

# *Jup* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Jup*

**Project type**

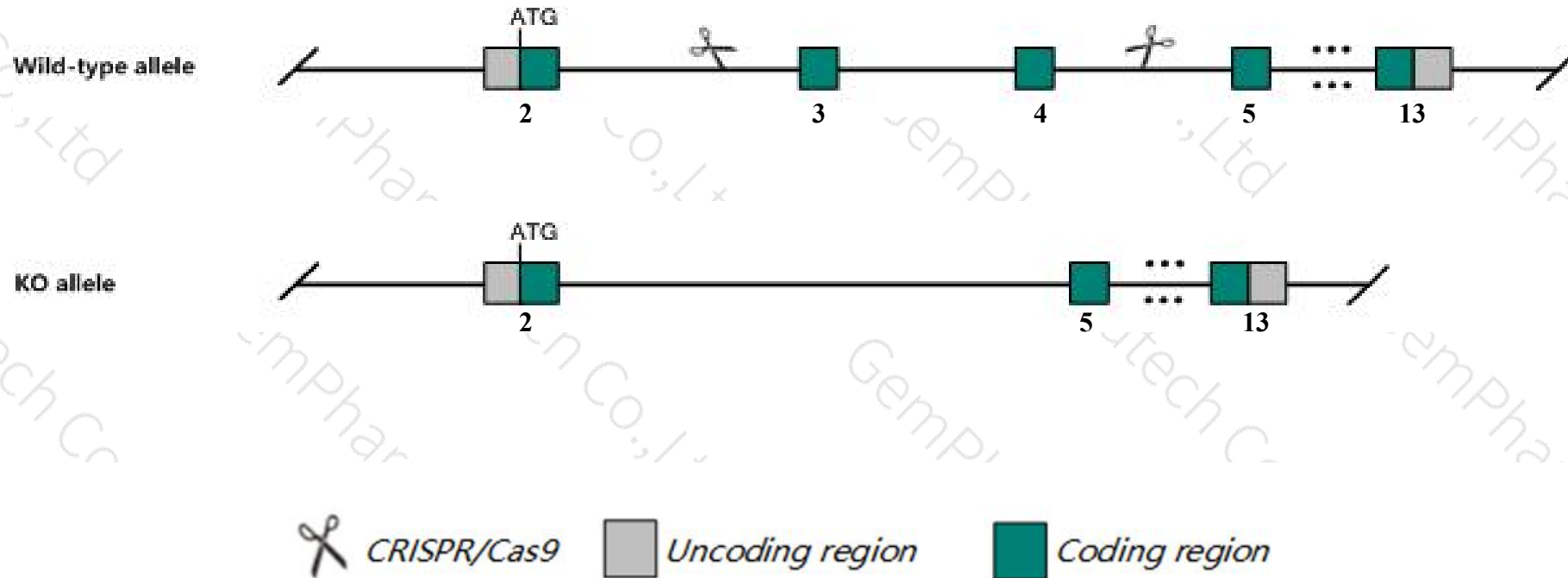
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Jup* gene has 9 transcripts. According to the structure of *Jup* gene, exon3-exon4 of *Jup-201* (ENSMUST00000001592.14) transcript is recommended as the knockout region. The region contains 499bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Jup* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous null mutants die with severe heart defects at embryonic day 10.5-16, depending on genetic background. Mutants that survive to birth exhibit skin blistering and subcorneal acantholysis associated with reduced number of desmosomes.
- The *Jup* gene is located on the Chr11. 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)

