

Gas5 Cas9-KO Strategy

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Project Overview

Project Name

Gas5

Project type

Cas9-KO

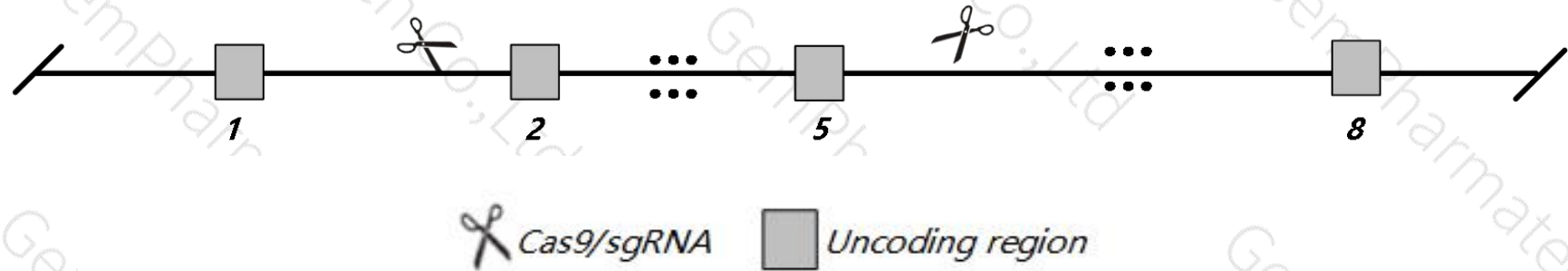
Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gas5* gene. The schematic diagram is as follows:

Wild-type allele



- The *Gas5* gene has 25 transcripts. According to the structure of *Gas5* gene, exon2-exon5 of *Gas5-217* (ENSMUST00000161005.7) transcript is recommended as the knockout region. The region contains most sequence.

Knock out the region will result in disruption of gene function.

- In this project we use CRISPR/Cas9 technology to modify *Gas5* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- The KO region contains functional region of the *Snord80, Gm25789, Snord47, Gm26224, Gm22489, Gm22357, Gm23212, Snord78, Mir5117, Zbtb37* gene. Knockout the region may affect the function of *Snord80, Gm25789, Snord47, Gm26224, Gm22489, Gm22357, Gm23212, Snord78, Mir5117, Zbtb37* gene.
- The *Gas5* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Gas5 growth arrest specific 5 [*Mus musculus* (house mouse)]

Gene ID: 14455, updated on 31-Jan-2019

Summary

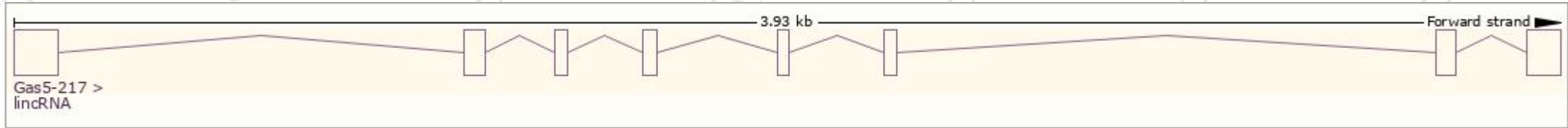
Official Symbol	Gas5 provided by MGI
Official Full Name	growth arrest specific 5 provided by MGI
Primary source	MGI:MG1:95659
See related	Ensembl:ENSMUSG00000053332
Gene type	ncRNA
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gas-5; Snhg2; Mir5117
Expression	Broad expression in liver E14 (RPKM 95.8), CNS E11.5 (RPKM 88.1) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

