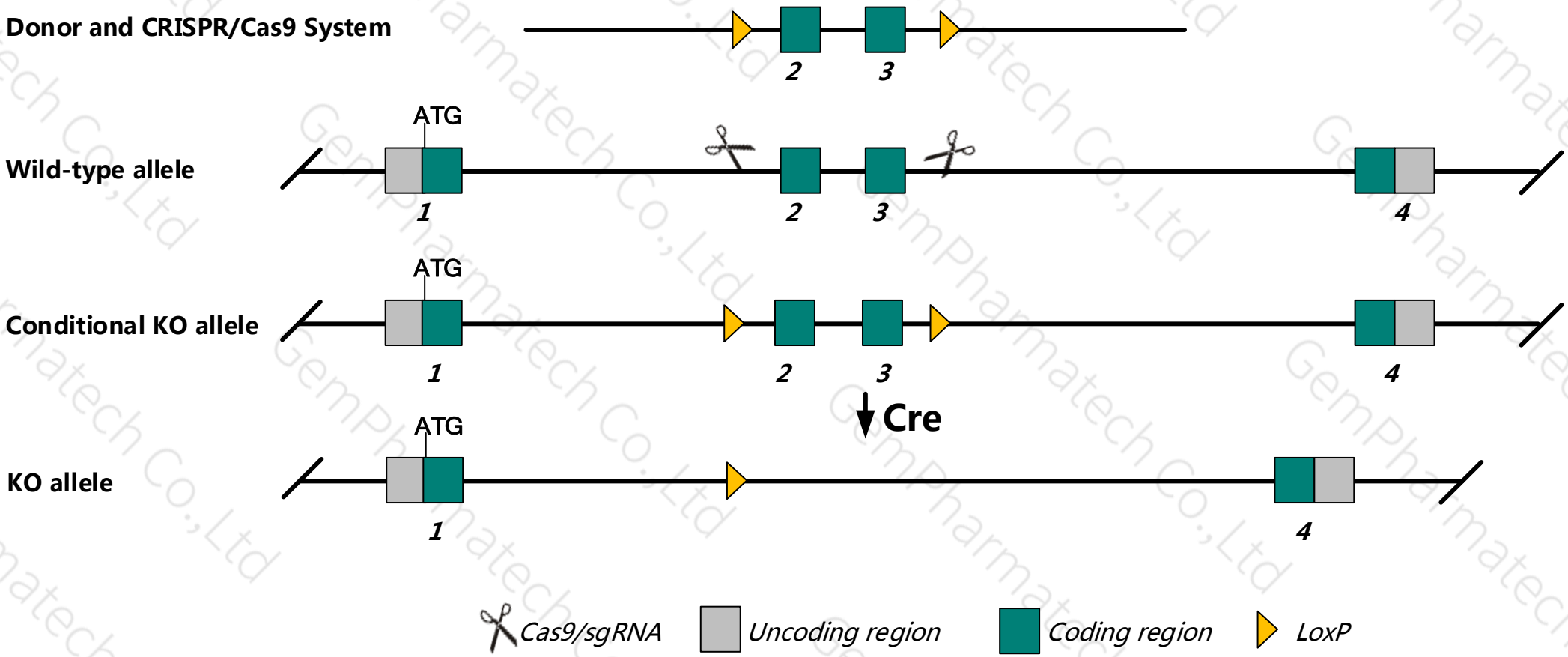
Project Overview

Project Name	***Wnt6***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional 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, 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 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 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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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

