Wdpcp Cas9-KO Strategy

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Reviewer: Huan Fan

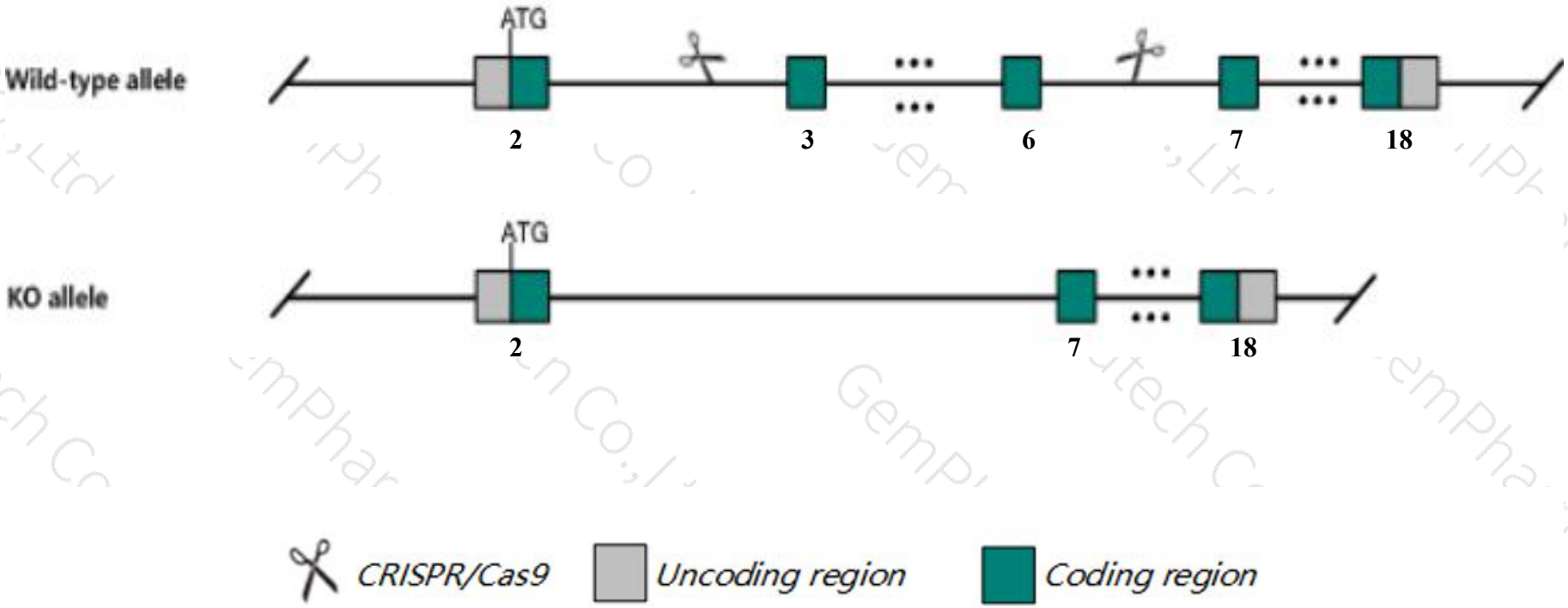
Design Date: 2020-4-23

Project Overview

Project Name	***Wdpcp***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Wdpcp* gene has 6 transcripts. According to the structure of *Wdpcp* gene, exon3-exon6 of *Wdpcp-201* (ENSMUST00000020568.9) transcript is recommended as the knockout region.The region contains 230bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Wdpcp* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,mice homozygous for a null mutation display ciliogenesis defects, anophthalmia, cysts in multiple tissues, central polydactyly, duplex kidney, and septation defects in the outflow tract and cloaca.
- The *Wdpcp* 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Wdpcp WD repeat containing planar cell polarity effector [Mus musculus (house mouse)]

Gene ID: 216560, updated on 13-Mar-2020

Summary

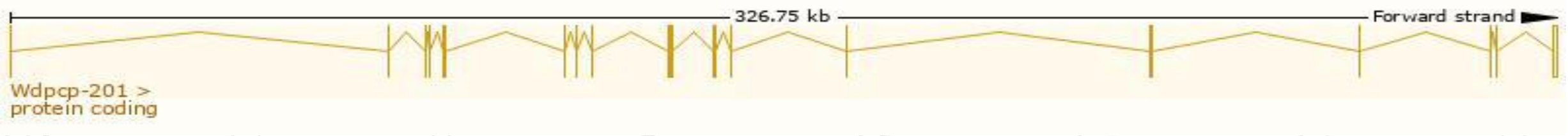
Official Symbol	Wdpcp provided by MGI
Official Full Name	WD repeat containing planar cell polarity effector provided by MGI
Primary source	MGI:MGI:2144467
See related	Ensembl:ENSMUSG00000020319
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV249152, Frtz, homolog-13
Expression	Broad expression in cerebellum adult (RPKM 9.9), testis adult (RPKM 7.2) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