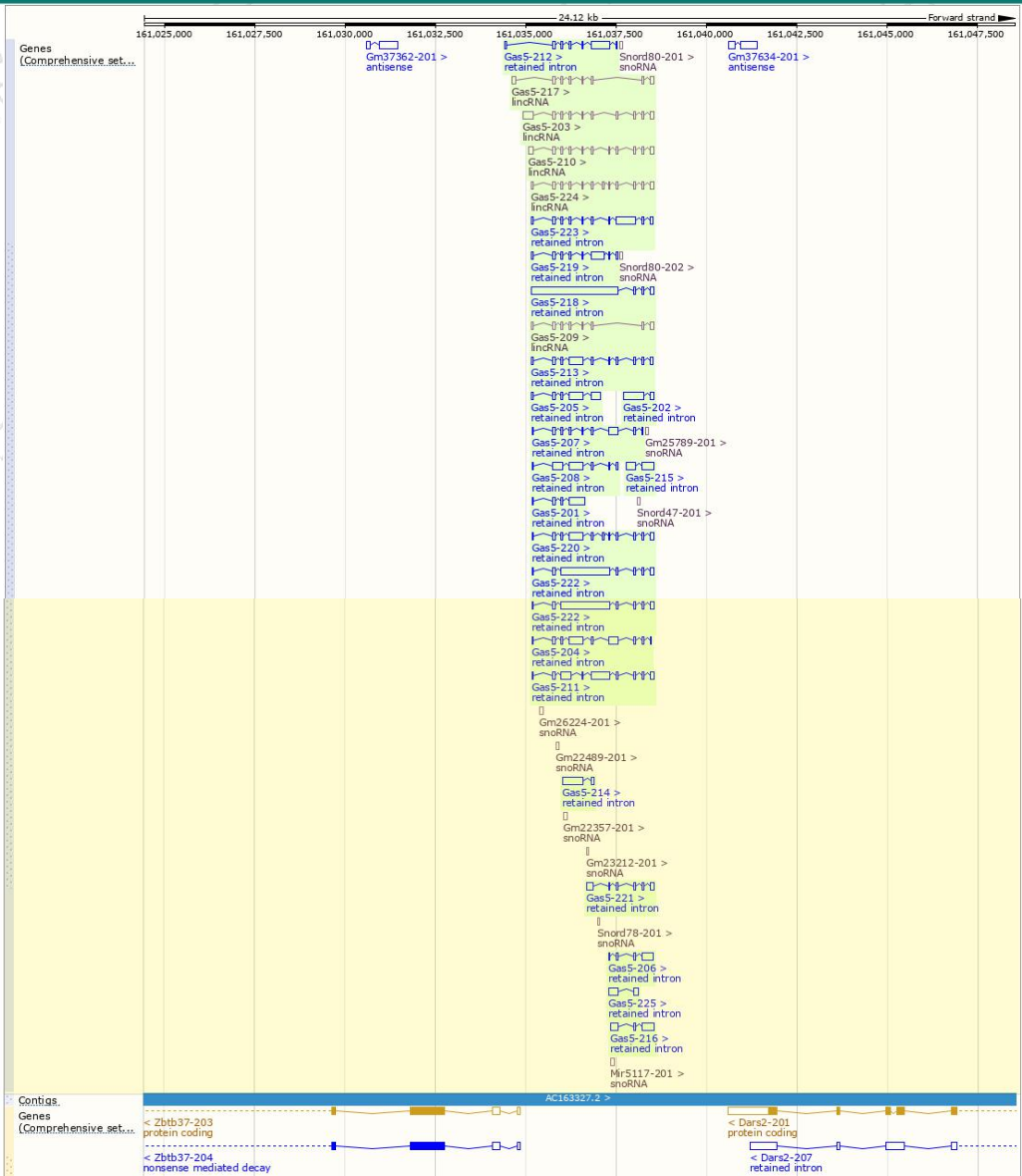
The gene has 25 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	Flags
Gas5-218	ENSMUST00000161229.7	2556	No protein	Retained intron	-	TSL:1
Gas5-222	ENSMUST00000162163.7	1614	No protein	Retained intron	-	TSL:1
Gas5-211	ENSMUST00000159890.7	1066	No protein	Retained intron	-	TSL:5
Gas5-223	ENSMUST00000162289.7	904	No protein	Retained intron	-	TSL:5
Gas5-204	ENSMUST00000159153.7	872	No protein	Retained intron	-	TSL:5
Gas5-220	ENSMUST00000161461.7	793	No protein	Retained intron	-	TSL:1
Gas5-208	ENSMUST00000159438.7	779	No protein	Retained intron	-	TSL:5
Gas5-213	ENSMUST00000160429.7	759	No protein	Retained intron	-	TSL:3
Gas5-205	ENSMUST00000159157.7	723	No protein	Retained intron	-	TSL:3
Gas5-212	ENSMUST00000160152.7	712	No protein	Retained intron	-	TSL:3
Gas5-202	ENSMUST00000159037.1	636	No protein	Retained intron	-	TSL:2
Gas5-214	ENSMUST00000160497.1	629	No protein	Retained intron	-	TSL:2
Gas5-219	ENSMUST00000161380.7	600	No protein	Retained intron	-	TSL:5
Gas5-215	ENSMUST00000160516.1	572	No protein	Retained intron	-	TSL:2
Gas5-216	ENSMUST00000160551.1	549	No protein	Retained intron	-	TSL:3
Gas5-207	ENSMUST00000159404.7	539	No protein	Retained intron	-	TSL:5
Gas5-201	ENSMUST00000065709.11	530	No protein	Retained intron	-	TSL:2
Gas5-206	ENSMUST00000159399.7	422	No protein	Retained intron	-	TSL:2
Gas5-221	ENSMUST00000161623.7	403	No protein	Retained intron	-	TSL:2
Gas5-225	ENSMUST00000163081.1	370	No protein	Retained intron	-	TSL:2
Gas5-203	ENSMUST00000159119.7	665	No protein	lincRNA	-	TSL:5 GENCODE basic
Gas5-210	ENSMUST00000159706.7	557	No protein	lincRNA	-	TSL:2 GENCODE basic
Gas5-224	ENSMUST00000162558.7	502	No protein	lincRNA	-	TSL:1 GENCODE basic
Gas5-217	ENSMUST00000161005.7	430	No protein	lincRNA	-	TSL:5 GENCODE basic
Gas5-209	ENSMUST00000159663.7	346	No protein	lincRNA	-	TSL:3 GENCODE basic

The strategy is based on the design of *Gas5-217* transcript,The transcription is shown below



Genomic location distribution



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

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