Pigk Cas9-KO Strategy

Designer: Daohua Xu

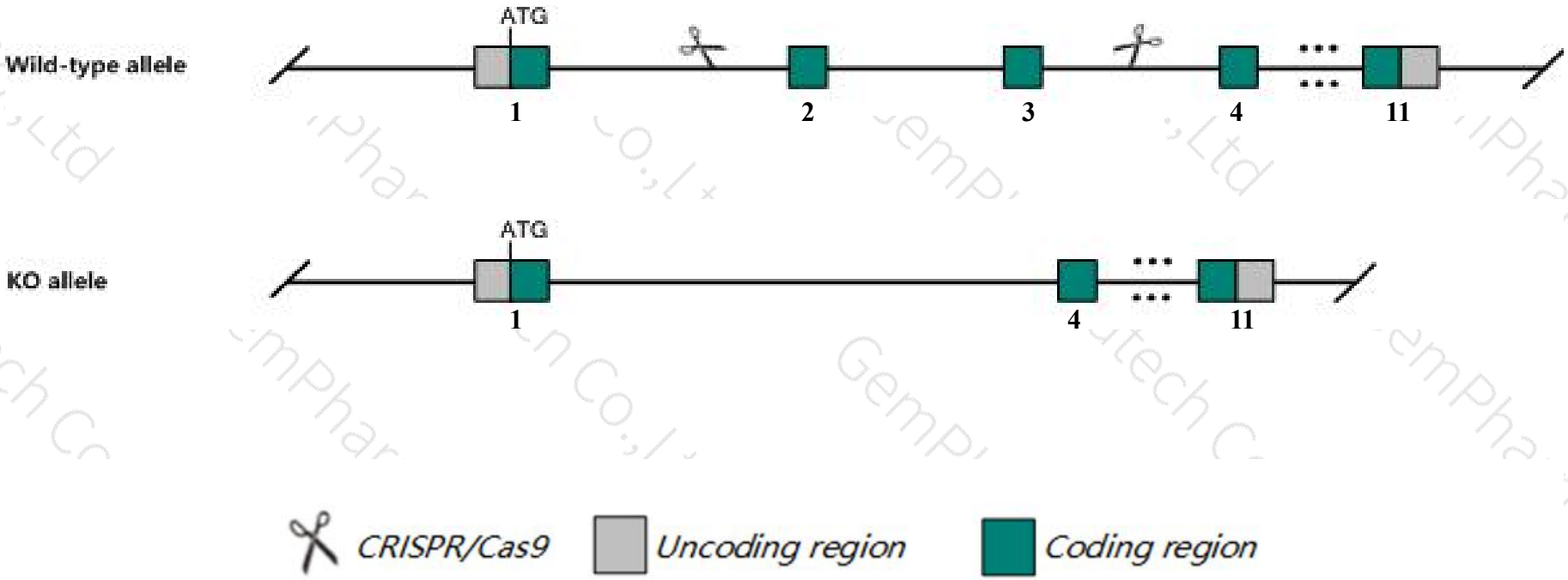
Design Date: 2019-8-6

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Pigk* gene has 9 transcripts. According to the structure of *Pigk* gene, exon2-exon3 of *Pigk-204* (ENSMUST00000159899.7) transcript is recommended as the knockout region.The region contains 146bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

➢ The *Pigk* gene is located on the Chr3. 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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Pigk phosphatidylinositol glycan anchor biosynthesis, class K [Mus musculus (house mouse)]

Gene ID: 329777, updated on 31-Jan-2019

Summary

Official Symbol	Pigk provided by MGI
Official Full Name	phosphatidylinositol glycan anchor biosynthesis, class K provided by MGI
Primary source	MGI:MGI:1913863
See related	Ensembl:ENSMUSG00000039047
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	3000001O05Rik, Gm38470, PIG-K
Expression	Ubiquitous expression in cerebellum adult (RPKM 5.3), frontal lobe adult (RPKM 3.5) and 28 other tissues See more
Orthologs	human all

