

Slc29a2 Cas9-CKO Strategy

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Design Date:

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Project Overview

Project Name

Slc29a2

Project type

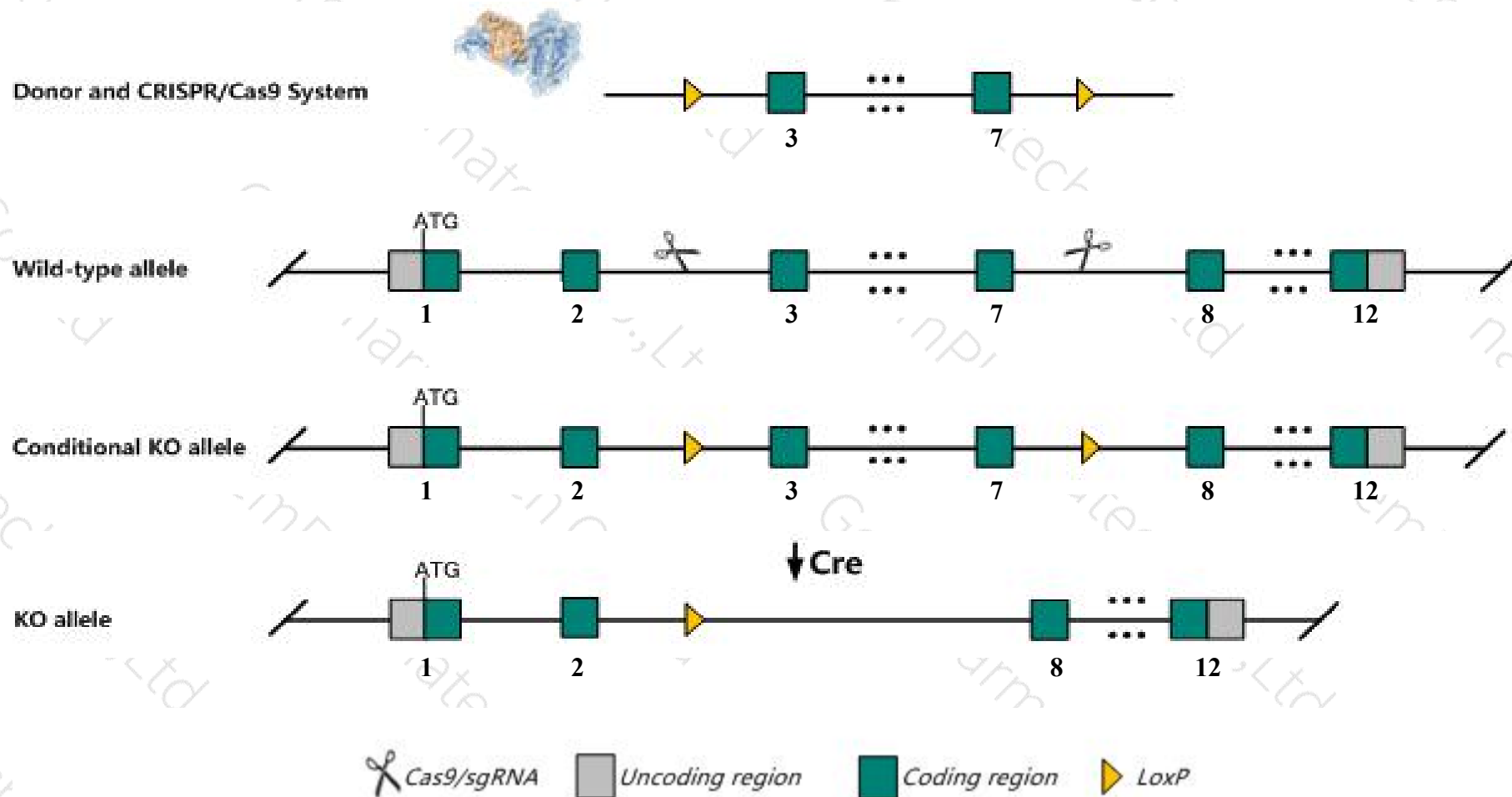
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc29a2* gene. The schematic diagram is as follows:



