

# ***$Snx10$*** Cas9-KO Strategy

Designer: Shilei Zhu

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**Project Name**

***$Snx10$***

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**Project type**

**Cas9-KO**

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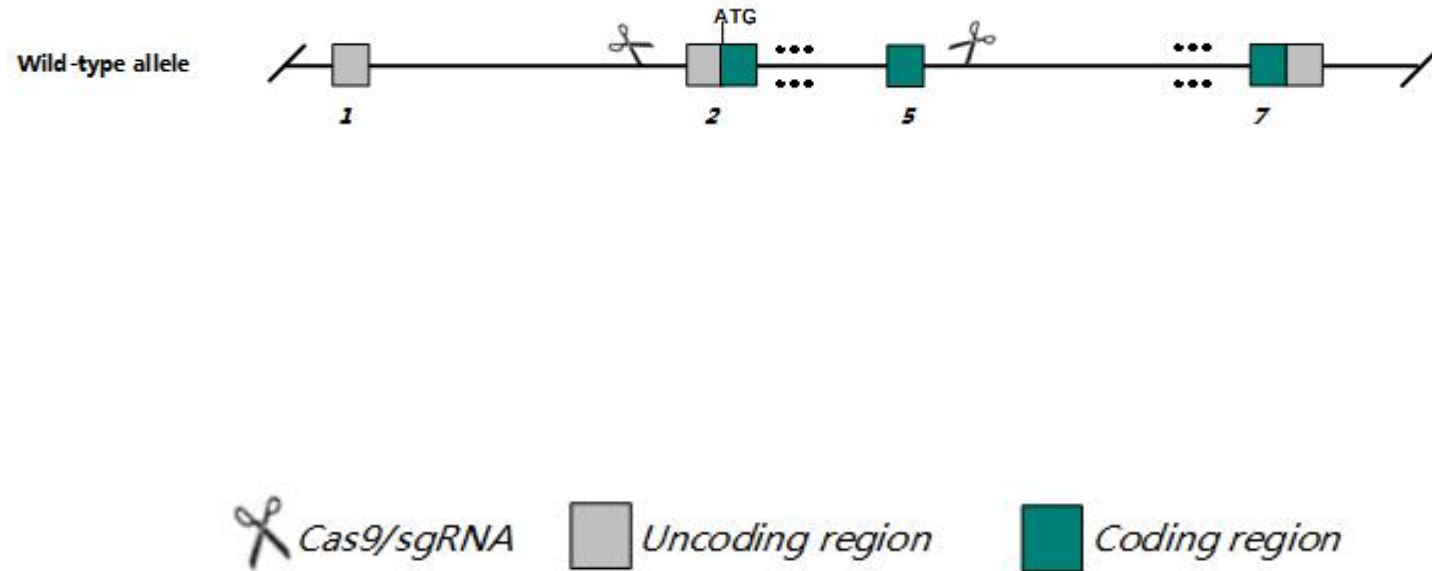
**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Snx10* gene. The schematic diagram is as follows:



The *Snx10* gene has 7 transcripts. According to the structure of *Snx10* gene, exon2-exon5 of *Snx10-201* (ENSMUST00000049152.14) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Snx10* gene. The brief process is as follows: CRISPR/Cas9 system

According to the existing MGI data, Mice homozygous for a hypomorphic allele show postnatal growth retardation, failure of tooth eruption, impaired skeleton development, and osteopetrorickets associated with failed osteoclast activity, high stomach pH, low calcium availability, impaired bone mineralization, and premature death.

The *Snx10* gene is located on the Chr6. 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.

## Snx10 sorting nexin 10 [Mus musculus (house mouse)]

Gene ID: 71982, updated on 31-Jan-2019

### Summary



|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Official Symbol</b>    | Snx10 provided by <a href="#">MGI</a>                                                                                                                                     |
| <b>Official Full Name</b> | sorting nexin 10 provided by <a href="#">MGI</a>                                                                                                                          |
| <b>Primary source</b>     | <a href="#">MGI:MGI:1919232</a>                                                                                                                                           |
| <b>See related</b>        | <a href="#">Ensembl:ENSMUSG00000038301</a>                                                                                                                                |
| <b>Gene type</b>          | protein coding                                                                                                                                                            |
| <b>RefSeq status</b>      | VALIDATED                                                                                                                                                                 |
| <b>Organism</b>           | <a href="#">Mus musculus</a>                                                                                                                                              |
| <b>Lineage</b>            | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| <b>Also known as</b>      | 2410004M09Rik                                                                                                                                                             |
| <b>Expression</b>         | Broad expression in frontal lobe adult (RPKM 11.5), cortex adult (RPKM 10.9) and 17 other tissues <a href="#">See more</a>                                                |
| <b>Orthologs</b>          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

