Pgghg Cas9-KO Strategy

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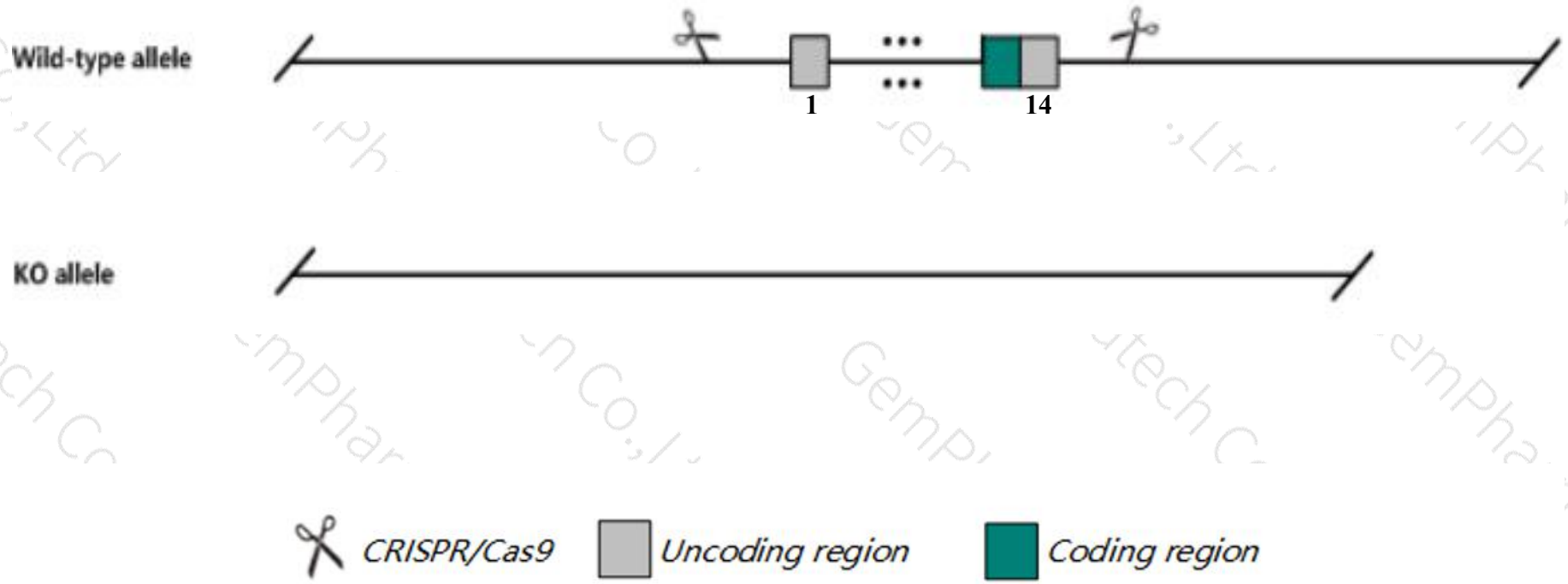
Design Date: 2020-7-24

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Pgghg* gene has 6 transcripts. According to the structure of *Pgghg* gene, exon1-exon14 of *Pgghg-201*(ENSMUST00000079403.10) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

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

Notice

➢ The *Pgghg* gene is located on the Chr7. 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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Pgghg protein glucosylgalactosylhydroxylysine glucosidase [Mus musculus (house mouse)]

Gene ID: 212974, updated on 20-Mar-2020

Summary

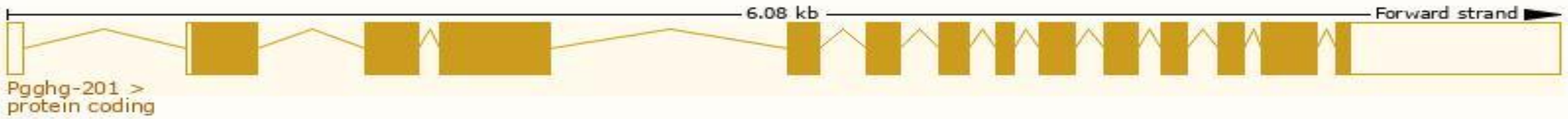
Official Symbol	Pgghg provided by MGI
Official Full Name	protein glucosylgalactosylhydroxylysine glucosidase provided byMGI
Primary source	MGI:MGI:2444047
See related	Ensembl:ENSMUSG00000062031
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730511L01Rik, Athl1, BC023151
Expression	Ubiquitous expression in ovary adult (RPKM 26.5), adrenal adult (RPKM 24.2) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