Technical routes

- The *Slc29a2* gene has 6 transcripts. According to the structure of *Slc29a2* gene, exon3-exon7 of *Slc29a2*-204 (ENSMUST00000236152.1) transcript is recommended as the knockout region. The region contains 619bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc29a2* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, mice homozygous for a gene trap allele exhibit normal adenosine uptake in erythrocytes and protection from acute lung injury.
- The *Slc29a2* gene is located on the Chr19. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Slc29a2 solute carrier family 29 (nucleoside transporters), member 2 [*Mus musculus* (house mouse)]

Gene ID: 13340, updated on 13-Mar-2020

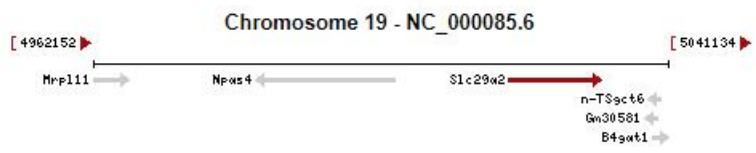
Summary

Official Symbol Slc29a2 provided by MGI
Official Full Name solute carrier family 29 (nucleoside transporters), member 2 provided by MGI
Primary source MGI:MGI:1345278
See related Ensembl:ENSMUSG00000024891
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 Ent2; Der12; Hnp36
Expression Ubiquitous expression in CNS E18 (RPKM 8.0), heart adult (RPKM 7.3) and 28 other tissues [See more](#)
Orthologs [human](#) [all](#)

Genomic context

Location: 19; 19 A See Slc29a2 in [Genome Data Viewer](#)
Exon count: 13

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	19	NC_000085.6 (5019057..5031972)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	19	NC_000085.5 (5024006..5031972)

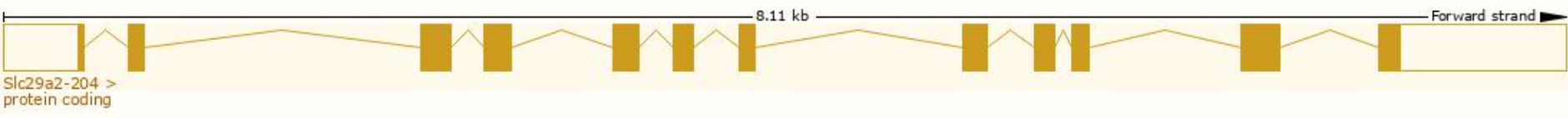


Transcript information (Ensembl)

