

# ***Rasgrp3 Cas9-KO Strategy***

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Date: 2020-02-14

# Project Overview

**Project Name**

*Rasgrp3*

**Project type**

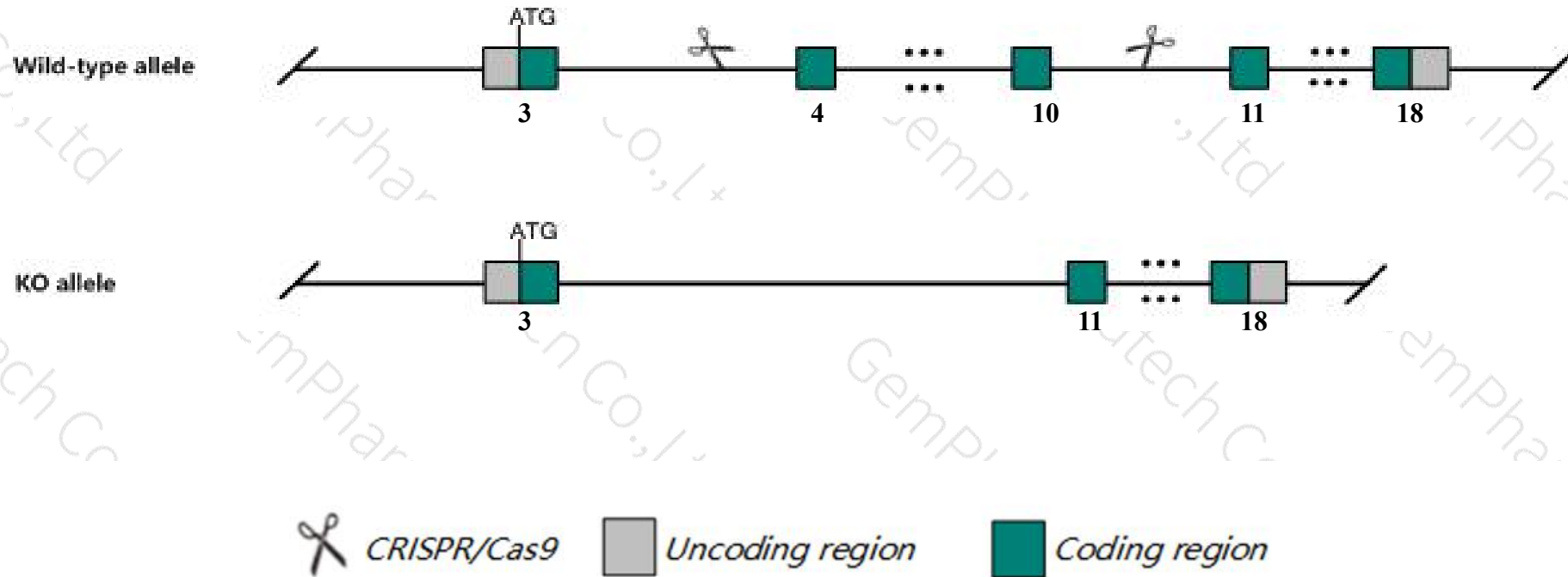
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rasgrp3* gene. The schematic diagram is as follows:



- The *Rasgrp3* gene has 7 transcripts. According to the structure of *Rasgrp3* gene, exon4-exon10 of *Rasgrp3-201* (ENSMUST00000095204.5) transcript is recommended as the knockout region. The region contains 1013bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rasgrp3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutant mice are viable and fertile with no obvious abnormalities in the kidneys or vasculature.
- Transcript *Rasgrp3*-204&205&207 may not be affected.
- The effect on transcript *Rasgrp3*-203&206 is unknown.
- The *Rasgrp3* gene is located on the Chr17. 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)