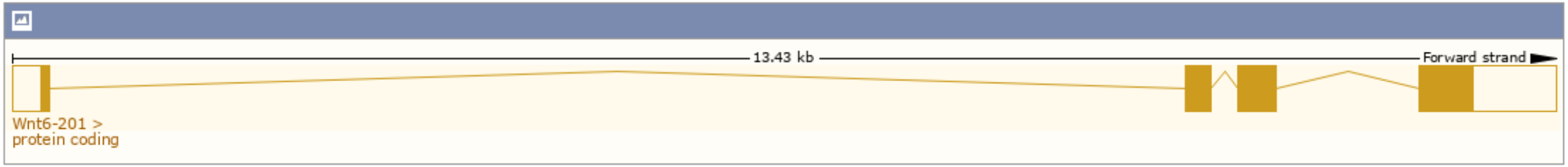
Transcript information（Ensembl）

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

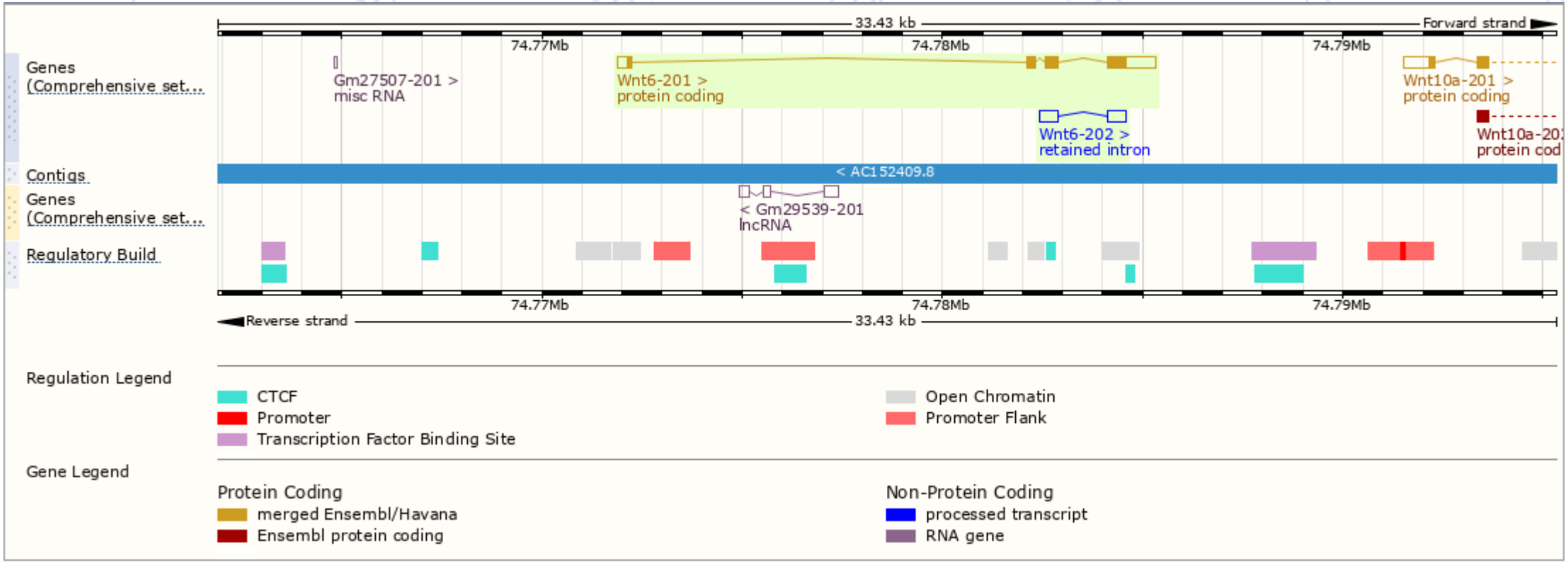
Show/hide columns (1 hidden) Filter

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

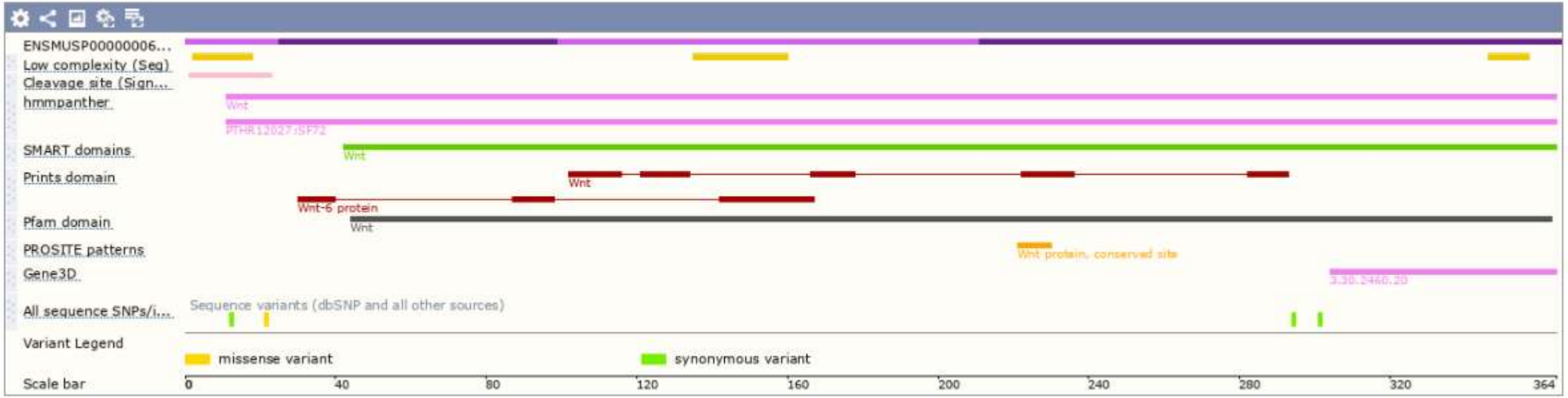