# Transcript information      Ensembl

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

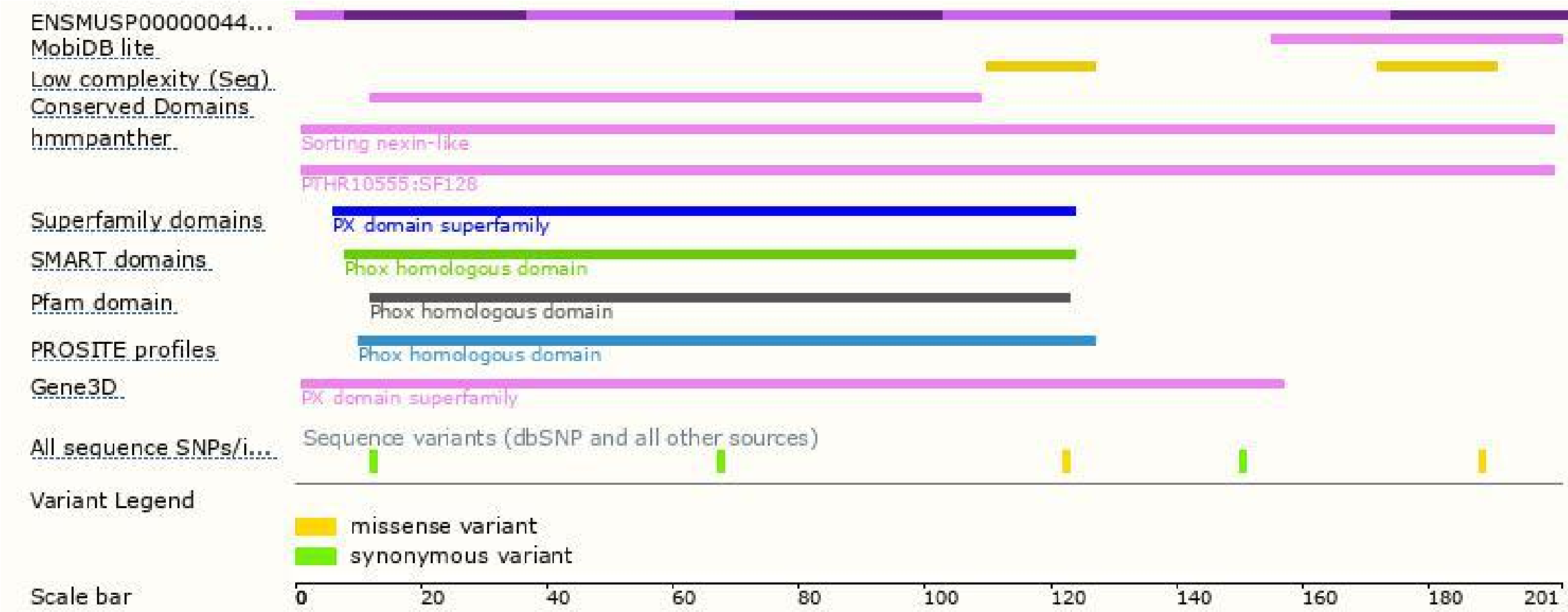
| Name             | Transcript ID                         | bp   | Protein               | Biotype                 | CCDS                      | UniProt                                       | Flags                         |
|------------------|---------------------------------------|------|-----------------------|-------------------------|---------------------------|-----------------------------------------------|-------------------------------|
| <b>Snx10-201</b> | <a href="#">ENSMUST00000049152.14</a> | 2480 | <a href="#">201aa</a> | Protein coding          | <a href="#">CCDS20136</a> | <a href="#">Q4FJX6</a> <a href="#">Q9CWT3</a> | TSL:1 GENCODE basic APPRIS P1 |
| <b>Snx10-207</b> | <a href="#">ENSMUST00000179365.7</a>  | 2464 | <a href="#">201aa</a> | Protein coding          | <a href="#">CCDS20136</a> | <a href="#">Q4FJX6</a> <a href="#">Q9CWT3</a> | TSL:1 GENCODE basic APPRIS P1 |
| <b>Snx10-202</b> | <a href="#">ENSMUST00000114439.7</a>  | 968  | <a href="#">201aa</a> | Protein coding          | <a href="#">CCDS20136</a> | <a href="#">Q4FJX6</a> <a href="#">Q9CWT3</a> | TSL:1 GENCODE basic APPRIS P1 |
| <b>Snx10-203</b> | <a href="#">ENSMUST00000137212.7</a>  | 809  | <a href="#">177aa</a> | Protein coding          | -                         | <a href="#">D3YW62</a>                        | CDS 3' incomplete TSL:3       |
| <b>Snx10-204</b> | <a href="#">ENSMUST00000140560.7</a>  | 433  | <a href="#">96aa</a>  | Protein coding          | -                         | <a href="#">D3Z4P6</a>                        | CDS 3' incomplete TSL:5       |
| <b>Snx10-205</b> | <a href="#">ENSMUST00000149024.1</a>  | 693  | <a href="#">44aa</a>  | Nonsense mediated decay | -                         | <a href="#">S4R1A0</a>                        | TSL:3                         |
| <b>Snx10-206</b> | <a href="#">ENSMUST00000155724.2</a>  | 6512 | No protein            | Retained intron         | -                         | -                                             | TSL:1                         |