## Rasgrp3 RAS, guanyl releasing protein 3 [ *Mus musculus* (house mouse) ]

Gene ID: 240168, updated on 24-Oct-2019

Summary

**Official Symbol** Rasgrp3 provided by [MGI](#)

**Official Full Name** RAS, guanyl releasing protein 3 provided by [MGI](#)

**Primary source** [MGI:MGI:3028579](#)

**See related** [Ensembl:ENSMUSG00000071042](#)

**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** Gm327; BC066069

**Expression** Ubiquitous expression in lung adult (RPKM 6.2), heart adult (RPKM 3.5) and 24 other tissues [See more](#)

**Orthologs** [human](#) [all](#)

Genomic context

**Location:** 17; 17 E2 See Rasgrp3 in [Genome Data Viewer](#)

**Exon count:** 19

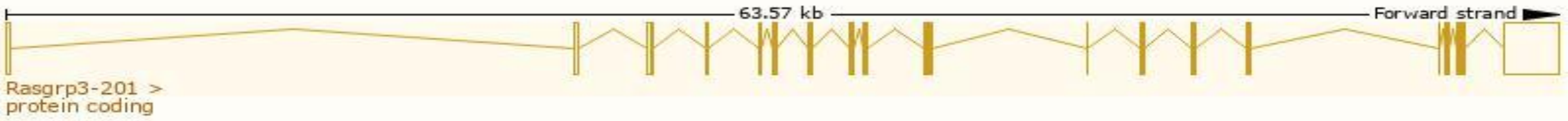
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	17	NC_000083.6 (75435870..75529054)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	17	NC_000083.5 (75835245..75928394)

# Transcript information (Ensembl)

The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rasgrp3-201	<a href="#">ENSMUST00000095204.5</a>	4720	<a href="#">691aa</a>	Protein coding	<a href="#">CCDS37695</a>	<a href="#">Q6NZH9</a>	TSL:1 GENCODE basic APPRIS P1
Rasgrp3-202	<a href="#">ENSMUST00000164192.8</a>	4655	<a href="#">691aa</a>	Protein coding	<a href="#">CCDS37695</a>	<a href="#">Q6NZH9</a>	TSL:1 GENCODE basic APPRIS P1
Rasgrp3-203	<a href="#">ENSMUST00000234011.1</a>	518	<a href="#">69aa</a>	Protein coding	-	-	CDS 3' incomplete
Rasgrp3-206	<a href="#">ENSMUST00000234660.1</a>	390	<a href="#">56aa</a>	Protein coding	-	-	CDS 3' incomplete
Rasgrp3-205	<a href="#">ENSMUST00000234644.1</a>	565	No protein	lncRNA	-	-	
Rasgrp3-207	<a href="#">ENSMUST00000235103.1</a>	439	No protein	lncRNA	-	-	
Rasgrp3-204	<a href="#">ENSMUST00000234640.1</a>	391	No protein	lncRNA	-	-	

The strategy is based on the design of *Rasgrp3-201* transcript,The transcription is shown below