The strategy is based on the design of *Wnt6*-201 transcript,The transcription is shown below



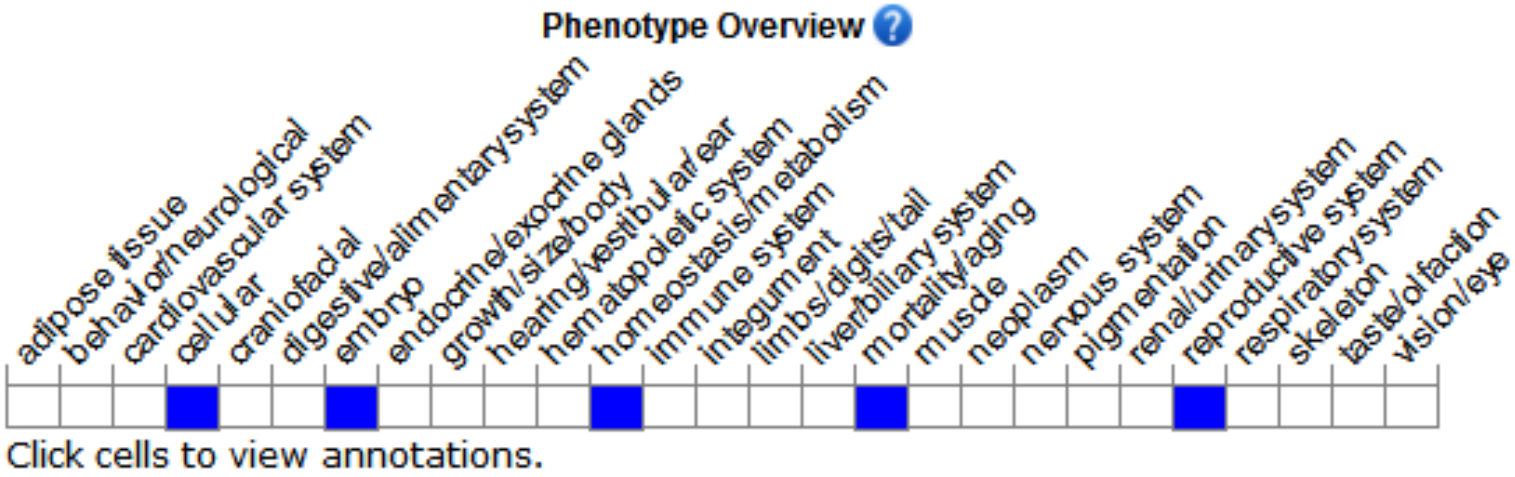
Genomic location distribution



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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