

# *Slc4a9* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Slc4a9*

**Project type**

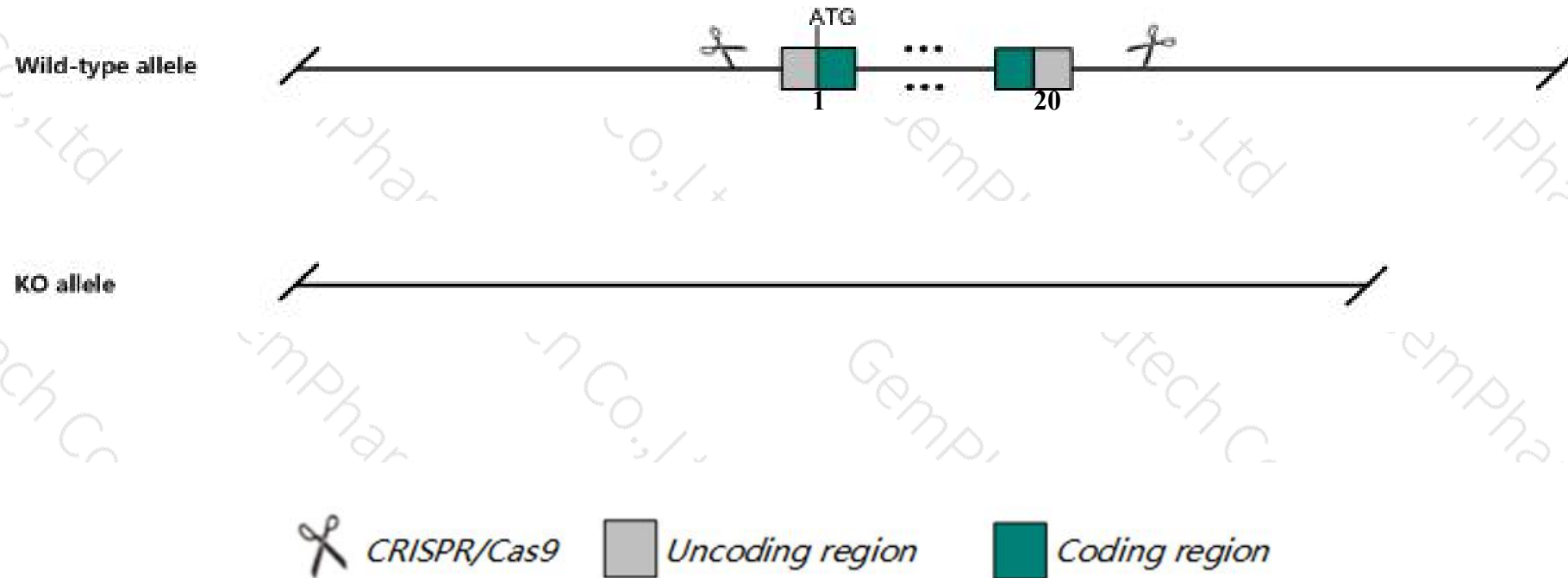
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc4a9* gene. The schematic diagram is as follows:



- The *Slc4a9* gene has 12 transcripts. According to the structure of *Slc4a9* gene, exon1-exon20 of *Slc4a9-202* (ENSMUST00000115694.2) 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 *Slc4a9* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit altered ion exchange in intestinal epithelia and kidney.
- The *Slc4a9* gene is located on the Chr18. 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)

## Slc4a9 solute carrier family 4, sodium bicarbonate cotransporter, member 9 [ *Mus musculus* (house mouse) ]

Gene ID: 240215, updated on 24-Oct-2019

### Summary

- Official Symbol** Slc4a9 provided by [MGI](#)
- Official Full Name** solute carrier family 4, sodium bicarbonate cotransporter, member 9 provided by [MGI](#)
- Primary source** [MGI:MGI:2443384](#)
- See related** [Ensembl:ENSMUSG00000024485](#)
- 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** AE4; D630003B07; D630024F24Rik
- Expression** Restricted expression toward kidney adult (RPKM 38.1) [See more](#)
- Orthologs** [human](#) [all](#)

### Genomic context

**Location:** 18; 18 B2

See Slc4a9 in [Genome Data Viewer](#)

