

# *Trpc6* Cas9-KO Strategy

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# Project Overview

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**Project Name**

***Trpc6***

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**Project type**

**Cas9-KO**

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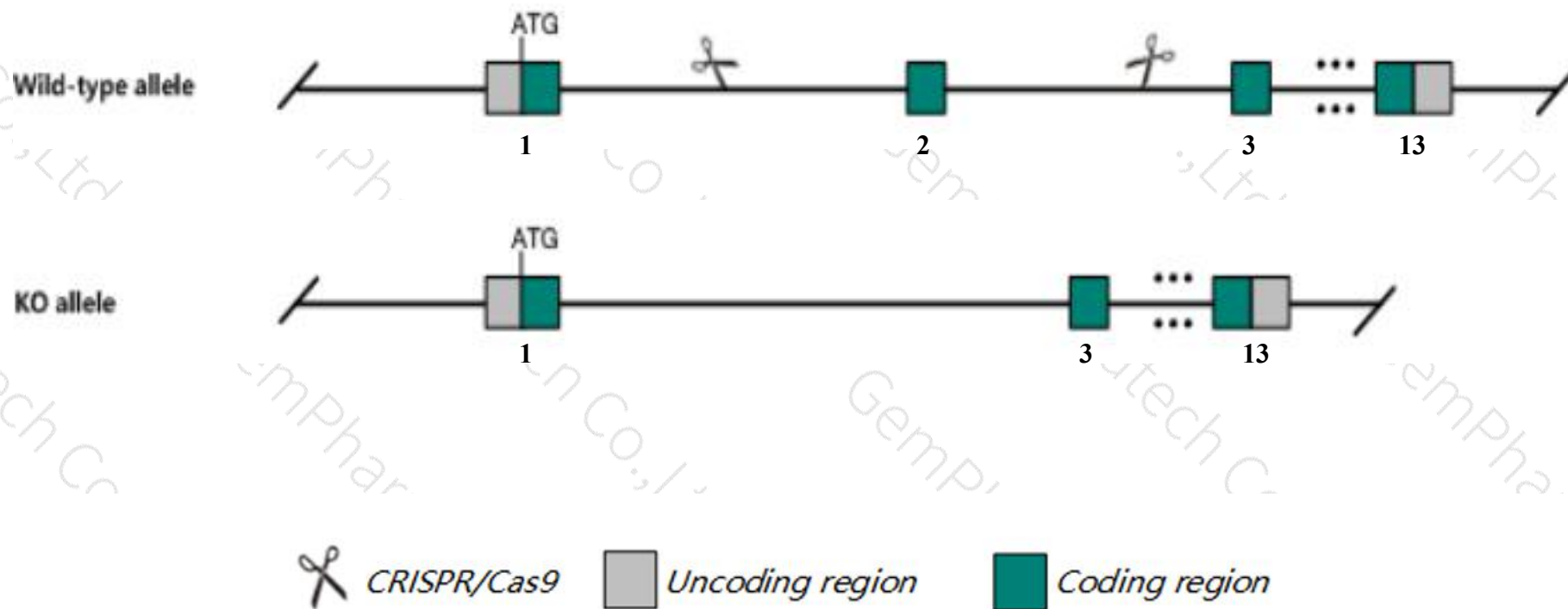
**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trpc6* gene. The schematic diagram is as follows:



- The *Trpc6* gene has 3 transcripts. According to the structure of *Trpc6* gene, exon2 of *Trpc6*-201(ENSMUST00000050433.7) transcript is recommended as the knockout region. The region contains 775bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trpc6* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- According to the existing MGI data, mice homozygous for one null targeted mutation are viable and fertile and exhibit no overt abnormal phenotype. Another knockout results in an increase in thermal nociceptive response latency.
- The *Trpc6* gene is located on the Chr9. 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)