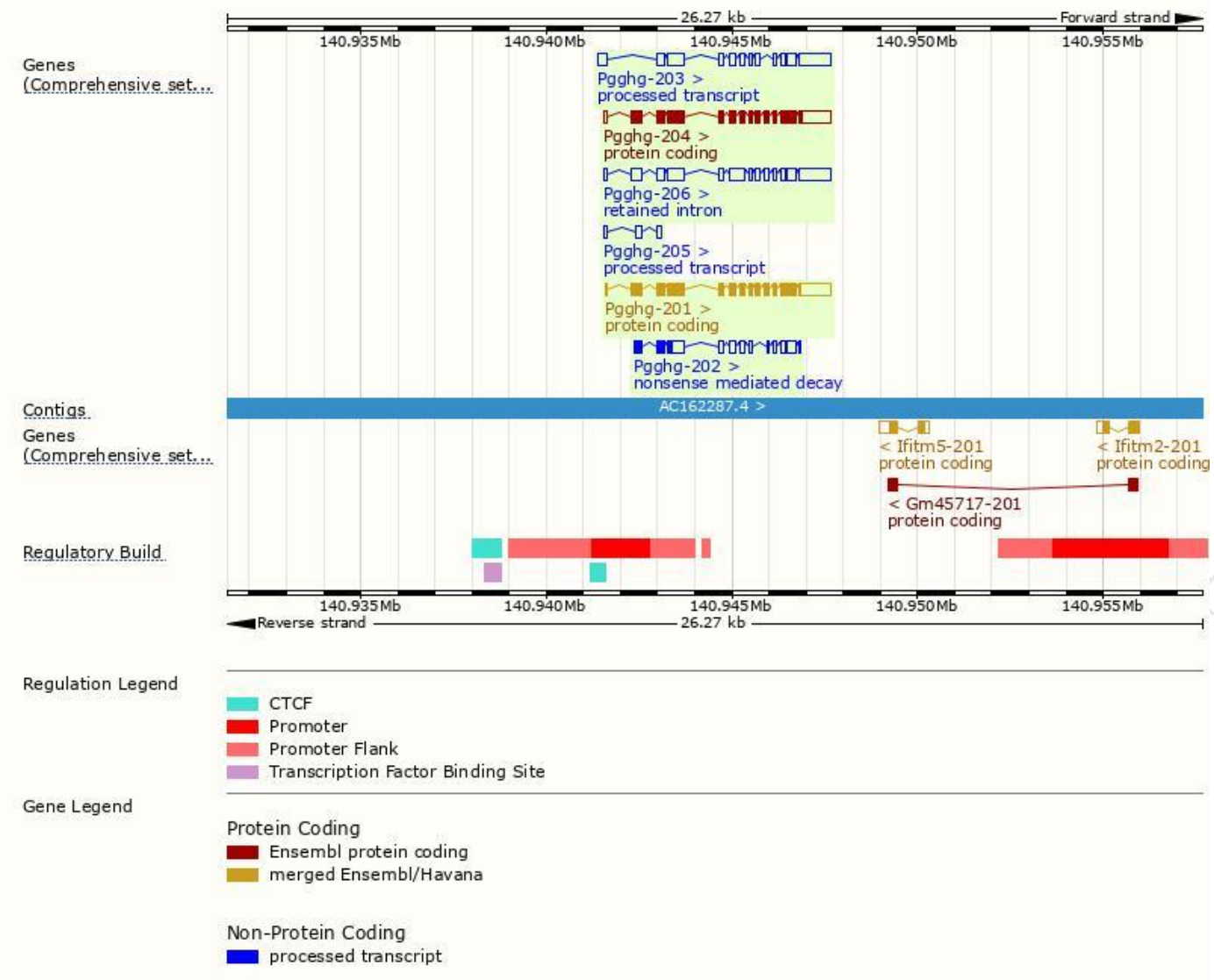
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pgghg-201	ENSMUST00000079403.10	2981	690aa	Protein coding	CCDS21992	Q8BP56	TSL:1 GENCODE basic APPRIS P2
Pgghg-204	ENSMUST00000164580.2	3001	698aa	Protein coding	-	F6QM56 Q8BP56	TSL:5 GENCODE basic APPRIS ALT2
Pgghg-202	ENSMUST00000163094.8	1835	177aa	Nonsense mediated decay	-	E9QA85	CDS 5' incomplete TSL:5
Pgghg-203	ENSMUST00000164337.7	2748	No protein	Processed transcript	-	-	TSL:1
Pgghg-205	ENSMUST00000168084.1	362	No protein	Processed transcript	-	-	TSL:3
Pgghg-206	ENSMUST00000169736.7	3145	No protein	Retained intron	-	-	TSL:2

