

Cops5 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Cops5

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cops5* gene. The schematic diagram is as follows:



- The *Cops5* gene has 7 transcripts. According to the structure of *Cops5* gene, exon2-exon4 of *Cops5-201* (ENSMUST00000027050.9) transcript is recommended as the knockout region. The region contains 430bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cops5* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice die soon after implantation and exhibit growth-retardation, decrease in cell proliferation, and an increase in cell apoptosis.
- The KO region is close to 5'UTR region of the *Cspp1* gene. Knockout the region may affect the regulatory function of *Cspp1* gene.
- The *Cops5* gene is located on the Chr1. 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)

Cops5 COP9 signalosome subunit 5 [*Mus musculus* (house mouse)]

Gene ID: 26754, updated on 12-Aug-2019

Summary



Official Symbol Cops5 provided by [MGI](#)

Official Full Name COP9 signalosome subunit 5 provided by [MGI](#)

Primary source [MGI:MGI:1349415](#)

See related [Ensembl:ENSMUSG00000025917](#)

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 CSN5; Jab1; Sgn5; Mov34; AI303502

Expression Ubiquitous expression in testis adult (RPKM 37.8), placenta adult (RPKM 35.0) and 27 other tissues [See more](#)

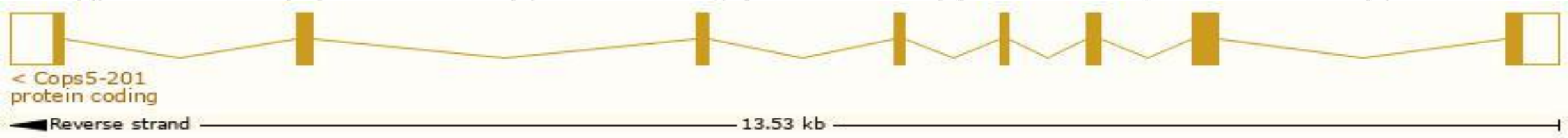
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

