

# ***Kmt2c* Cas9-KO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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# Project Overview

**Project Name**

***Kmt2c***

**Project type**

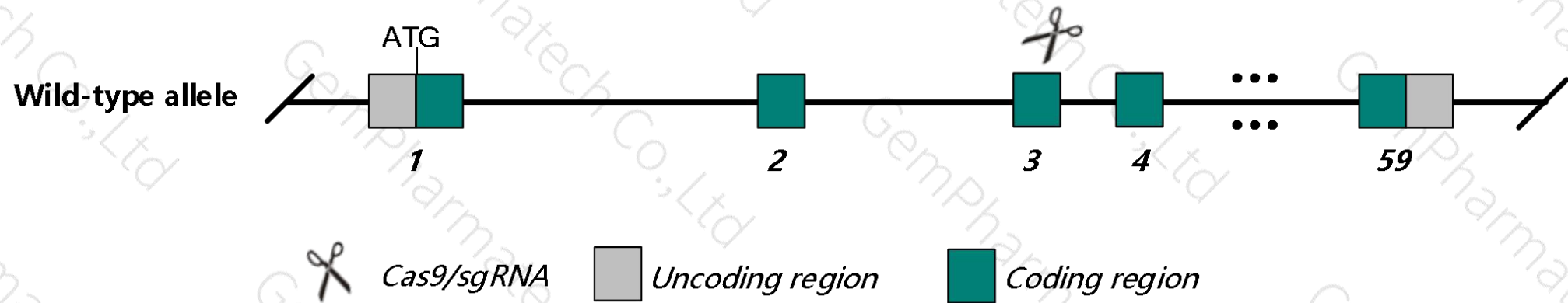
**Cas9-KO**

**Strain background**

**C57BL/6N**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kmt2c* gene. The schematic diagram is as follows:



- In this project we use CRISPR/Cas9 technology to modify *Kmt2c* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

- According to the existing MGI data, Mice homozygous for a knock-out allele display impaired lung remodeling resulting in hypertrophy of the heart right ventricle and pulmonary hyperplasia.
- The *Kmt2c* gene is located on the Chr5. 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)

## Kmt2c lysine (K)-specific methyltransferase 2C [ *Mus musculus* (house mouse) ]

Gene ID: 231051, updated on 24-Sep-2019

### Summary

- Official Symbol** Kmt2c provided by [MGI](#)
- Official Full Name** lysine (K)-specific methyltransferase 2C provided by [MGI](#)
- Primary source** [MGI:MGI:2444959](#)
- See related** [Ensembl:ENSMUSG00000038056](#)
- 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** HALR; MII3; E330008K23Rik
- Expression** Ubiquitous expression in thymus adult (RPKM 7.3), whole brain E14.5 (RPKM 6.9) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

### Genomic context

Location: 5; 5 A3-B1

See Kmt2c in [Genome Data Viewer](#)

Exon count: 62

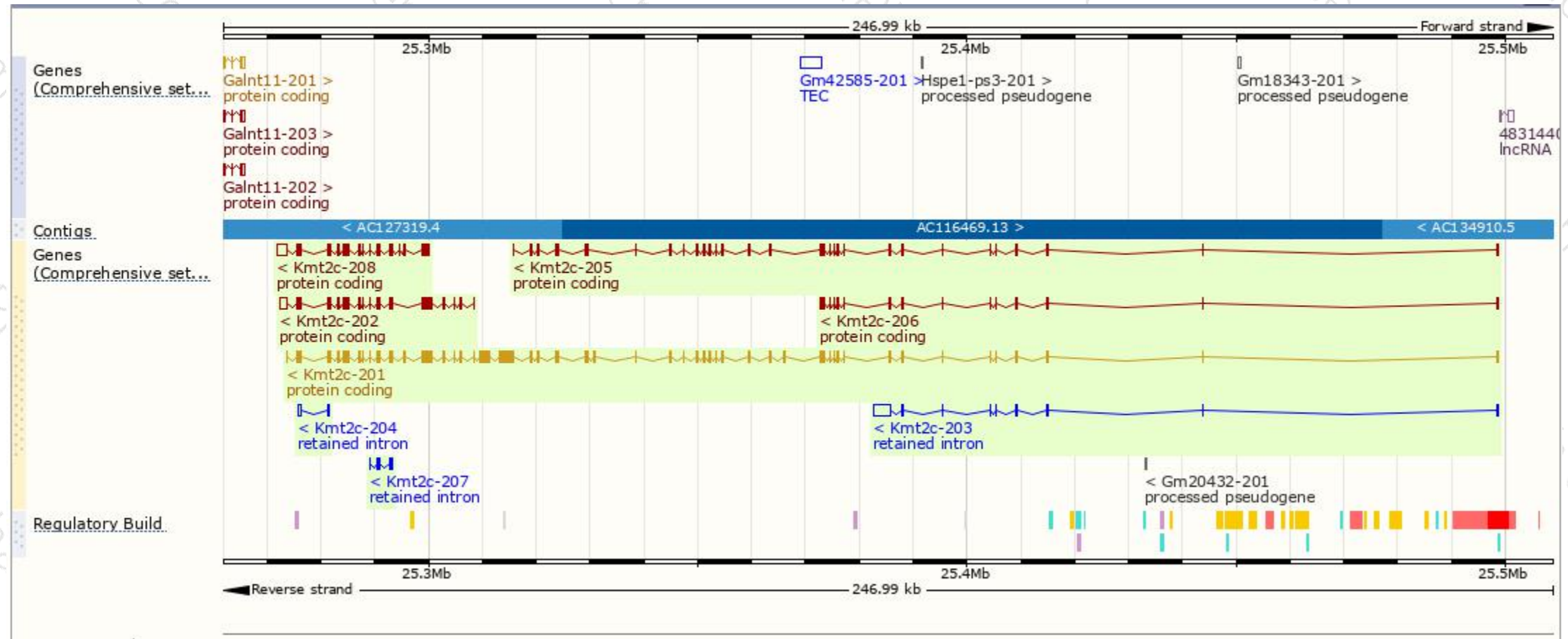
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	5	NC_000071.6 (25271795..25498855, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	5	NC_000071.5 (24777612..25004601, complement)