**Exon count:** 23

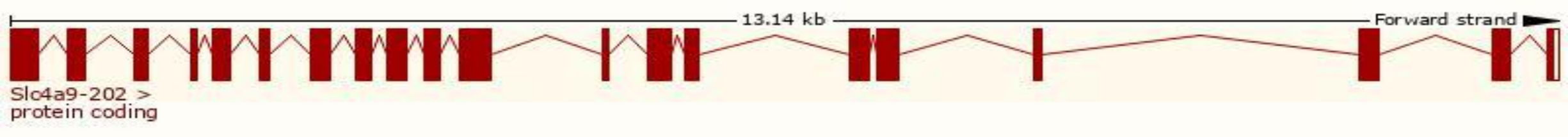
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	18	NC_000084.6 (36528066..36556272)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	18	NC_000084.5 (36687806..36704262)

# Transcript information (Ensembl)

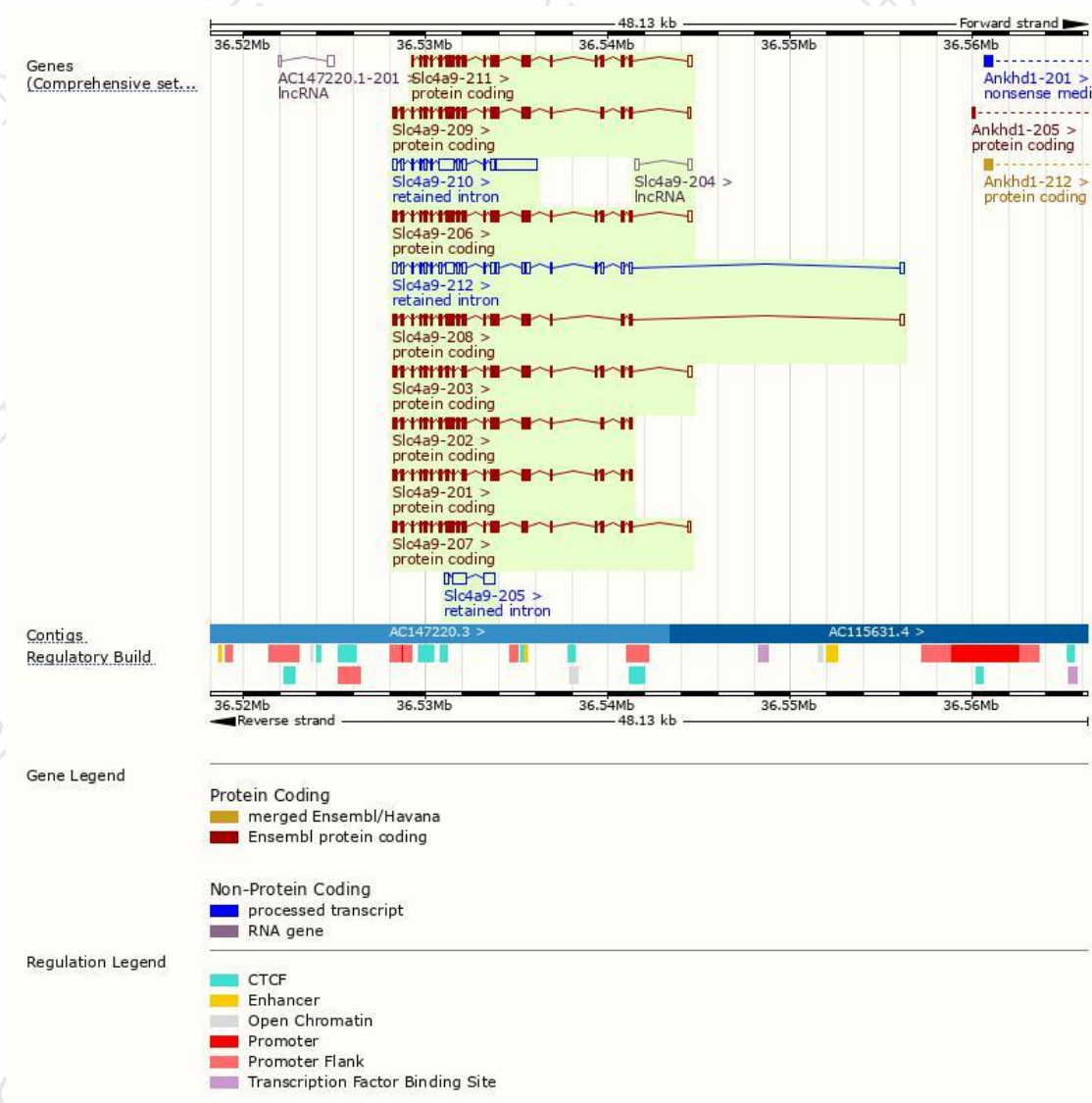
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc4a9-209	<a href="#">ENSMUST00000237174.1</a>	3008	<a href="#">929aa</a>	Protein coding	<a href="#">CCDS70884</a>	-	GENCODE basic
Slc4a9-203	<a href="#">ENSMUST00000235181.1</a>	2945	<a href="#">880aa</a>	Protein coding	<a href="#">CCDS29154</a>	-	GENCODE basic
Slc4a9-202	<a href="#">ENSMUST00000115694.2</a>	2861	<a href="#">929aa</a>	Protein coding	<a href="#">CCDS70884</a>	<a href="#">E9PUP3</a>	TSL:5 GENCODE basic
