Rhcg Cas9-KO Strategy

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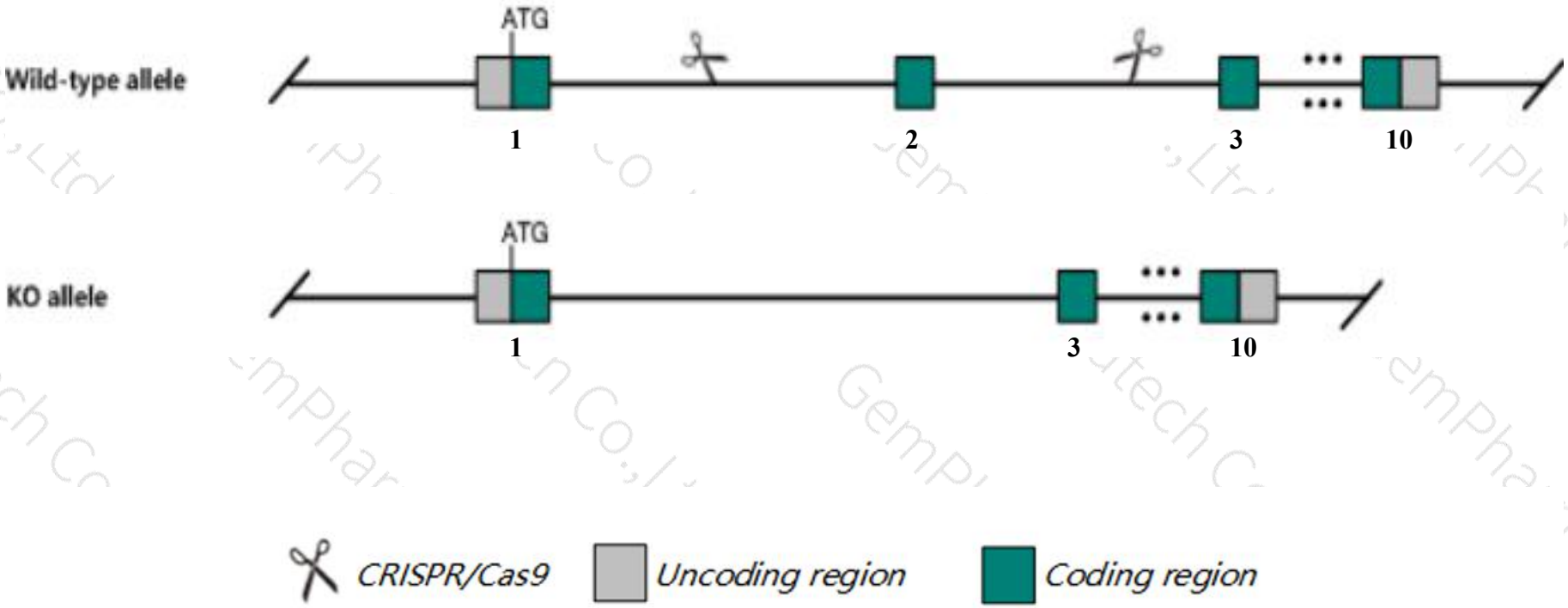
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Rhcg* gene has 3 transcripts. According to the structure of *Rhcg* gene, exon2 of *Rhcg-201* (ENSMUST00000032766.4) transcript is recommended as the knockout region.The region contains 187bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,mice homozygous for a null allele have reduced ability to excrete ammonium in their urine and have reduced male fertility.
- The *Rhcg* 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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Rhcg Rhesus blood group-associated C glycoprotein [*Mus musculus* (house mouse)]

Gene ID: 56315, updated on 13-Mar-2020

Summary

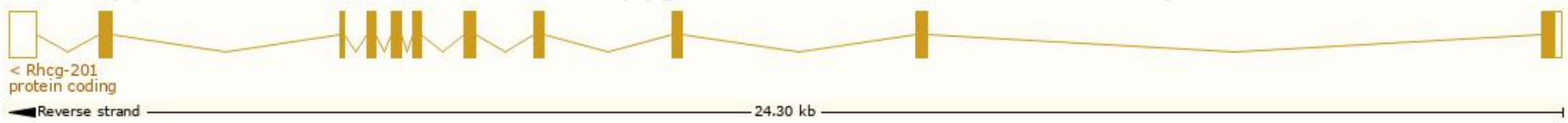
Official Symbol	Rhcg provided by MGI
Official Full Name	Rhesus blood group-associated C glycoprotein provided by MGI
Primary source	MGI:MGI:1888517
See related	Ensembl:ENSMUSG00000030549
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BB065800
Expression	Biased expression in genital fat pad adult (RPKM 120.3), kidney adult (RPKM 68.3) and 1 other tissue See more
Orthologs	human all