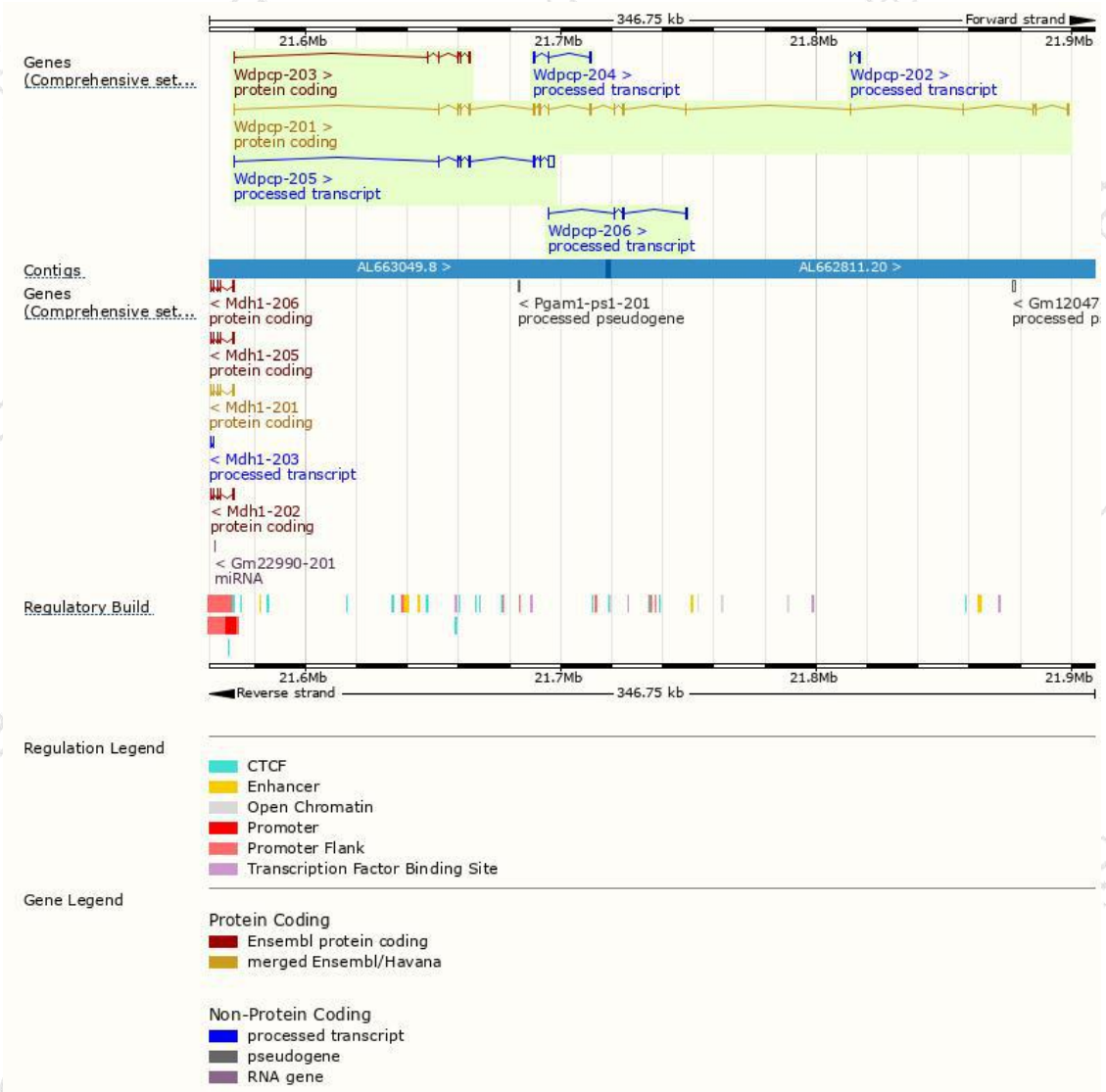
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdpcp-201	ENSMUST00000020568.9	2792	722aa	Protein coding	CCDS24467	B1ATJ7 Q8C456	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Wdpcp-203	ENSMUST00000131135.2	505	97aa	Protein coding	-	B1ATQ4	CDS 3' incomplete TSL:3
Wdpcp-205	ENSMUST00000149757.1	3020	No protein	Processed transcript	-	-	TSL:1
Wdpcp-206	ENSMUST00000156624.1	963	No protein	Processed transcript	-	-	TSL:1
Wdpcp-204	ENSMUST00000143608.1	741	No protein	Processed transcript	-	-	TSL:2
Wdpcp-202	ENSMUST00000128794.1	480	No protein	Processed transcript	-	-	TSL:3