Slc4a9-201	<a href="#">ENSMUST00000074298.12</a>	2714	<a href="#">880aa</a>	Protein coding	<a href="#">CCDS29154</a>	<a href="#">Q8BUG8</a>	TSL:5 GENCODE basic
Slc4a9-206	<a href="#">ENSMUST00000236124.1</a>	3152	<a href="#">952aa</a>	Protein coding	-	-	GENCODE basic APPRIS P5
Slc4a9-208	<a href="#">ENSMUST00000236779.1</a>	2966	<a href="#">871aa</a>	Protein coding	-	-	GENCODE basic
Slc4a9-207	<a href="#">ENSMUST00000236126.1</a>	2965	<a href="#">918aa</a>	Protein coding	-	-	GENCODE basic APPRIS ALT2
Slc4a9-211	<a href="#">ENSMUST00000237595.1</a>	2733	<a href="#">821aa</a>	Protein coding	-	-	CDS 5' incomplete
Slc4a9-210	<a href="#">ENSMUST00000237243.1</a>	4516	No protein	Retained intron	-	-	
Slc4a9-212	<a href="#">ENSMUST00000238191.1</a>	3348	No protein	Retained intron	-	-	
Slc4a9-205	<a href="#">ENSMUST00000235848.1</a>	1550	No protein	Retained intron	-	-	
Slc4a9-204	<a href="#">ENSMUST00000235382.1</a>	402	No protein	lncRNA	-	-	

