# *Ccn5* Cas9-KO *Strategy*

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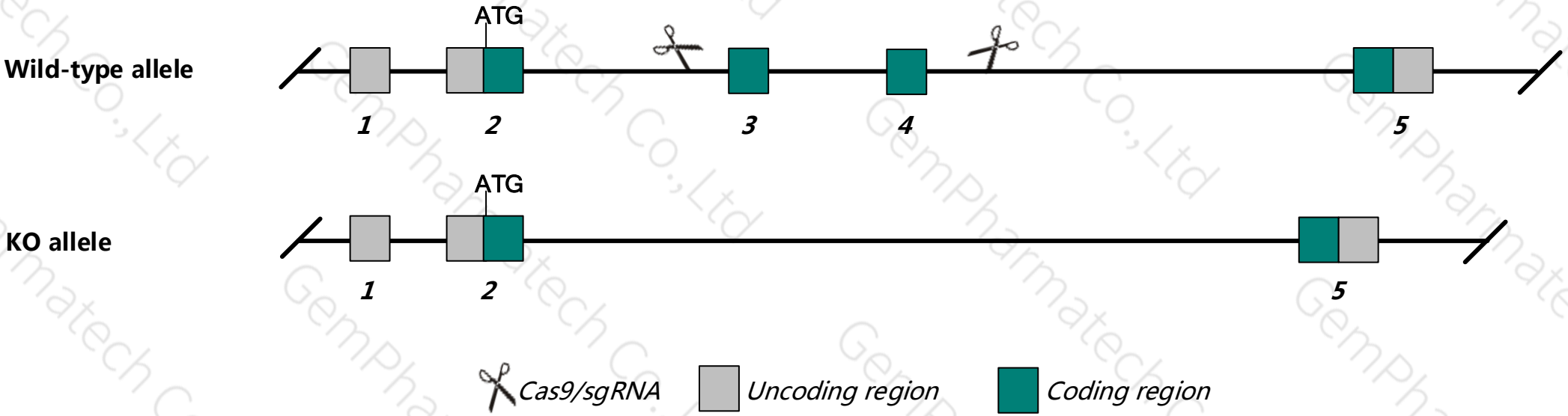
**Design Date:** **2019-7-18**

# Project Overview

| | |
|---|---|
| **Project Name** | ***Ccn5*** |
| **Project type** | **Cas9-KO** |
| **Strain background** | **C57BL/6JGpt** |

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ccn5* gene. The schematic diagram is as follows:



# Technical routes

- The *Ccn5* gene has 2 transcripts.According to the structure of *Ccn5* gene, exon3-exon4 of *Ccn5*-201 (ENSMUST00000029188.7) transcript is recommended as the knockout region.The region contains 475bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ccn5* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9, sgRNA 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.

# Notice

- According to the existing MGI data，Mice homozygous for a knock-out allele are viabe and overtly normal with no adult bone phenotype.
- The *Ccn5* gene is located on the Chr2. 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）

集萃药康 GemPharmatech

## Ccn5 cellular communication network factor 5 [ *Mus musculus* (house mouse) ]

Gene ID: 22403, updated on 11-May-2019

### Summary

| | |
|---|---|
| **Official Symbol** | Ccn5 provided by MGI |
| **Official Full Name** | cellular communication network factor 5 provided by MGI |
| **Primary source** | MGI:MGI:1328326 |
| **See related** | Ensembl:ENSMUSG00000027656 |
| **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** | Crgr4; Ctgfl; Rcop1; Wisp2 |
| **Expression** | Biased expression in lung adult (RPKM 28.7), ovary adult (RPKM 25.3) and 6 other tissues See more |
| **Orthologs** | human all |

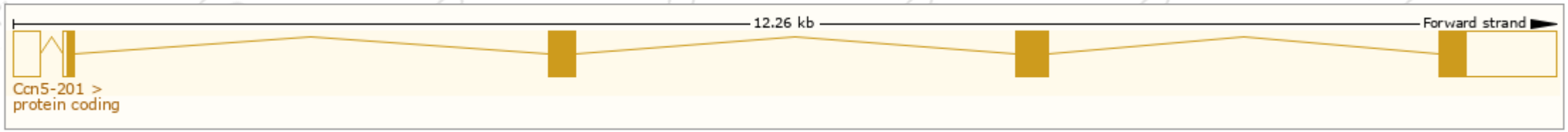
# Transcript information（Ensembl）

The gene has 2 transcripts, and all transcripts are shown below:

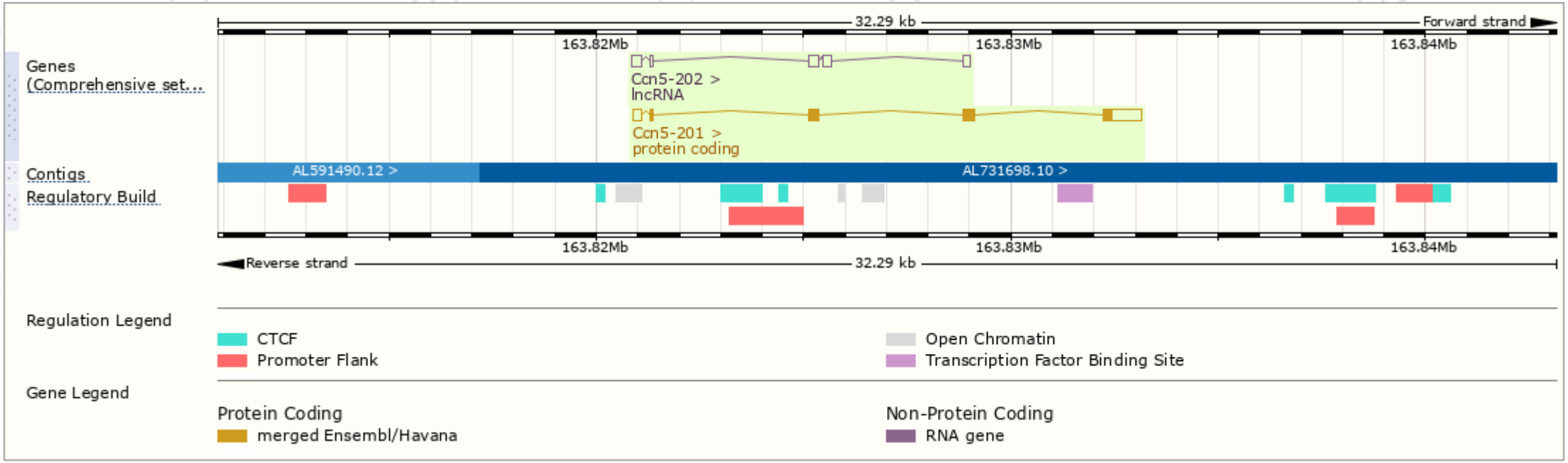
Show/hide columns (1 hidden) Filter

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|---|---|---|---|---|---|---|---|
| Ccn5-201 | ENSMUST00000029188.7 | 1719 | 251aa | Protein coding | CCDS17016 | A2AHD1 | TSL:1 GENCODE basic APPRIS P1 |
| Ccn5-202 | ENSMUST00000138730.1 | 903 | No protein | lncRNA | - | - | TSL:5 |

The strategy is based on the design of *Ccn5*-201 transcript,The transcription is shown below

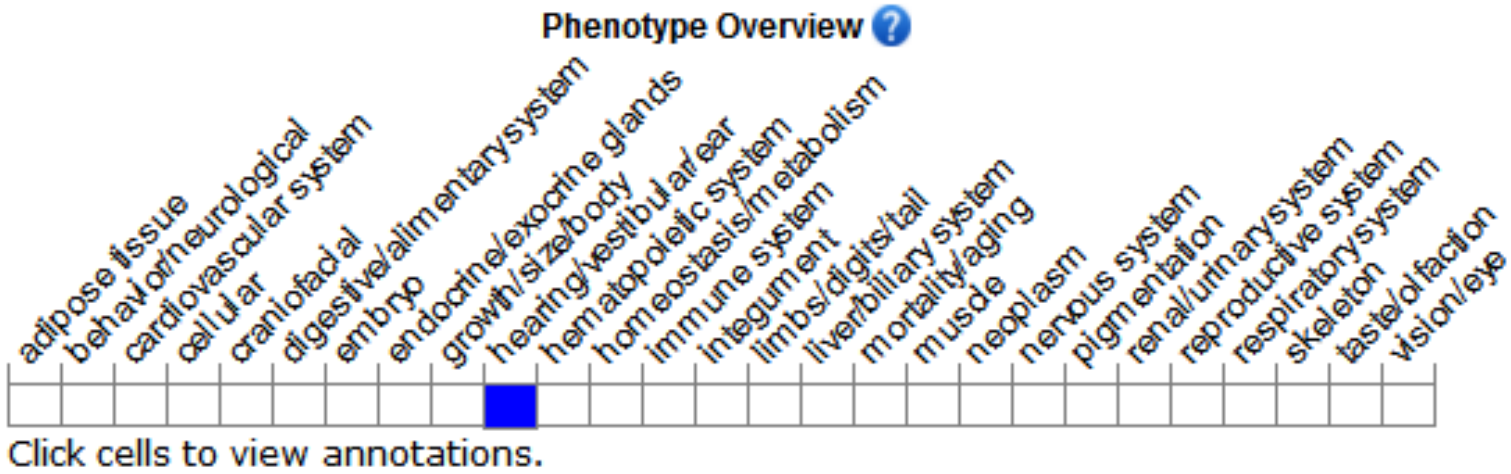


# Genomic location distribution



# 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 knock-out allele are viabe and overtly normal with no adult bone phenotype.

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

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