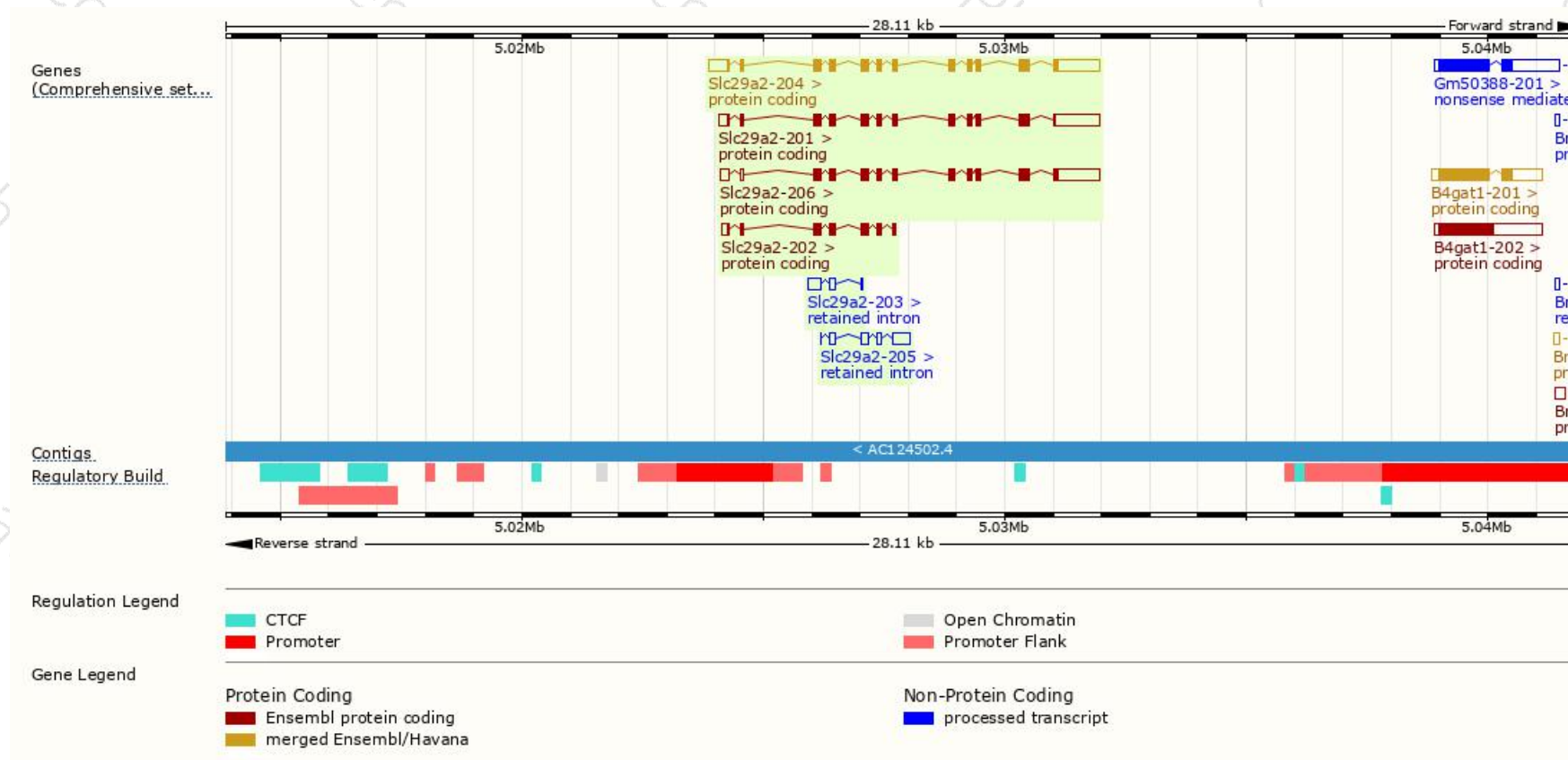
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc29a2-204	ENSMUST00000236152.1	2619	456aa	Protein coding	CCDS50354	Q61672	GENCODE basic APPRIS P1
Slc29a2-201	ENSMUST0000025826.6	2401	427aa	Protein coding	-	A0A498WFQ1	TSL:1 GENCODE basic
Slc29a2-206	ENSMUST00000237371.1	2362	404aa	Protein coding	-	A0A494BAC3	GENCODE basic
Slc29a2-202	ENSMUST00000235416.1	784	228aa	Protein coding	-	A0A494BAD2	CDS 3' incomplete
Slc29a2-205	ENSMUST00000237267.1	750	No protein	Retained intron	-	-	-
Slc29a2-203	ENSMUST00000235933.1	440	No protein	Retained intron	-	-	-