## Jup junction plakoglobin [Mus musculus (house mouse)]

Gene ID: 16480, updated on 31-Jan-2019

### Summary



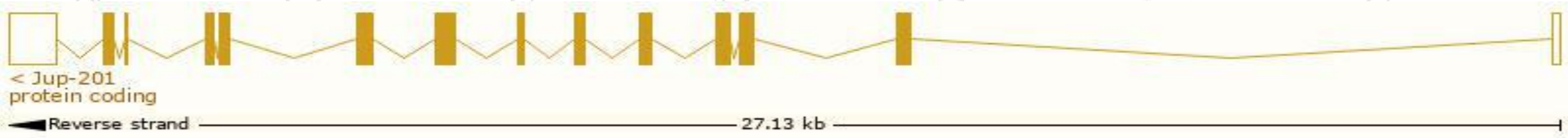
<b>Official Symbol</b>	Jup provided by <a href="#">MGI</a>
<b>Official Full Name</b>	junction plakoglobin provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:96650</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG000000001552</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</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>	Ctnng, D930025P04Rik, PG
<b>Expression</b>	Broad expression in lung adult (RPKM 160.5), stomach adult (RPKM 151.6) and 23 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

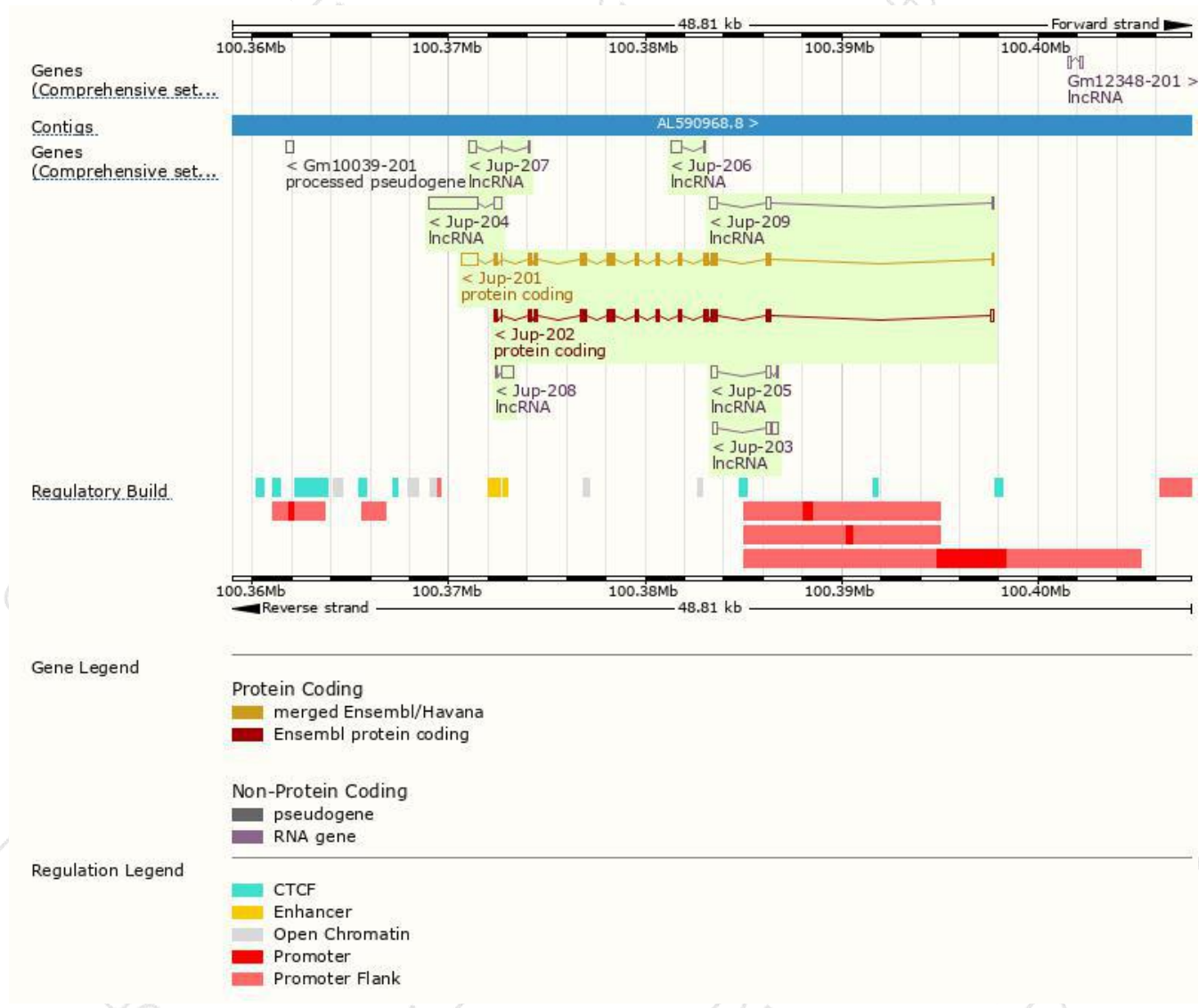