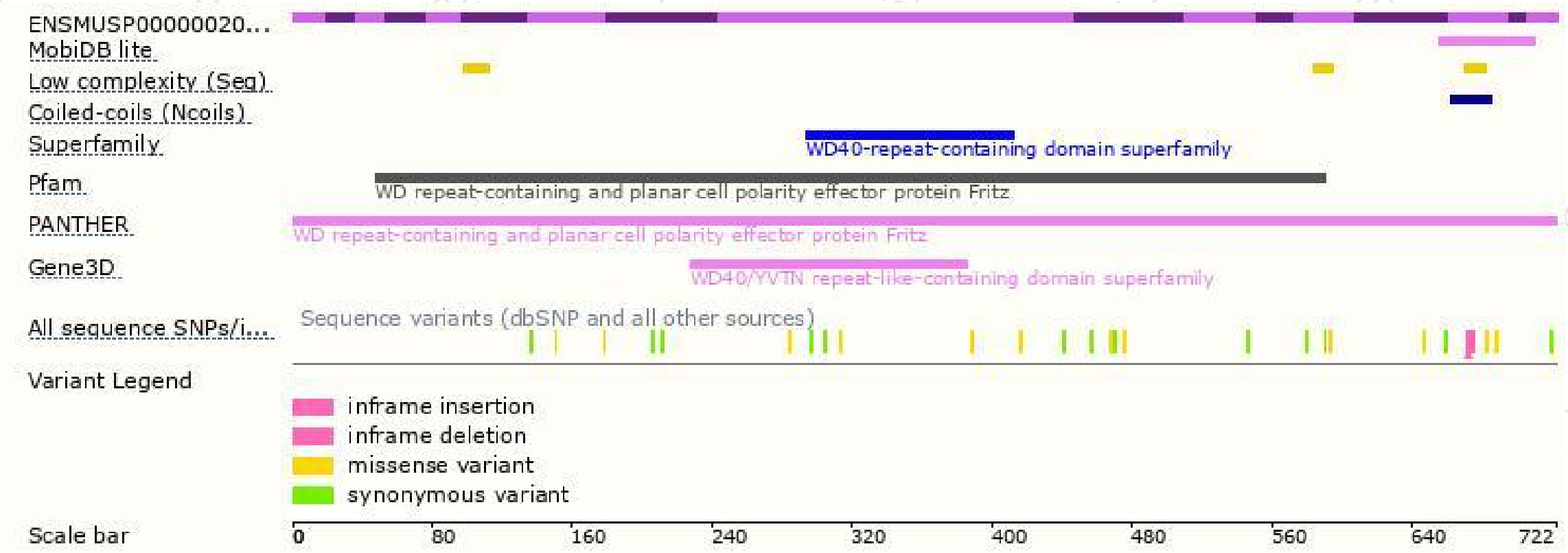
The strategy is based on the design of *Wdpcp-201* transcript,the transcription is shown below:



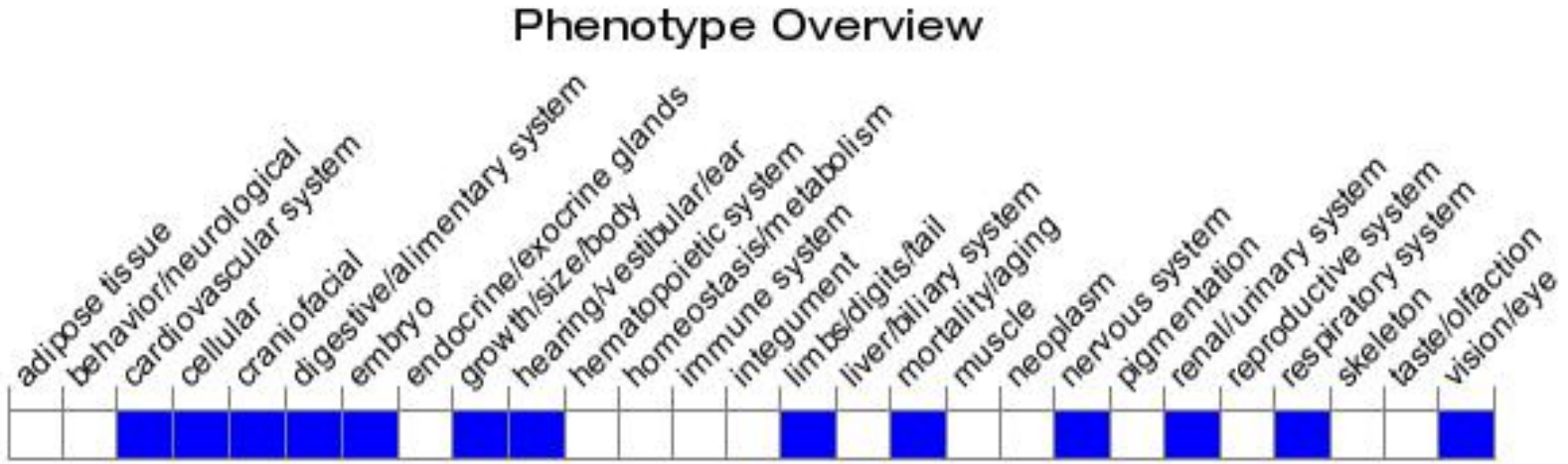
Genomic location distribution



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/).

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

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