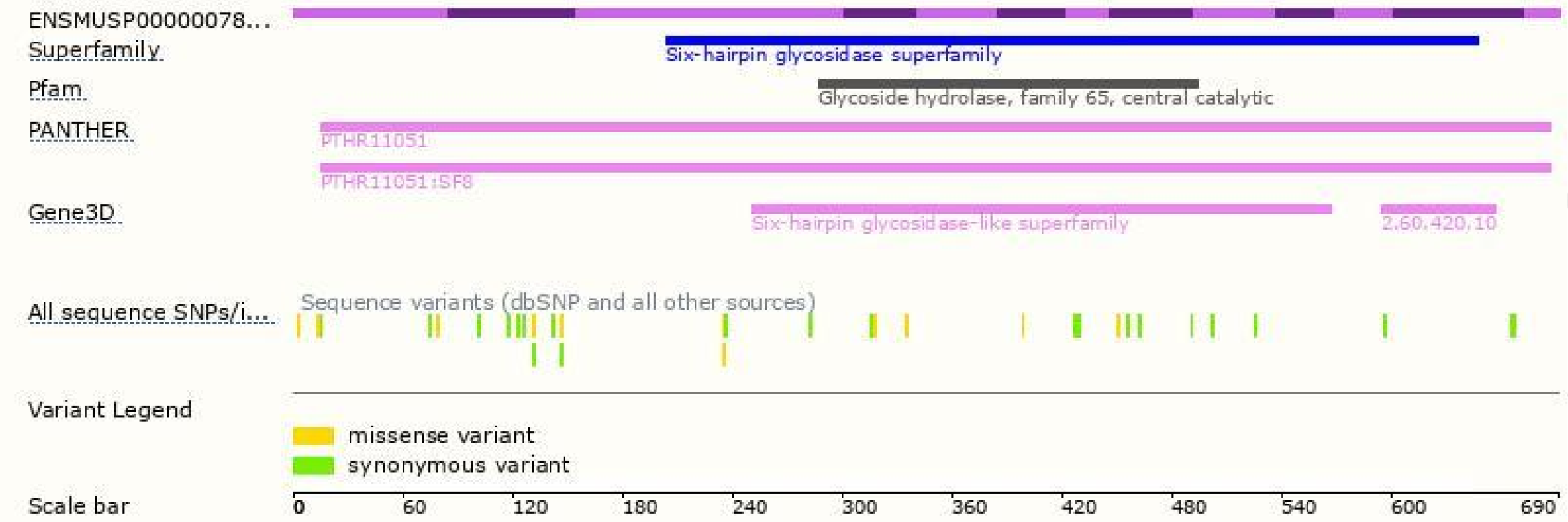
The strategy is based on the design of *Pgghg-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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