

Adam33 Cas9-KO Strategy

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Project Overview

Project Name

Adam33

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adam33* gene. The schematic diagram is as follows:



- The *Adam33* gene has 13 transcripts. According to the structure of *Adam33* gene, exon2-exon19 of *Adam33-202* (ENSMUST00000110232.8) transcript is recommended as the knockout region. The region contains 2140bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adam33* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a targeted gene deletion are viable, fertile, developmentally normal and display normal allergen-induced airway hyperreactivity, IgE production, mucus metaplasia, and airway inflammation in an OVA-induced model of allergic asthma.
- The *Adam33* gene is located on the Chr2. 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)

Adam33 a disintegrin and metallopeptidase domain 33 [*Mus musculus* (house mouse)]

Gene ID: 110751, updated on 12-Aug-2019

Summary

- Official Symbol** Adam33 provided by MGI
- Official Full Name** a disintegrin and metallopeptidase domain 33 provided by MGI
- Primary source** [MGI:MGI:1341813](#)
- See related** [Ensembl:ENSMUSG00000027318](#)
- Gene type** protein coding
- RefSeq status** REVIEWED
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Adam1
- Summary** This gene encodes a member of a disintegrin and metalloprotease (ADAM) family of endoproteases that play important roles in various biological processes including cell signaling, adhesion and migration. This gene is widely expressed, most highly in the adult brain, heart, kidney, lung and testis. The encoded preproprotein undergoes proteolytic processing to generate a mature, functional metalloprotease enzyme. Alternative splicing results in multiple transcript variants encoding different isoforms, some of which may undergo similar processing. [provided by RefSeq, May 2016]
- Expression** Biased expression in bladder adult (RPKM 51.9), limb E14.5 (RPKM 19.8) and 13 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2 F1; 2 63.26 cM See Adam33 in [Genome Data Viewer](#)

Exon count: 21

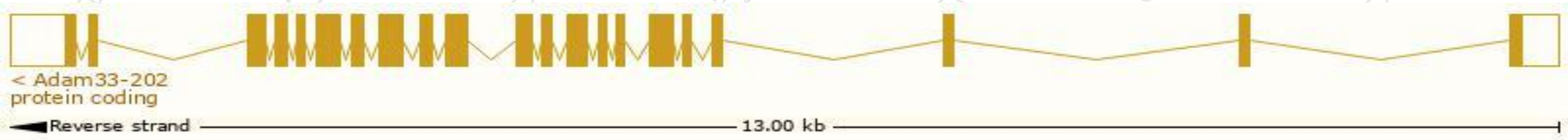
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (131050819..131063814, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (130876553..130889550, complement)

Transcript information (Ensembl)