The strategy is based on the design of *Slc4a9-202* transcript,The transcription is shown below



# Genomic location distribution

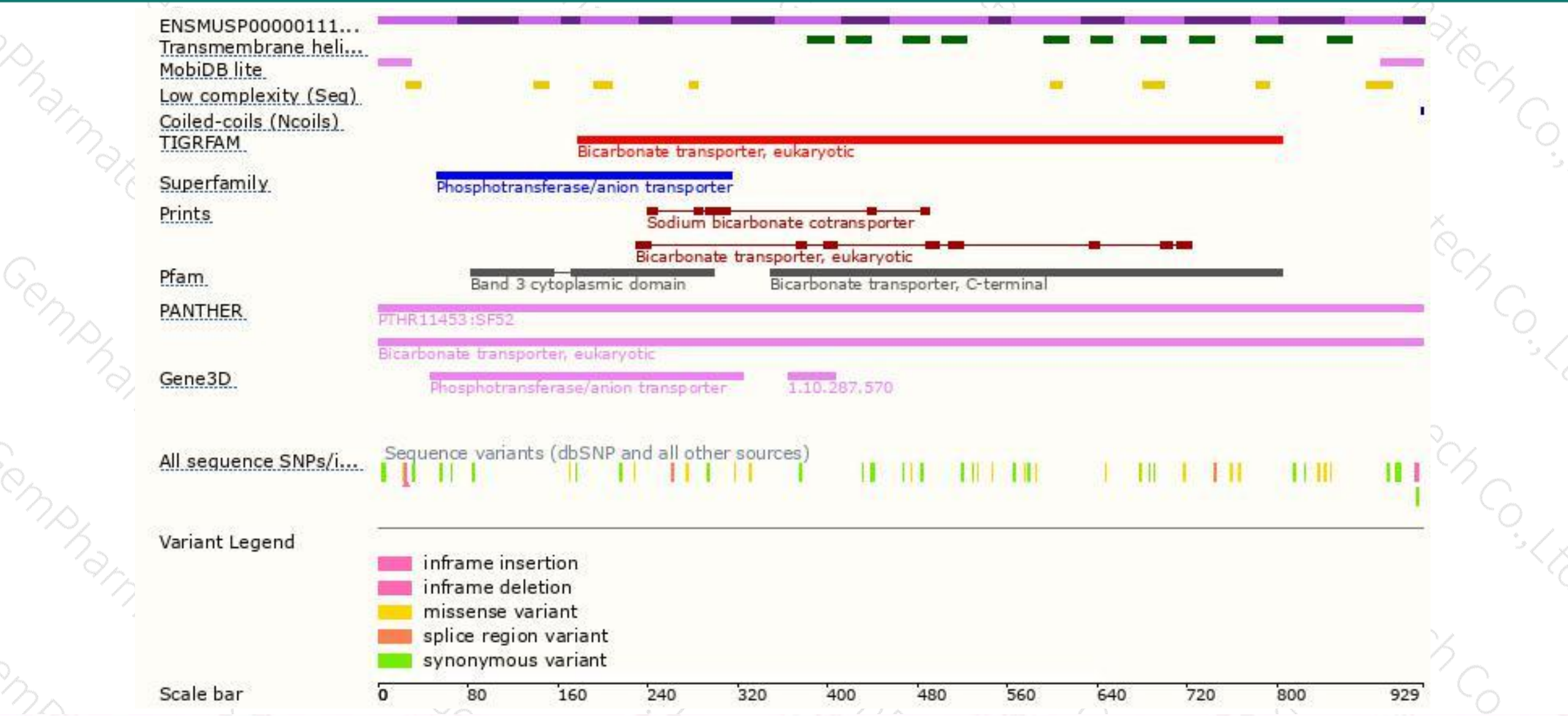




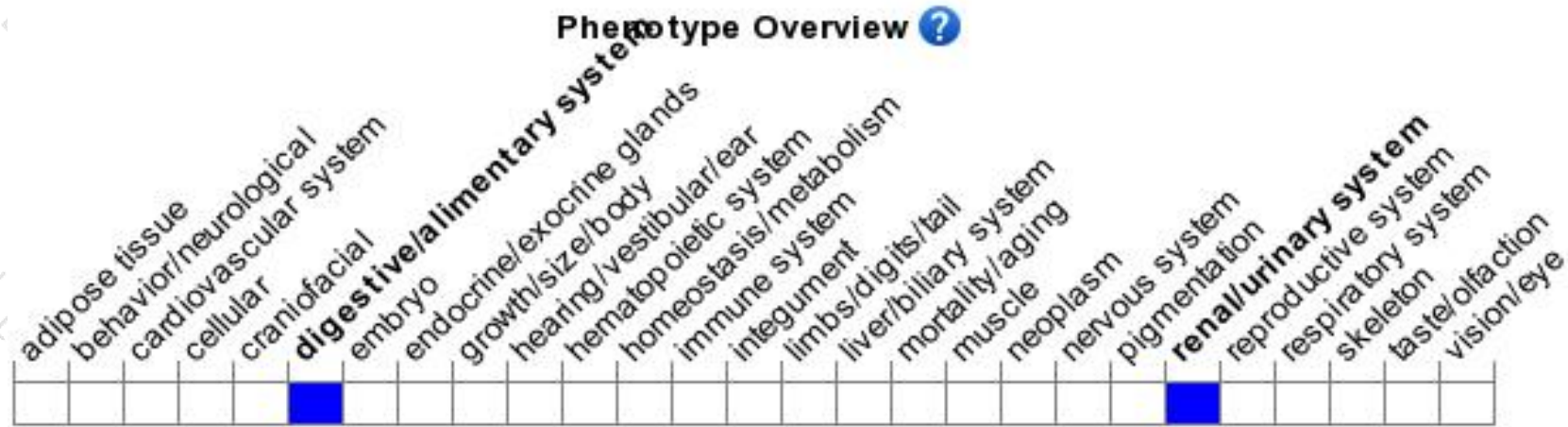
# Protein domain



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, Mice homozygous for a knock-out allele exhibit altered ion exchange in intestinal epithelia and kidney.

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

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