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Jup-201	<a href="#">ENSMUST00000001592.14</a>	3205	<a href="#">745aa</a>	Protein coding	<a href="#">CCDS25420</a>	<a href="#">Q02257</a>	TSL:1 GENCODE basic APPRIS P1
Jup-202	<a href="#">ENSMUST00000107403.1</a>	2386	<a href="#">745aa</a>	Protein coding	<a href="#">CCDS25420</a>	<a href="#">Q02257</a>	TSL:5 GENCODE basic APPRIS P1
Jup-204	<a href="#">ENSMUST00000124659.1</a>	2913	No protein	lncRNA	-	-	TSL:2
Jup-208	<a href="#">ENSMUST00000152774.1</a>	758	No protein	lncRNA	-	-	TSL:2
Jup-203	<a href="#">ENSMUST00000123903.1</a>	742	No protein	lncRNA	-	-	TSL:3
Jup-209	<a href="#">ENSMUST00000155746.7</a>	684	No protein	lncRNA	-	-	TSL:2
Jup-206	<a href="#">ENSMUST00000149798.1</a>	667	No protein	lncRNA	-	-	TSL:3
Jup-205	<a href="#">ENSMUST00000128268.7</a>	502	No protein	lncRNA	-	-	TSL:5
Jup-207	<a href="#">ENSMUST00000151476.1</a>	441	No protein	lncRNA	-	-	TSL:5