# Genomic location distribution

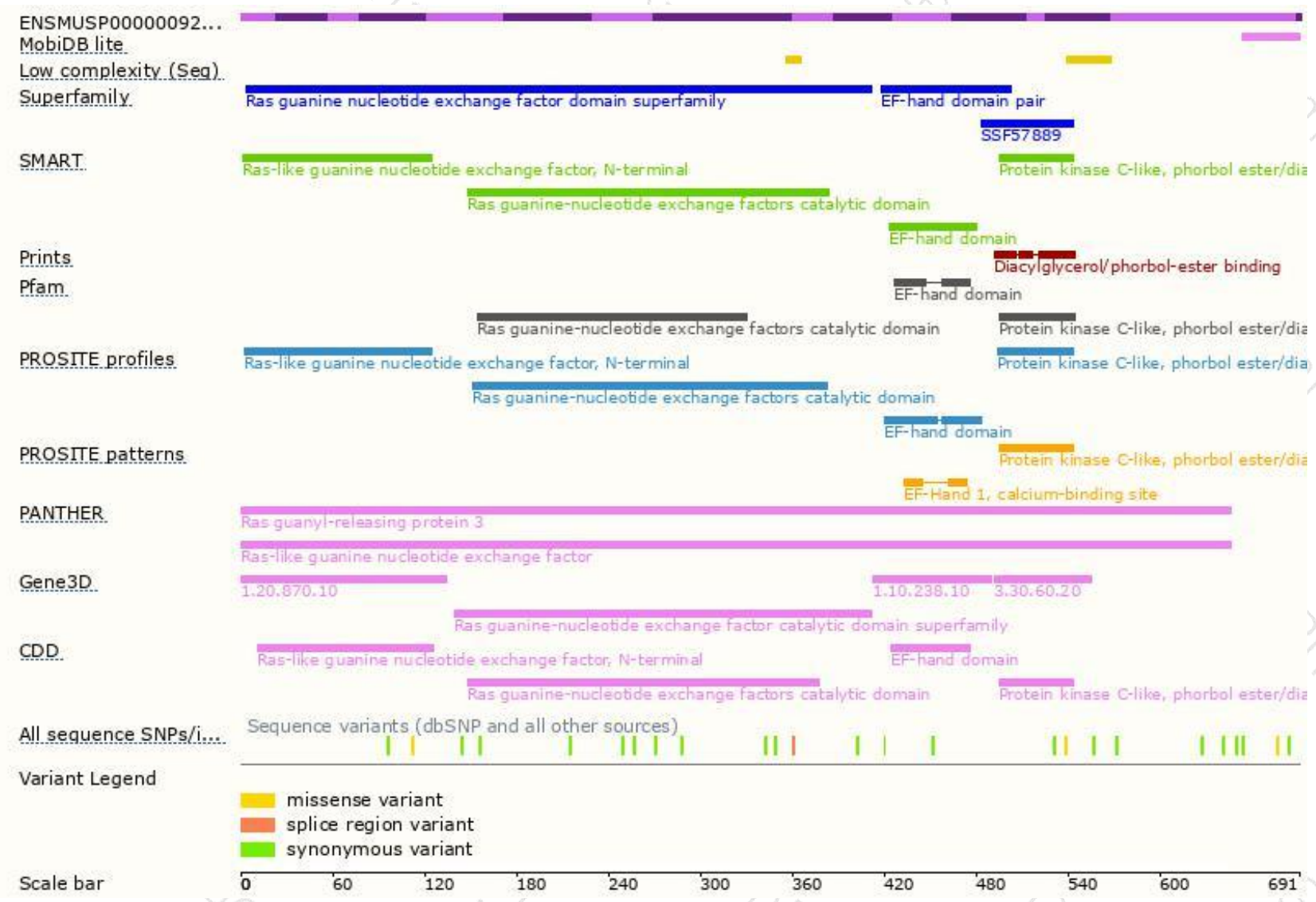




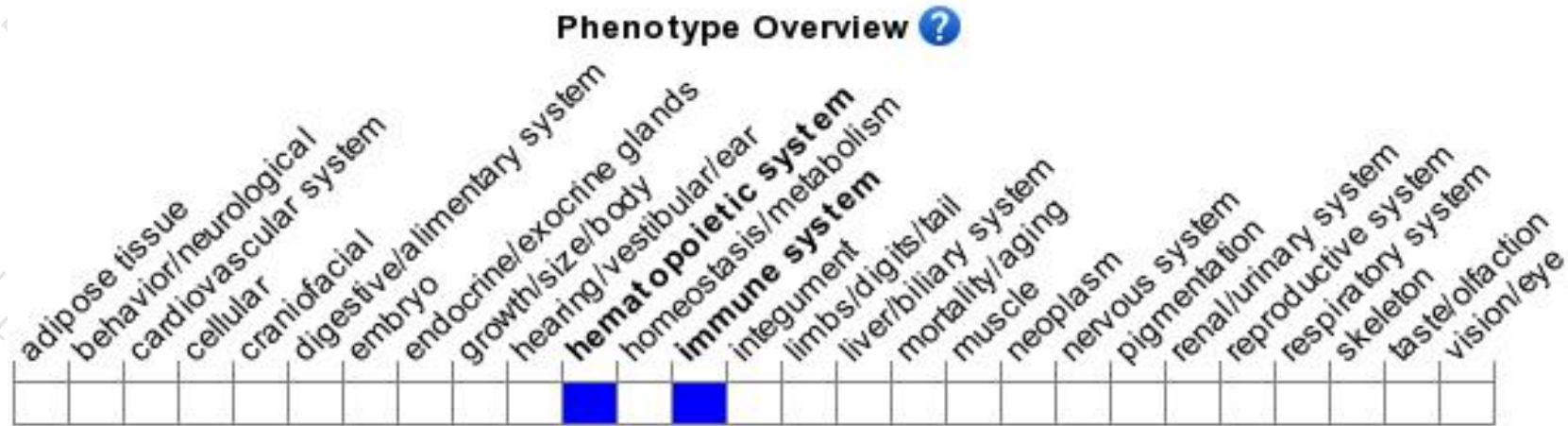
# Protein domain



集萃药康  
GemPharmatech



# 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, Homozygous mutant mice are viable and fertile with no obvious abnormalities in the kidneys or vasculature.

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

Tel: 400-9660890