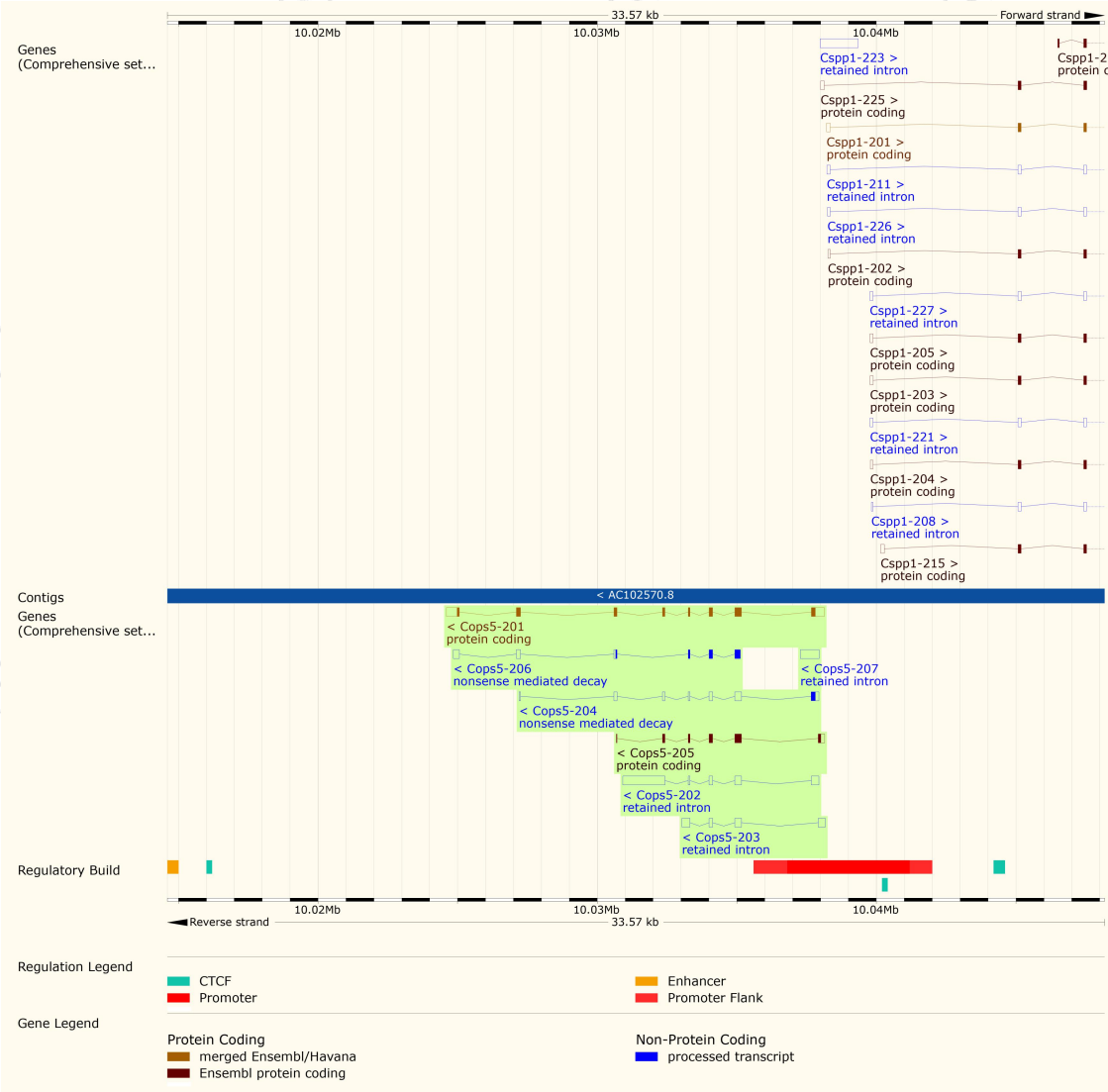
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cops5-201	ENSMUST00000027050.9	1698	334aa	Protein coding	CCDS14818	Q35864	TSL:1 GENCODE basic APPRIS P1
Cops5-205	ENSMUST00000188619.1	771	210aa	Protein coding	-	A0A087WQA8	CDS 3' incomplete TSL:5
Cops5-204	ENSMUST00000186528.6	962	48aa	Nonsense mediated decay	-	A0A087WRH6	TSL:2
Cops5-206	ENSMUST00000190155.6	877	147aa	Nonsense mediated decay	-	A0A087WQ60	CDS 5' incomplete TSL:3
Cops5-202	ENSMUST00000139578.7	2204	No protein	Retained intron	-	-	TSL:2
Cops5-203	ENSMUST00000150509.2	898	No protein	Retained intron	-	-	TSL:2
Cops5-207	ENSMUST00000191296.1	666	No protein	Retained intron	-	-	TSL:NA