# Transcript information (Ensembl)

The gene has 8 transcripts,all transcripts are shown below:

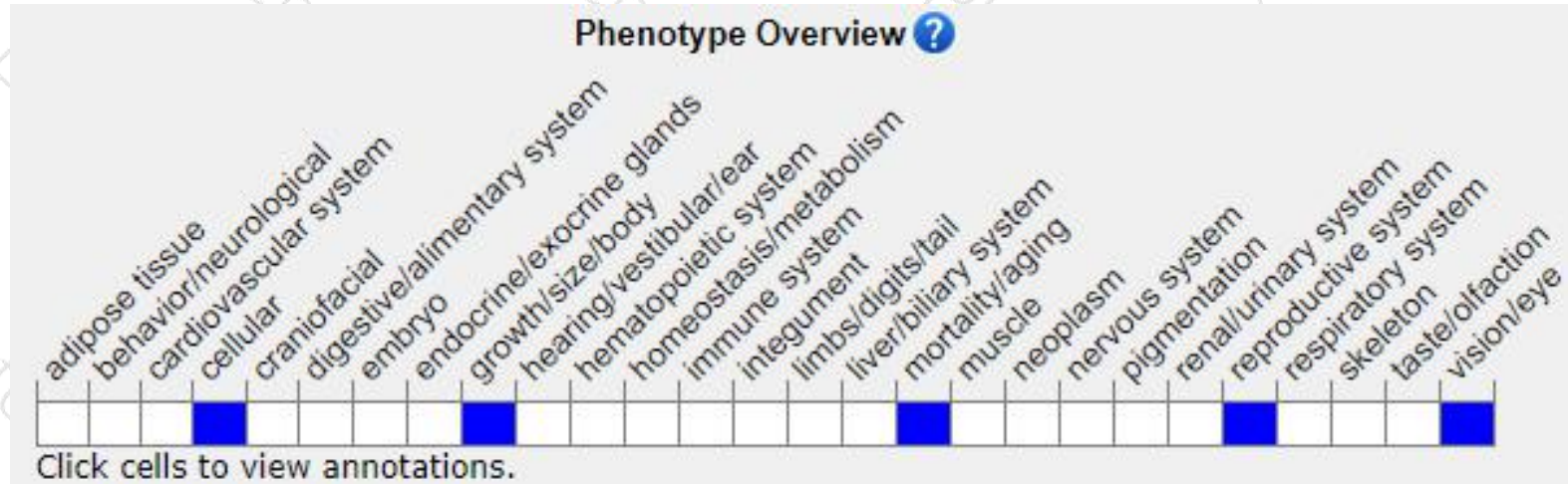
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kmt2c-201	<a href="#">ENSMUST00000045291.13</a>	14967	<a href="#">4904aa</a>	Protein coding	<a href="#">CCDS39033</a>	<a href="#">F8WI37</a>	TSL:5 Gencode basic APPRIS P1
Kmt2c-202	<a href="#">ENSMUST00000172556.7</a>	6486	<a href="#">1748aa</a>	Protein coding	-	<a href="#">G3UY45</a>	CDS 5' incomplete TSL:5
Kmt2c-208	<a href="#">ENSMUST00000174734.7</a>	6443	<a href="#">1524aa</a>	Protein coding	-	<a href="#">G3UWZ3</a>	CDS 5' incomplete TSL:5
Kmt2c-205	<a href="#">ENSMUST00000173073.7</a>	5301	<a href="#">1716aa</a>	Protein coding	-	<a href="#">G3UZX8</a>	CDS 3' incomplete TSL:5
Kmt2c-206	<a href="#">ENSMUST00000173174.1</a>	2646	<a href="#">813aa</a>	Protein coding	-	<a href="#">G3UWI5</a>	CDS 3' incomplete TSL:1
Kmt2c-203	<a href="#">ENSMUST00000172626.1</a>	4542	No protein	Retained intron	-	-	TSL:1
Kmt2c-207	<a href="#">ENSMUST00000173673.1</a>	857	No protein	Retained intron	-	-	TSL:2
Kmt2c-204	<a href="#">ENSMUST00000172707.1</a>	612	No protein	Retained intron	-	-	TSL:2

# Genomic location distribution





# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

Mice homozygous for a knock-out allele display partial embryonic lethality, delayed eyelid opening, postnatal growth retardation, impaired fertility in both sexes, and decreased proliferation of cultured mouse embryonic fibroblasts.

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

Tel: 025-5864 1534