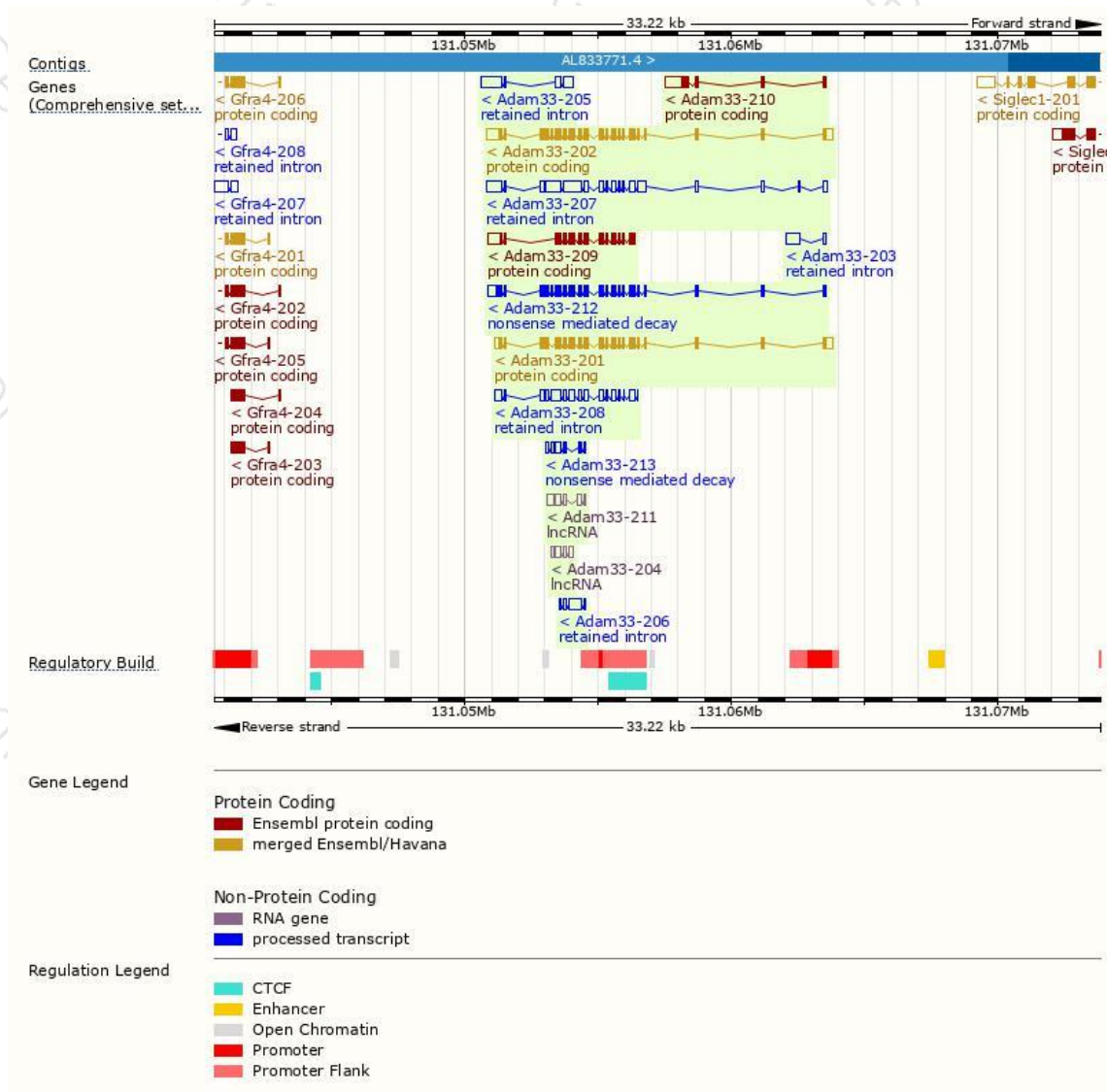
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adam33-202	ENSMUST00000110232.8	3165	797aa	Protein coding	CCDS16753	Q923W9	TSL:1 GENCODE basic APPRIS P3
Adam33-201	ENSMUST00000052104.9	2795	771aa	Protein coding	CCDS50716	A2AP51 Q923W9	TSL:1 GENCODE basic APPRIS ALT2
Adam33-209	ENSMUST00000135149.7	2062	533aa	Protein coding	-	F7CIM2	CDS 5' incomplete TSL:1
Adam33-210	ENSMUST00000147333.1	1117	169aa	Protein coding	-	F6Z4C4	CDS 5' incomplete TSL:1
Adam33-212	ENSMUST00000183552.7	2765	797aa	Nonsense mediated decay	CCDS16753	Q923W9	TSL:1
Adam33-213	ENSMUST00000184921.7	656	60aa	Nonsense mediated decay	-	V9GXX4	CDS 5' incomplete TSL:5
Adam33-207	ENSMUST00000132436.7	3574	No protein	Retained intron	-	-	TSL:2
Adam33-208	ENSMUST00000134742.7	2228	No protein	Retained intron	-	-	TSL:2
Adam33-205	ENSMUST00000128828.7	1402	No protein	Retained intron	-	-	TSL:1
Adam33-206	ENSMUST00000132071.1	676	No protein	Retained intron	-	-	TSL:5
Adam33-203	ENSMUST00000124481.1	656	No protein	Retained intron	-	-	TSL:3
Adam33-211	ENSMUST00000149625.7	736	No protein	lncRNA	-	-	TSL:3
Adam33-204	ENSMUST00000127343.7	548	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Adam33-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech



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

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