Transcript information（Ensembl）

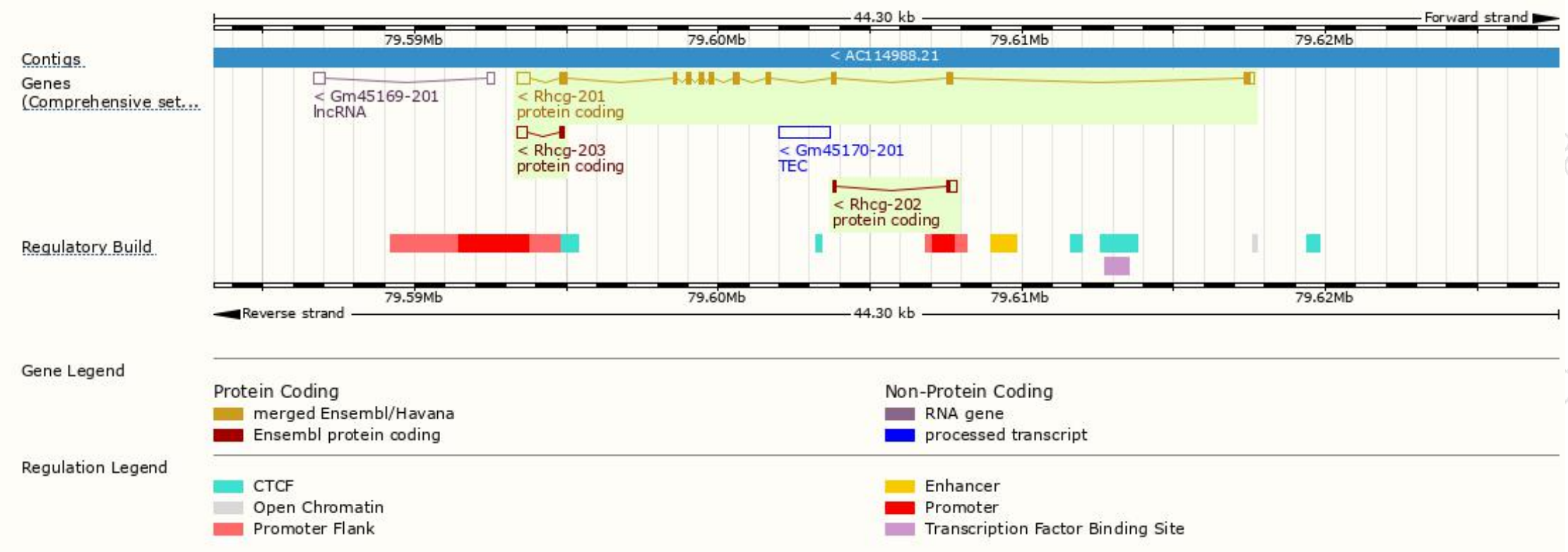
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rhcg-201	ENSMUST00000032766.4	2090	498aa	Protein coding	CCDS21383	Q9QXP0	TSL:1 GENCODE basic APPRIS P1
Rhcg-203	ENSMUST00000172788.2	457	41aa	Protein coding	-	G3UYU7	CDS 5' incomplete TSL:5
Rhcg-202	ENSMUST00000161084.2	454	60aa	Protein coding	-	G3UYA4	CDS 3' incomplete TSL:2

