

Sept2 Cas9-KO Strategy

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Design Date: 2020-2-10

Project Overview



Project Name Sept2

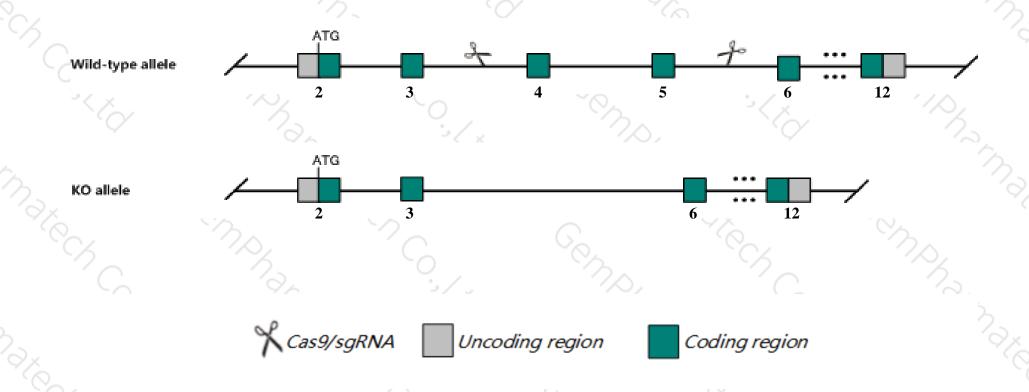
Project type Cas9-KO

Strain background C57BL/6JGpt

Knockout strategy



This model will use CRISPR/Cas9 technology to edit the *Sept2* gene. The schematic diagram is as follows:



Technical routes



- ➤ The *Sept2* gene has 16 transcripts. According to the structure of *Sept2* gene, exon4-exon5 of *Sept2-201* (ENSMUST00000027495.14) transcript is recommended as the knockout region. The region contains 211bp coding sequence Knock out the region will result in disruption of protein function.
- ➤ In this project we use CRISPR/Cas9 technology to modify *Sept2* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and 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



- ➤ The *Sept2* 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)



Sept2 septin 2 [Mus musculus (house mouse)]

Gene ID: 18000, updated on 19-Mar-2019

Summary

☆ ?

Official Symbol Sept2 provided by MGI
Official Full Name septin 2 provided by MGI

Primary source MGI:MGI:97298

See related Ensembl:ENSMUSG00000026276 Ensembl:ENSMUSG00000116048

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 AW208991, Nedd-5, Nedd5, Septin2, mKIAA0158

Expression Ubiquitous expression in placenta adult (RPKM 64.8), bladder adult (RPKM 49.3) and 24 other tissuesSee more

Orthologs <u>human</u> all

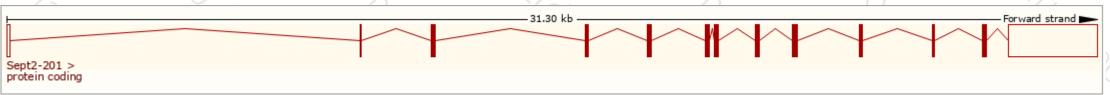
Transcript information (Ensembl)



The gene has 16 transcripts, all transcripts are shown below:

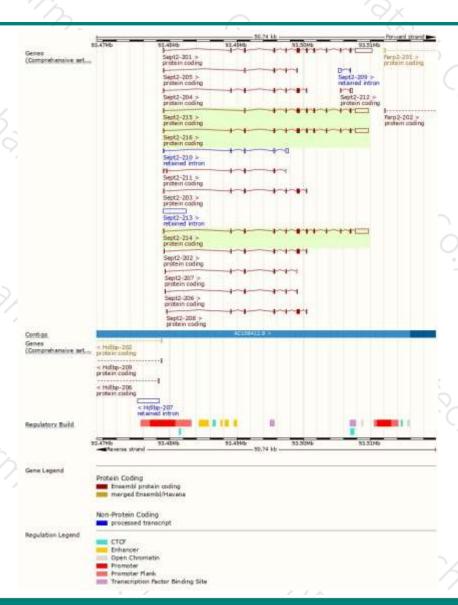
				Jones .				1000
Name 🍦	Transcript ID	bp 🌲	Protein	Biotype	CCDS	UniProt 🍦	Flags	\$
Sept2-201	ENSMUST00000027495.14	3779	<u>361aa</u>	Protein coding	<u>CCDS15190</u> ₽	<u>P42208</u> ₽	TSL:1 GENCODE basic APPRIS P	1
Sept2-203	ENSMUST00000129211.7	784	<u>213aa</u>	Protein coding	-	<u>D3YYB1</u> ₽	CDS 3' incomplete TSL:5	
Sept2-208	ENSMUST00000150931.1	779	<u>221aa</u>	Protein coding	-	<u>D3Z3C0</u> ₽	CDS 3' incomplete TSL:3	
Sept2-202	ENSMUST00000112912.7	756	<u>221aa</u>	Protein coding	-	<u>D3Z3C0</u> ₽	CDS 3' incomplete TSL:5	
Sept2-204	ENSMUST00000131175.8	730	<u>212aa</u>	Protein coding	-	F6WYM0₫	CDS 3' incomplete TSL:5	
Sept2-206	ENSMUST00000142401.7	552	<u>177aa</u>	Protein coding	-	<u>D3Z1S1</u> ₽	CDS 3' incomplete TSL:2	
Sept2-205	ENSMUST00000136182.7	512	<u>107aa</u>	Protein coding	-	F6UKN5®	CDS 3' incomplete TSL:2	
Sept2-207	ENSMUST00000149532.7	477	<u>120aa</u>	Protein coding	-	<u>D3YZU7</u> ₽	CDS 3' incomplete TSL:5	
Sept2-211	ENSMUST00000153826.7	424	<u>77aa</u>	Protein coding	-	<u>D3YV76</u> ₽	CDS 3' incomplete TSL:5	
Sept2-212	ENSMUST00000157021.1	418	<u>45aa</u>	Protein coding	-	G3UYQ0₽	CDS 5' incomplete TSL:2	
Sept2-213	ENSMUST00000188923.1	3310	No protein	Retained intron	-	-	TSL:NA	
Sept2-210	ENSMUST00000152778.1	696	No protein	Retained intron	-	-	TSL:2	
Sept2-209	ENSMUST00000152476.1	466	No protein	Retained intron	-	-	TSL:2	
	iept2-201 iept2-208 iept2-202 iept2-204 iept2-206 iept2-207 iept2-211 iept2-212 iept2-213 iept2-210	Eept2-201 ENSMUST00000027495.14 Eept2-203 ENSMUST00000129211.7 Eept2-208 ENSMUST00000150931.1 Eept2-202 ENSMUST00000112912.7 Eept2-204 ENSMUST00000131175.8 Eept2-206 ENSMUST00000142401.7 Eept2-205 ENSMUST00000136182.7 Eept2-207 ENSMUST00000153826.7 Eept2-211 ENSMUST00000157021.1 Eept2-212 ENSMUST00000188923.1 Eept2-213 ENSMUST00000152778.1	Sept2-201 ENSMUST00000027495.14 3779 Sept2-203 ENSMUST00000129211.7 784 Sept2-208 ENSMUST00000150931.1 779 Sept2-202 ENSMUST00000112912.7 756 Sept2-204 ENSMUST00000131175.8 730 Sept2-206 ENSMUST00000142401.7 552 Sept2-205 ENSMUST00000136182.7 512 Sept2-207 ENSMUST00000153826.7 477 Sept2-211 ENSMUST00000153826.7 424 Sept2-212 ENSMUST00000157021.1 418 Sept2-213 ENSMUST00000188923.1 3310 Sept2-210 ENSMUST00000152778.1 696	Ent2-201 ENSMUST00000027495.14 3779 361aa Sept2-203 ENSMUST00000129211.7 784 213aa Sept2-208 ENSMUST00000150931.1 779 221aa Sept2-202 ENSMUST00000112912.7 756 221aa Sept2-204 ENSMUST00000131175.8 730 212aa Sept2-206 ENSMUST00000142401.7 552 177aa Sept2-205 ENSMUST00000136182.7 512 107aa Sept2-207 ENSMUST00000149532.7 477 120aa Sept2-211 ENSMUST00000153826.7 424 77aa Sept2-212 ENSMUST00000157021.1 418 45aa Sept2-213 ENSMUST00000188923.1 3310 No protein Sept2-210 ENSMUST00000152778.1 696 No protein	Eept2-201 ENSMUST00000027495.14 3779 361aa Protein coding Sept2-203 ENSMUST00000129211.7 784 213aa Protein coding Sept2-208 ENSMUST00000150931.1 779 221aa Protein coding Sept2-202 ENSMUST00000112912.7 756 221aa Protein coding Sept2-204 ENSMUST00000131175.8 730 212aa Protein coding Sept2-206 ENSMUST00000142401.7 552 177aa Protein coding Sept2-205 ENSMUST00000136182.7 512 107aa Protein coding Sept2-207 ENSMUST00000149532.7 477 120aa Protein coding Sept2-211 ENSMUST00000153826.7 424 77aa Protein coding Sept2-212 ENSMUST00000157021.1 418 45aa Protein coding Sept2-213 ENSMUST00000158923.1 3310 No protein Retained intron Sept2-210 ENSMUST00000152778.1 696 No protein Retained intron	Eept2-201 ENSMUST00000027495.14 3779 361aa I Protein coding CCDS15190 № Eept2-203 ENSMUST00000129211.7 784 213aa I Protein coding - Eept2-208 ENSMUST00000150931.1 779 221aa I Protein coding - Eept2-202 ENSMUST00000112912.7 756 221aa I Protein coding - Eept2-204 ENSMUST00000131175.8 730 212aa I Protein coding - Eept2-206 ENSMUST00000142401.7 552 177aa I Protein coding - Eept2-205 ENSMUST00000136182.7 512 107aa I Protein coding - Eept2-207 ENSMUST00000149532.7 477 120aa I Protein coding - Eept2-211 ENSMUST00000153826.7 424 77aa I Protein coding - Eept2-212 ENSMUST00000188923.1 3310 No protein I Retained intron - Eept2-210 ENSMUST00000152778.1 696 No protein I Retained intron -	Protein coding P42208 P42208 P42208 Pept2-203 ENSMUST00000129211.7 784 213aa Protein coding P700000000000000000000000000000000000	Protein coding Prot

The strategy is based on the design of Sept2-201 transcript, The transcription is shown below



Genomic location distribution





Protein domain







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

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