Rasal1 Cas9-KO Strategy

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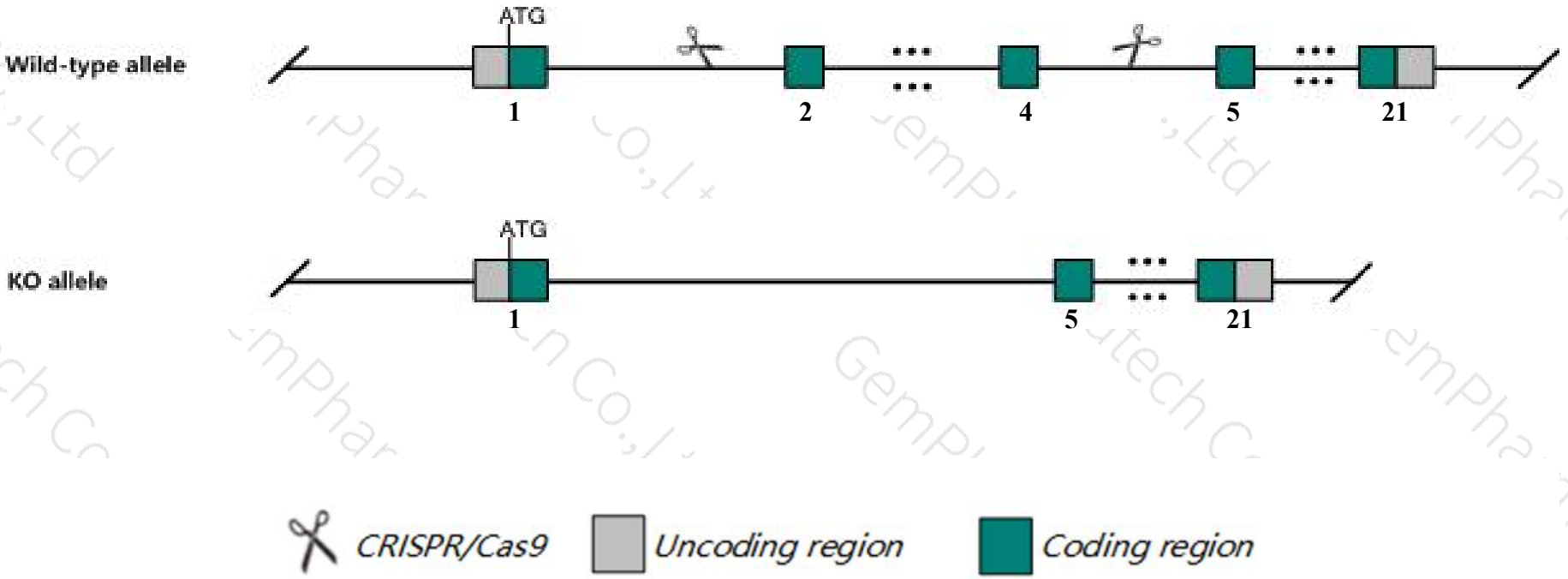
Design Date: 2020-2-20

Project Overview

Project Name	***Rasal1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rasal1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Rasal1* gene has 5 transcripts. According to the structure of *Rasal1* gene, exon2-exon4 of *Rasal1-205* (ENSMUST00000156722.1) transcript is recommended as the knockout region.The region contains 233bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Rasal1* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

➢ The *Rasal1* gene is located on the Chr5. 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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Rasal1 RAS protein activator like 1 (GAP1 like) [Mus musculus (house mouse)]

Gene ID: 19415, updated on 31-Jan-2019

Summary

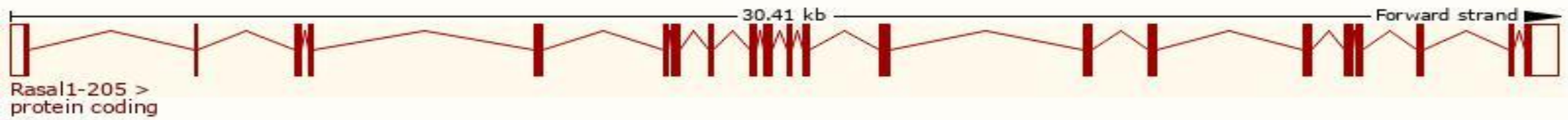
Official Symbol	Rasal1 provided by MGI
Official Full Name	RAS protein activator like 1 (GAP1 like) provided by MGI
Primary source	MGI:MGI:1330842
See related	Ensembl:ENSMUSG00000029602
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MRASAL
Expression	Biased expression in cortex adult (RPKM 12.7), frontal lobe adult (RPKM 9.6) and 12 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