The strategy is based on the design of *Snx10-201* transcript,The transcription is shown below

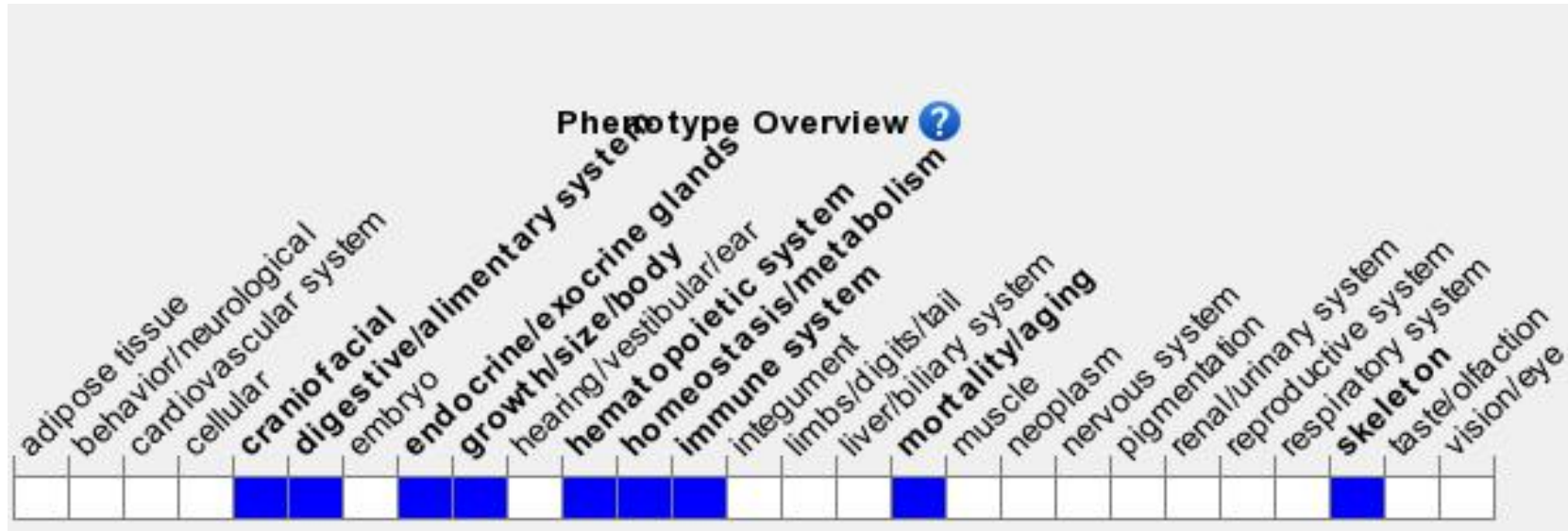


# Genomic location distribution

# 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 hypomorphic allele show postnatal growth retardation, failure of tooth eruption, impaired skeleton development, and osteopetrorickets associated with failed osteoclast activity, high stomach pH, low calcium availability, impaired bone mineralization, and premature death.

If you have any questions, you are welcome to inquire.  
Tel: 400-9660890