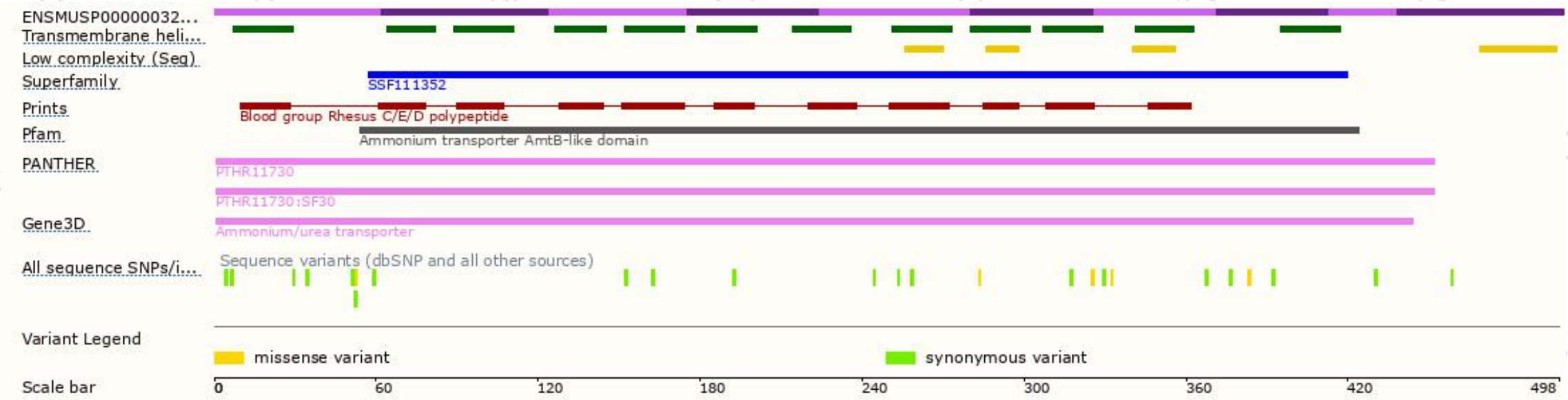
The strategy is based on the design of *Rhcg-201* transcript, the transcription is shown below



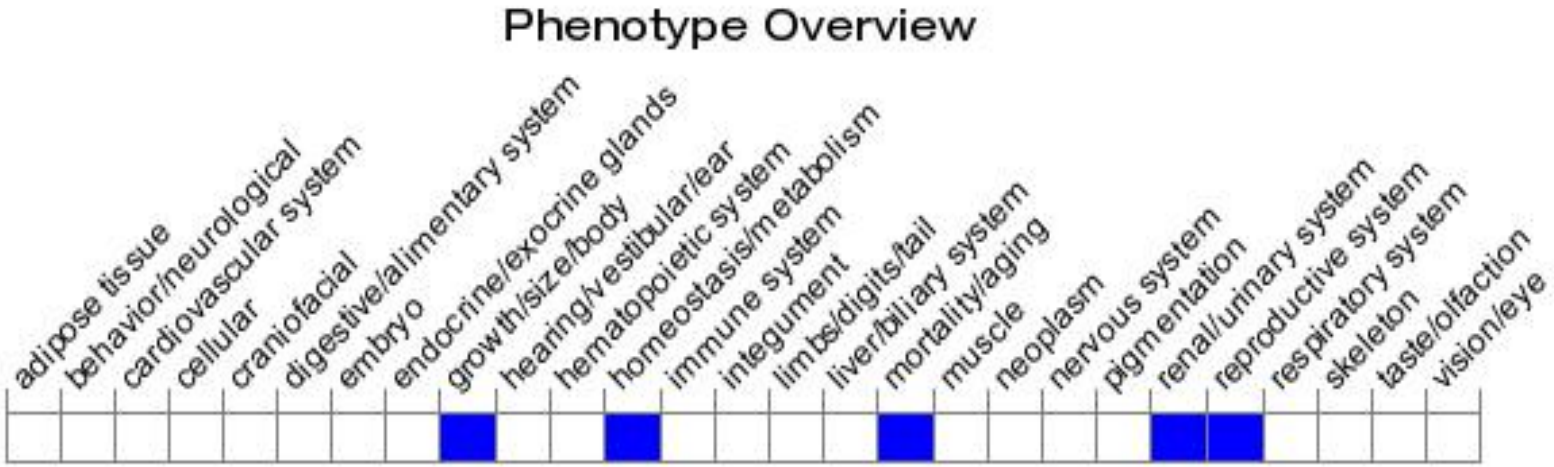
Genomic location distribution



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 null allele have reduced ability to excrete ammonium in their urine and have reduced male fertility.

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

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