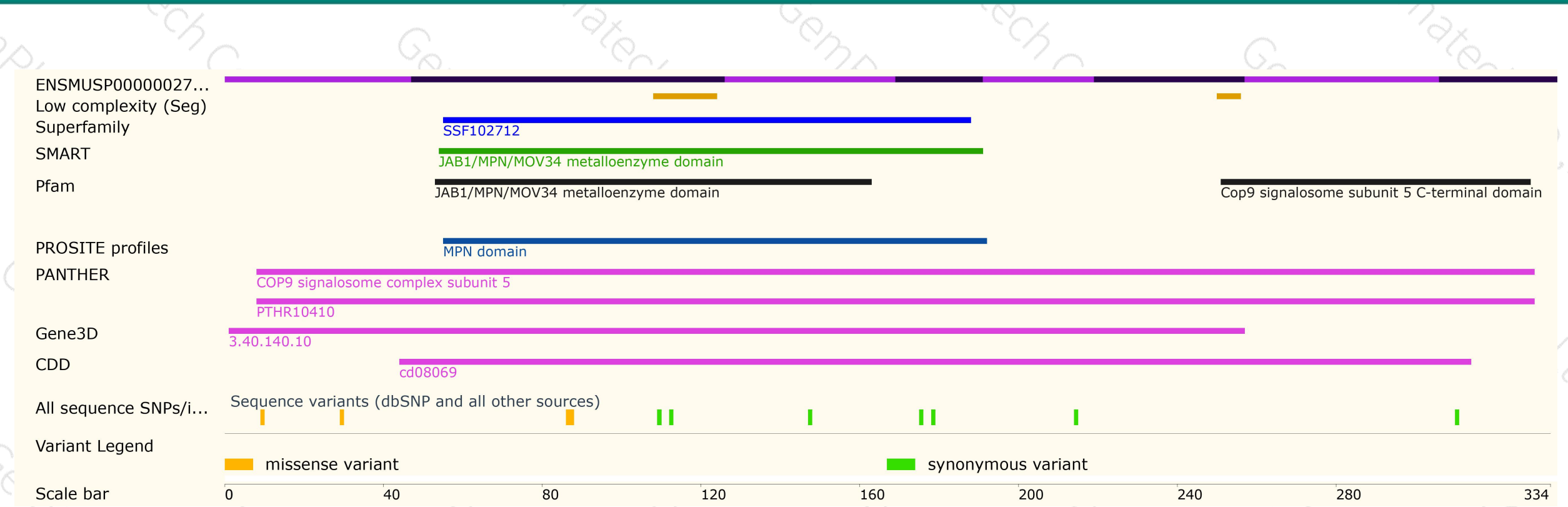
The strategy is based on the design of *Cops5-201* transcript,The transcription is shown below



Genomic location distribution

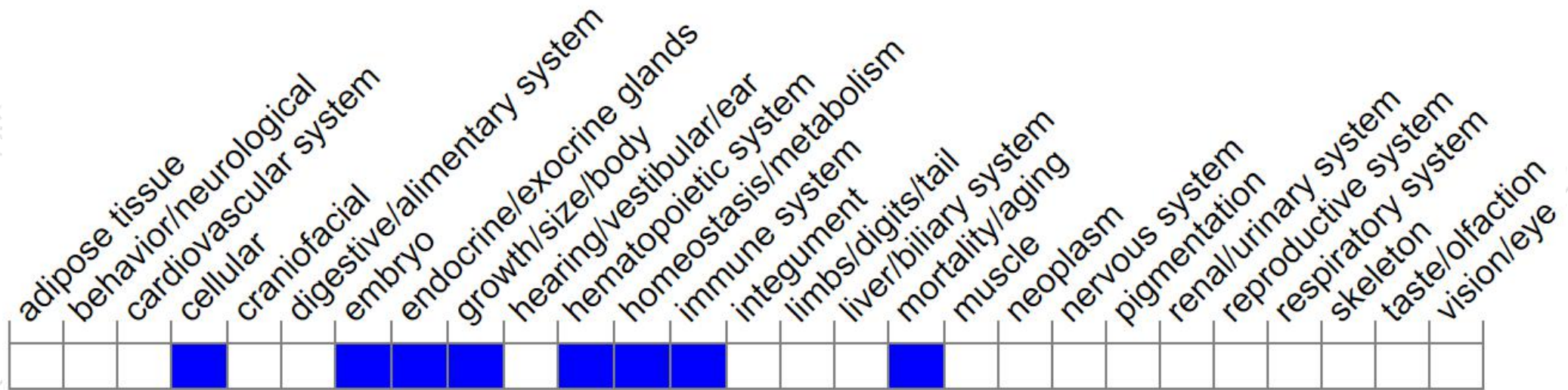


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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

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

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