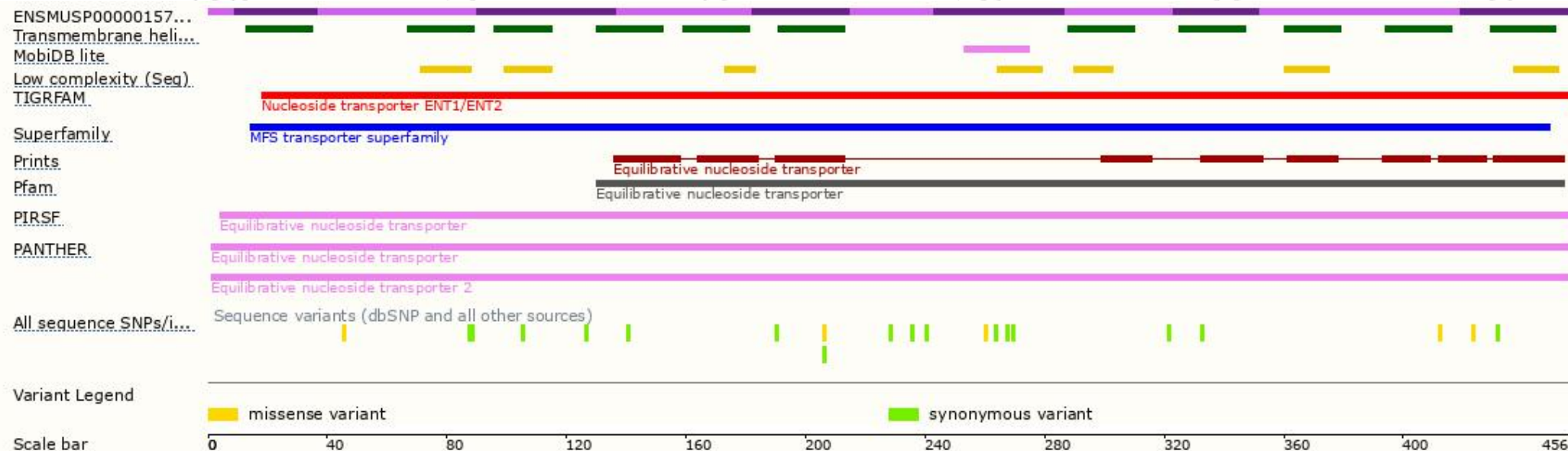
The strategy is based on the design of *Slc29a2-204* transcript, the transcription is shown below:



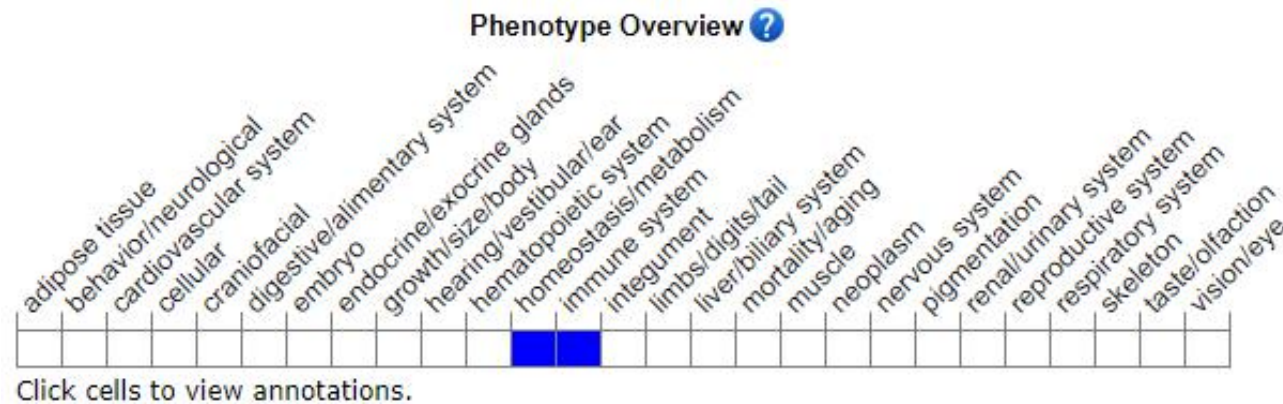
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

According to the existing MGI data, Mice homozygous for a gene trap allele exhibit normal adenosine uptake in erythrocytes and protection from acute lung injury.

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

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