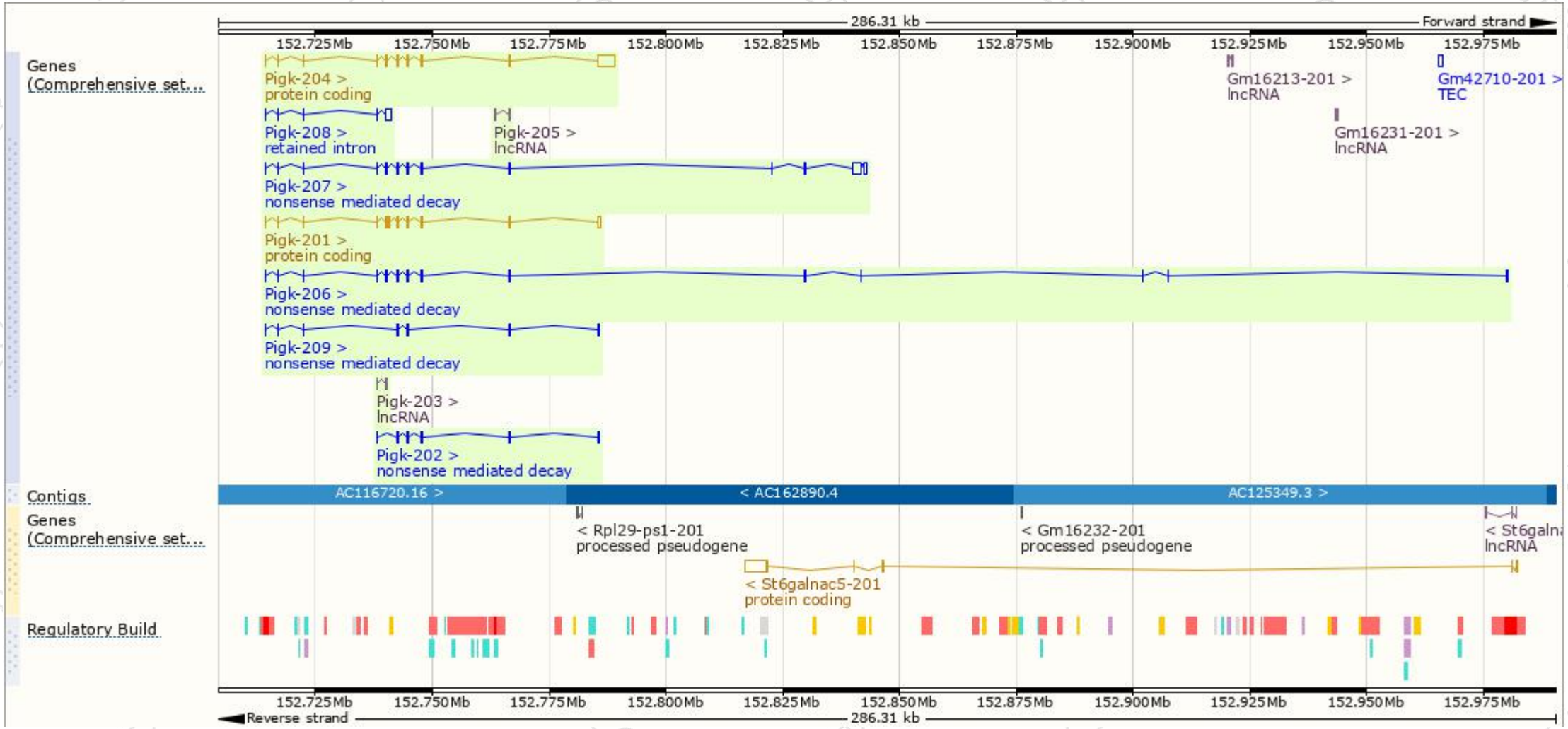
Transcript information（Ensembl）

The gene has 9 transcripts,all transcripts are shown below:

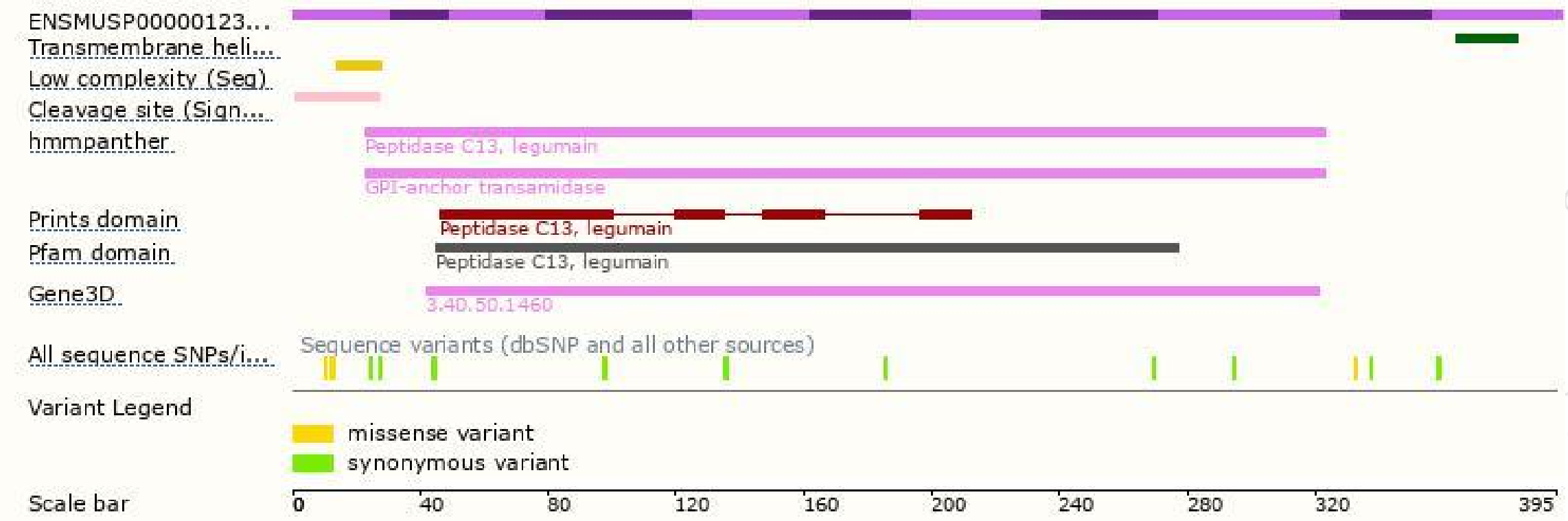
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pigk-204	ENSMUST00000159899.7	4737	395aa	Protein coding	CCDS17919	Q9CXY9	TSL:1 GENCODE basic APPRIS P1
Pigk-201	ENSMUST00000045029.14	1761	442aa	Protein coding	CCDS17920	Q8BL63	TSL:1 GENCODE basic
Pigk-207	ENSMUST00000162642.7	3641	364aa	Nonsense mediated decay	-	Q8BXX3	TSL:1
Pigk-206	ENSMUST00000161596.5	2297	362aa	Nonsense mediated decay	-	E9Q421	TSL:1
Pigk-202	ENSMUST00000051510.8	1097	33aa	Nonsense mediated decay	-	A0A0G2JEE7	CDS 5' incomplete TSL:1
Pigk-209	ENSMUST00000200224.4	920	92aa	Nonsense mediated decay	-	A0A0G2JEZ9	TSL:3
Pigk-208	ENSMUST00000162835.7	1440	No protein	Retained intron	-	-	TSL:1
Pigk-205	ENSMUST00000160651.1	415	No protein	lncRNA	-	-	TSL:3
Pigk-203	ENSMUST00000159045.1	256	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Pigk-204* 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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