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

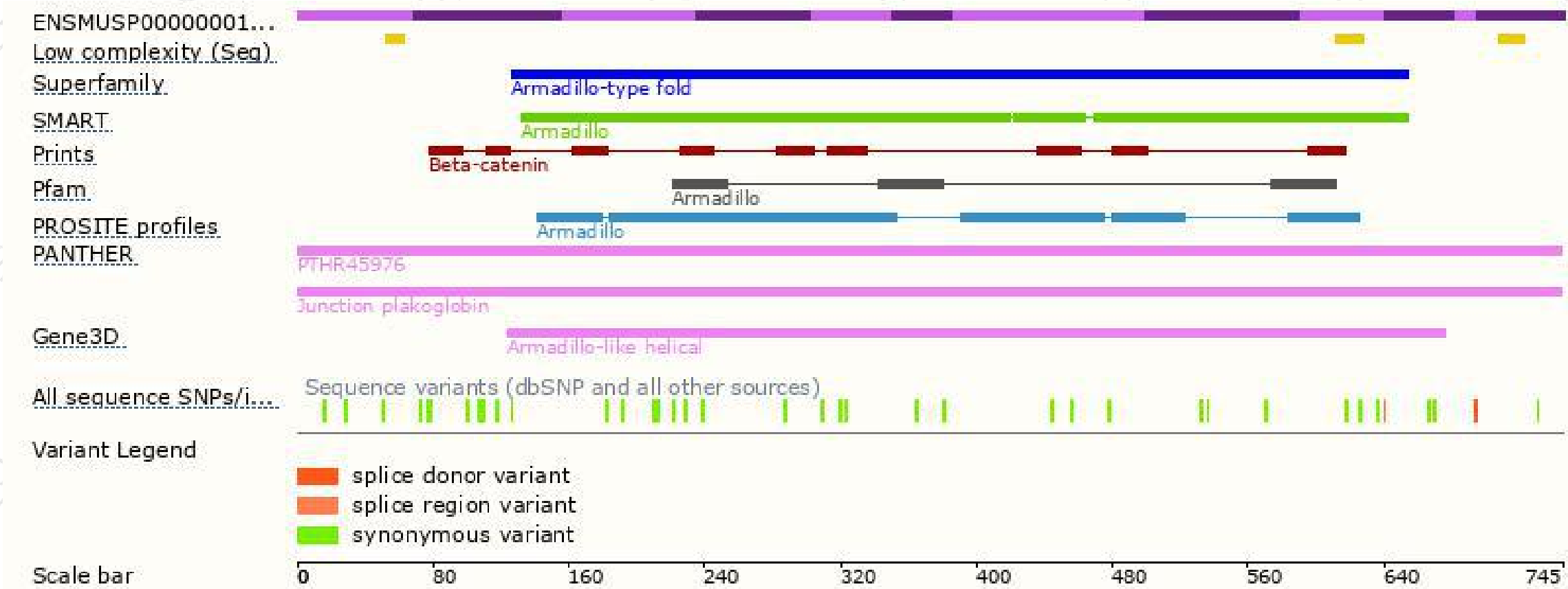


# Genomic location distribution

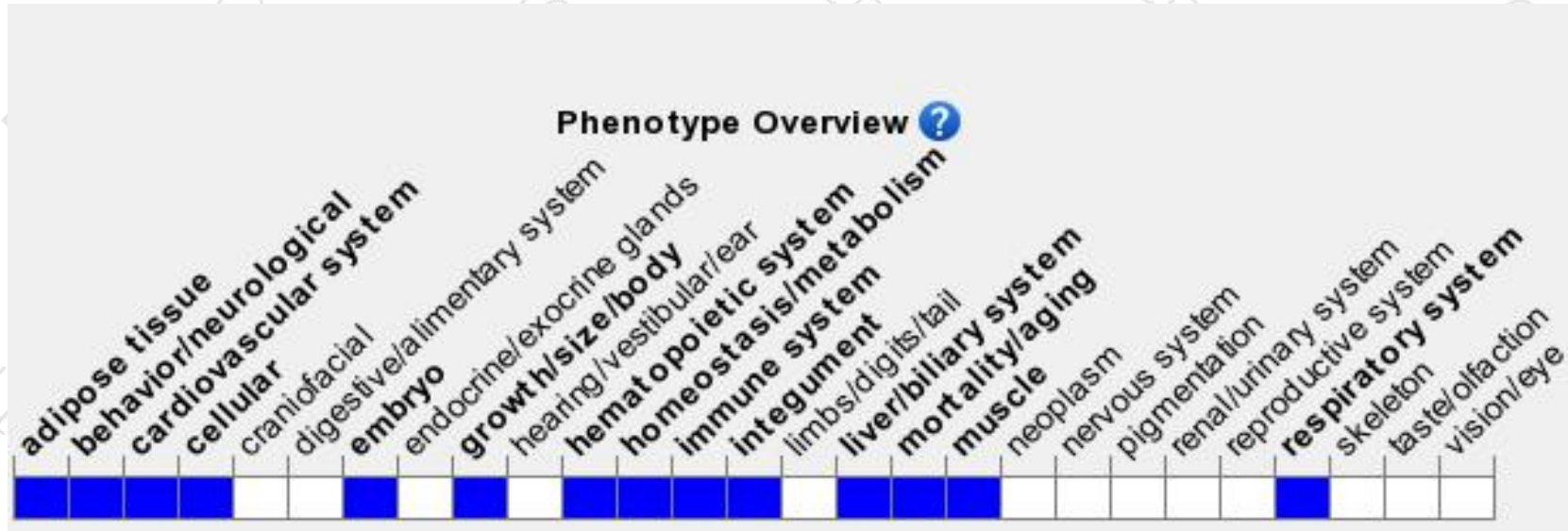




# Protein domain



# 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, Homozygous null mutants die with severe heart defects at embryonic day 10.5-16, depending on genetic background. Mutants that survive to birth exhibit skin blistering and subcorneal acantholysis associated with reduced number of desmosomes.

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

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