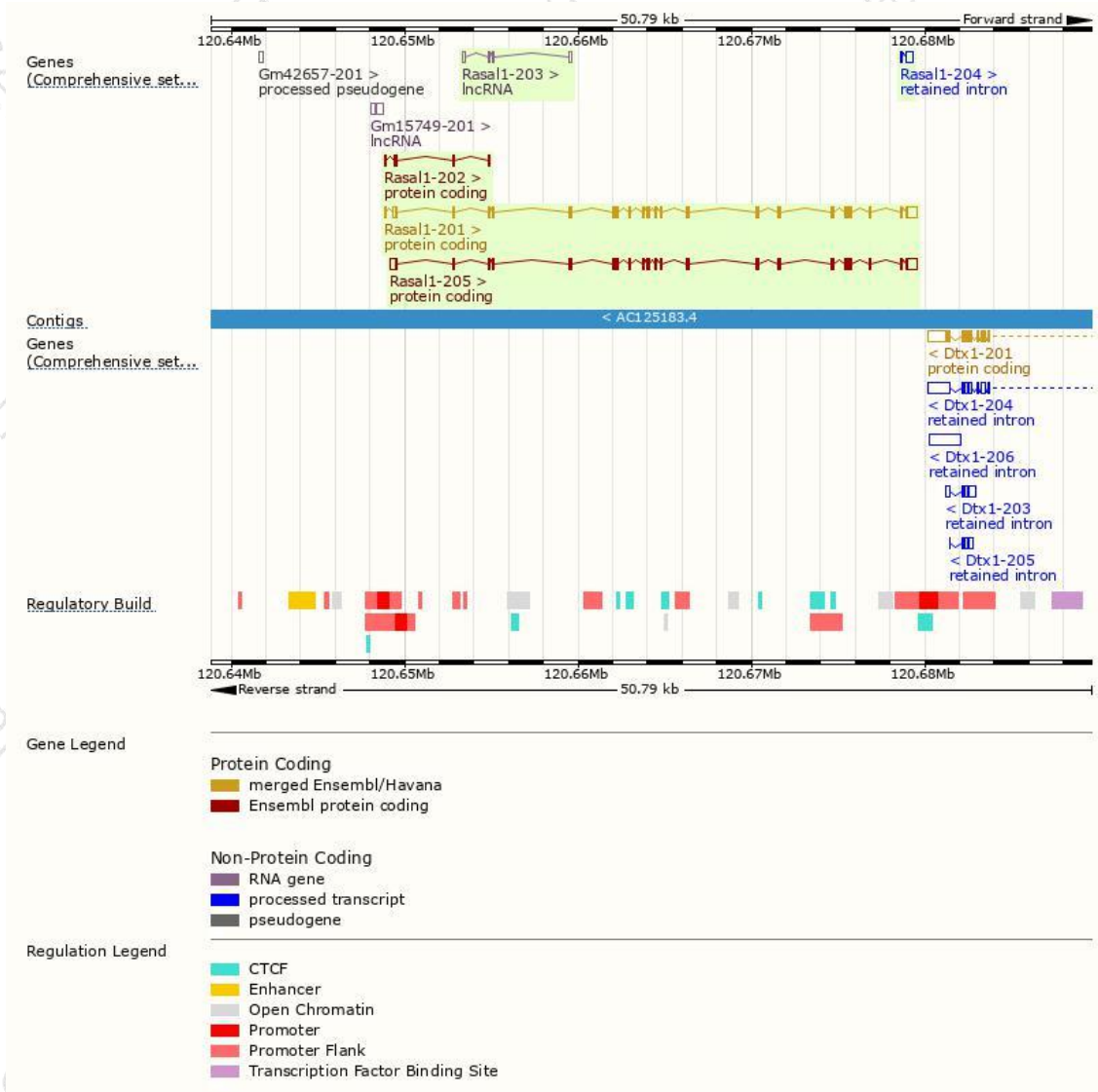
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rasal1-205	ENSMUST00000156722.1	3251	799aa	Protein coding	CCDS19623	Q9Z268	TSL:1 GENCODE basic APPRIS P1
Rasal1-201	ENSMUST00000031606.9	3212	799aa	Protein coding	CCDS19623	Q9Z268	TSL:1 GENCODE basic APPRIS P1
Rasal1-202	ENSMUST00000125804.7	400	73aa	Protein coding	-	D3Z7V8	CDS 3' incomplete TSL:2
Rasal1-204	ENSMUST00000154759.1	486	No protein	Retained intron	-	-	TSL:2
Rasal1-203	ENSMUST00000148695.1	465	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Rasal1-205* 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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