## Trpc6 transient receptor potential cation channel, subfamily C, member 6 [Mus musculus (house mouse)]

Gene ID: 22068, updated on 13-Mar-2020

### Summary



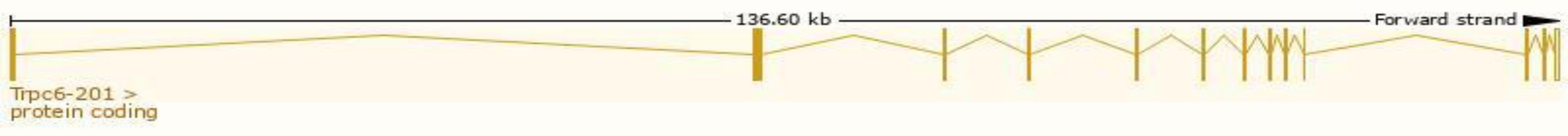
|                           |   |
|---------------------------|---|
| <b>Official Symbol</b>    | Trpc6 provided by <a href="#">MGI</a>   |
| <b>Official Full Name</b> | transient receptor potential cation channel, subfamily C, member 6 provided by <a href="#">MGI</a>  |
| <b>Primary source</b>     | <a href="#">MGI:MGI:109523</a>  |
| <b>See related</b>        | <a href="#">Ensembl:ENSMUSG00000031997</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>      | AV025995, LLHWJM002, LLHWJM003, LLHWJM004, TRP-6, Trrp6, mtrp6  |
| <b>Expression</b>         | Broad expression in lung adult (RPKM 2.0), frontal lobe adult (RPKM 1.1) and 15 other tissues <a href="#">See more</a>  |
| <b>Orthologs</b>          | <a href="#">human</a> <a href="#">all</a>   |

# Transcript information (Ensembl)

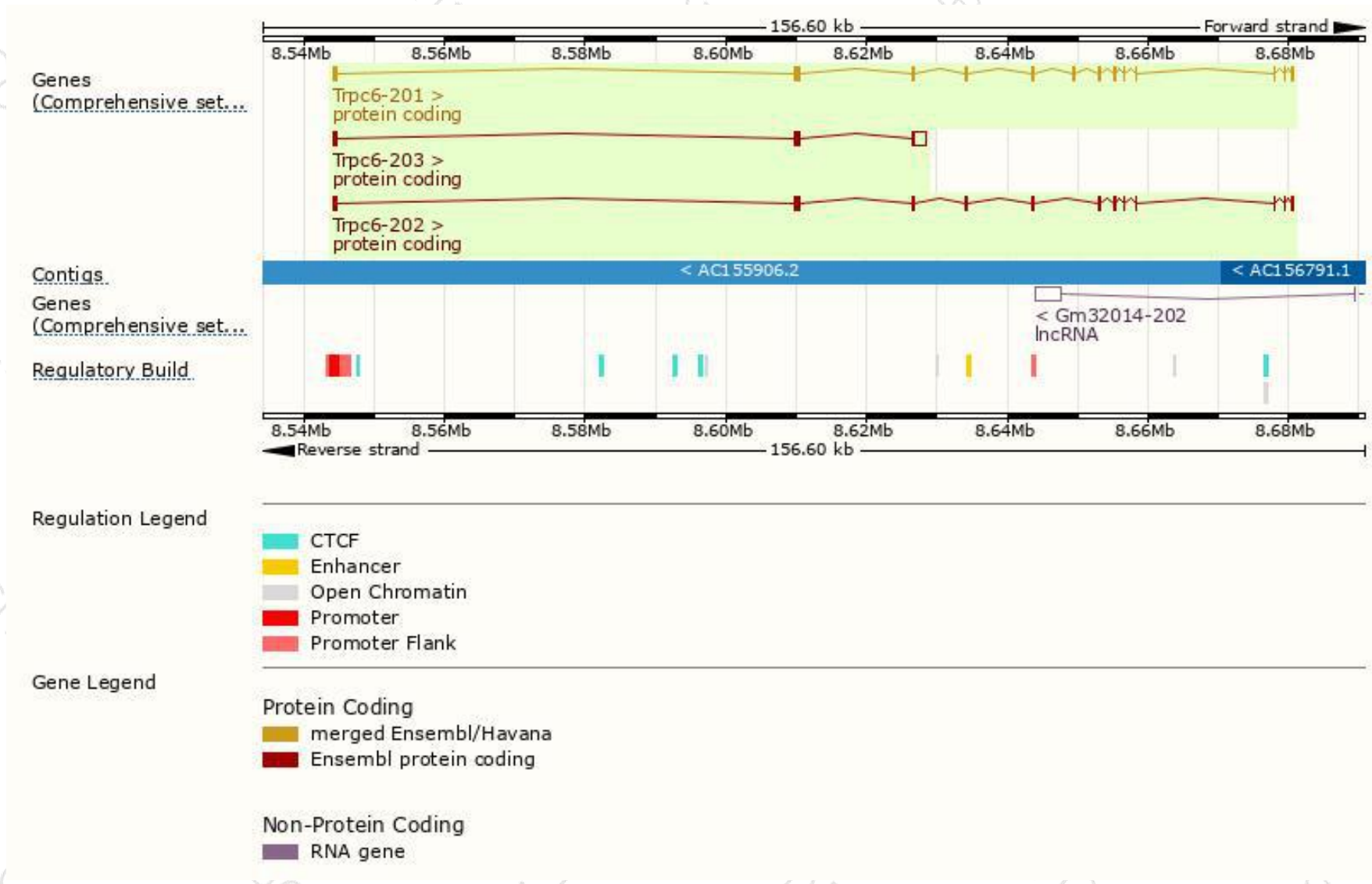
The gene has 3 transcripts,all transcripts are shown below:

| Name      | Transcript ID                        | bp   | Protein               | Biotype        | CCDS                      | UniProt                | Flags                         |
|-----------|--------------------------------------|------|-----------------------|----------------|---------------------------|------------------------|-------------------------------|
| Trpc6-201 | <a href="#">ENSMUST00000050433.7</a> | 3259 | <a href="#">930aa</a> | Protein coding | <a href="#">CCDS22815</a> | <a href="#">Q61143</a> | TSL:1 GENCODE basic APPRIS P1 |
| Trpc6-203 | <a href="#">ENSMUST00000217462.1</a> | 3168 | <a href="#">406aa</a> | Protein coding | -                         | <a href="#">Q6NV56</a> | TSL:1 GENCODE basic           |
| Trpc6-202 | <a href="#">ENSMUST00000214596.1</a> | 2913 | <a href="#">852aa</a> | Protein coding | -                         | <a href="#">Q3UZG1</a> | TSL:1 GENCODE basic           |

The strategy is based on the design of *Trpc6-201* transcript,the transcription is shown below:



# Genomic location distribution





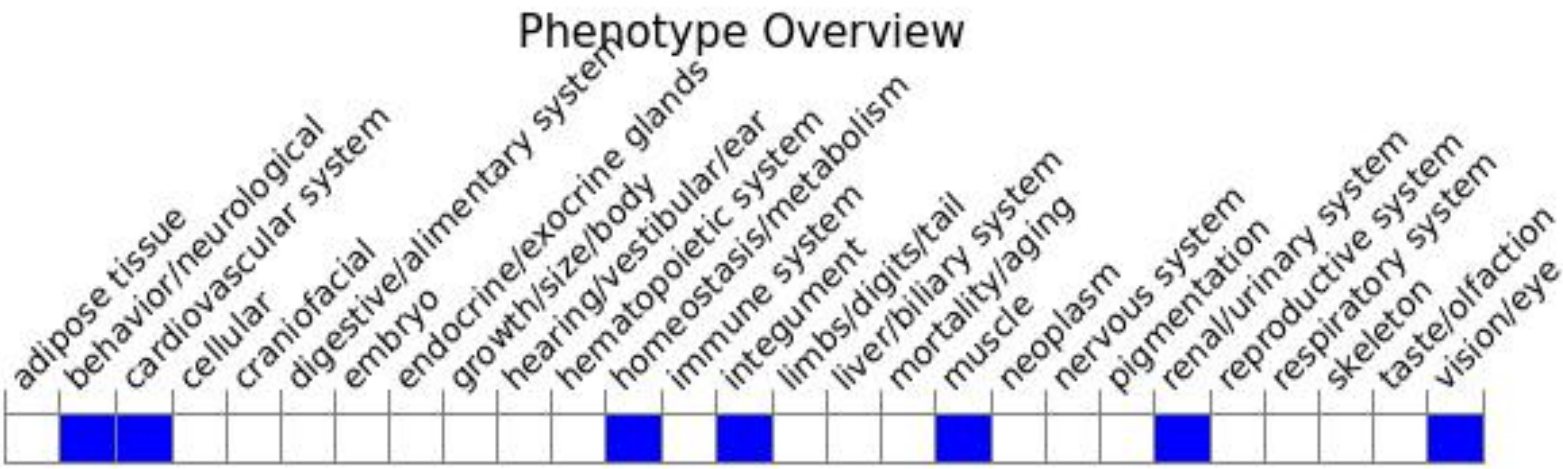
# Protein domain



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,mice homozygous for one null targeted mutation are viable and fertile and exhibit no overt abnormal phenotype. Another knockout results in an increase in thermal nociceptive response latency.

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

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