

Pias3 Cas9-CKO Strategy

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Reviewer:	
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Project Overview

Project Name

Pias3

Project type

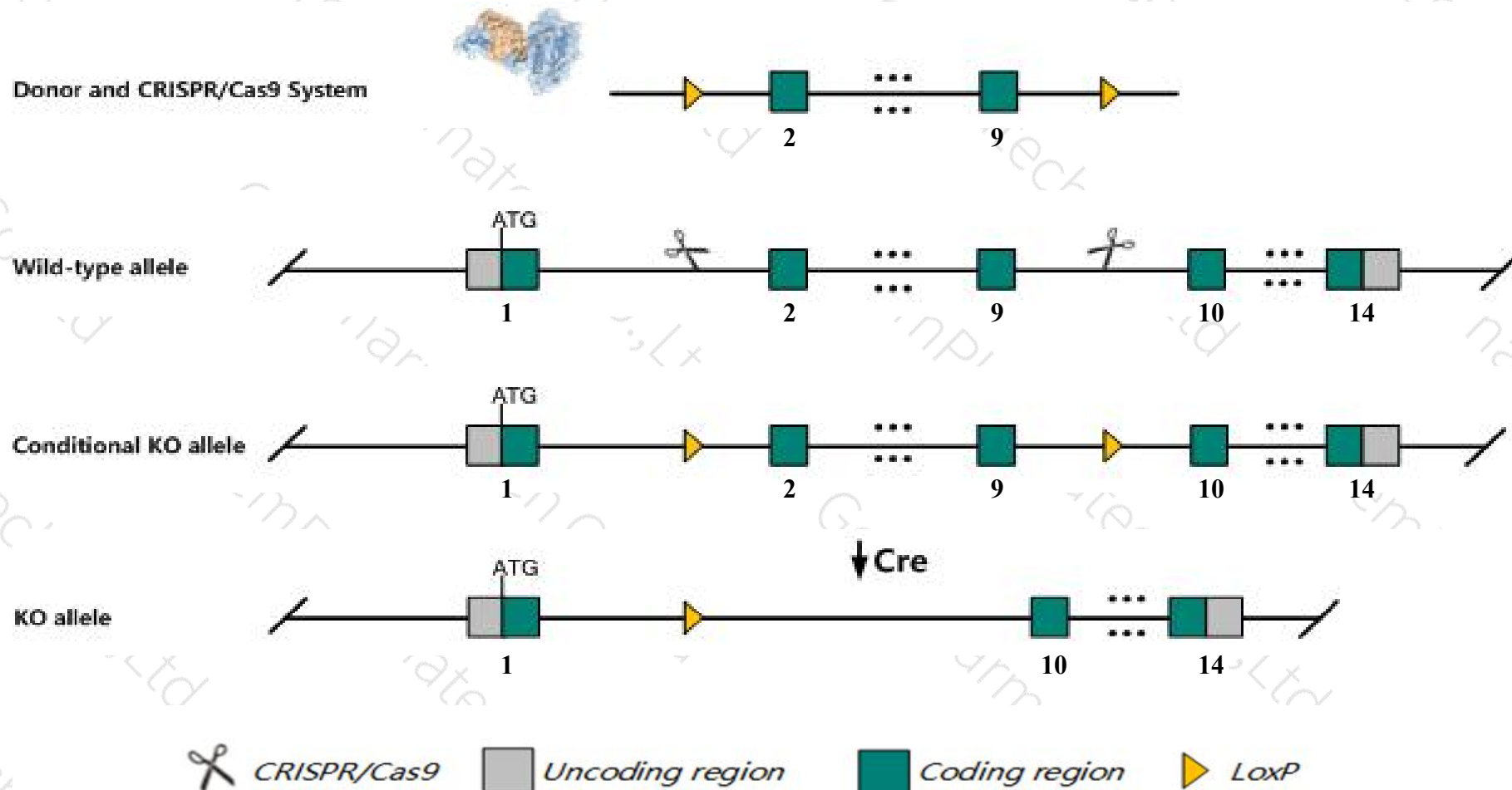
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pias3* gene. The schematic diagram is as follows:



- The *Pias3* gene has 10 transcripts. According to the structure of *Pias3* gene, exon2-exon9 of *Pias3-201* (ENSMUST00000064900.15) transcript is recommended as the knockout region. The region contains 1121bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pias3* 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, Double KO mice display a retinal phenotype reduced M-cone response at P21 and reduced S-cone and rod responses from 7 months.
- Transcript *Pias3*-205 may be unaffected.
- The *Pias3* gene is located on the Chr3. 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)

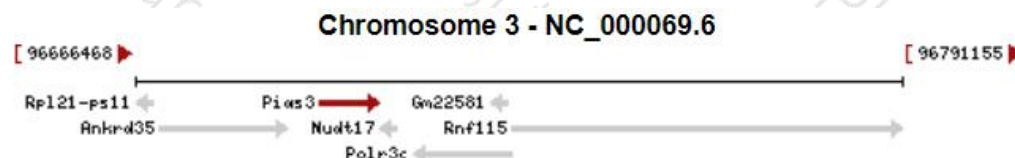
Pias3 protein inhibitor of activated STAT 3 [*Mus musculus* (house mouse)]

Gene ID: 229615, updated on 12-Aug-2019

Summary



Official Symbol	Pias3 provided by MGI
Official Full Name	protein inhibitor of activated STAT 3 provided by MGI
Primary source	MGI:MGI:1913126
See related	Ensembl:ENSMUSG00000028101
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	Pias3l
Expression	Ubiquitous expression in limb E14.5 (RPKM 15.6), ovary adult (RPKM 8.7) and 28 other tissues See more
Orthologs	human all

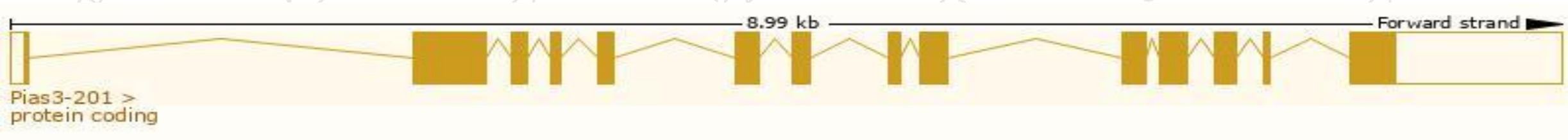


Transcript information (Ensembl)

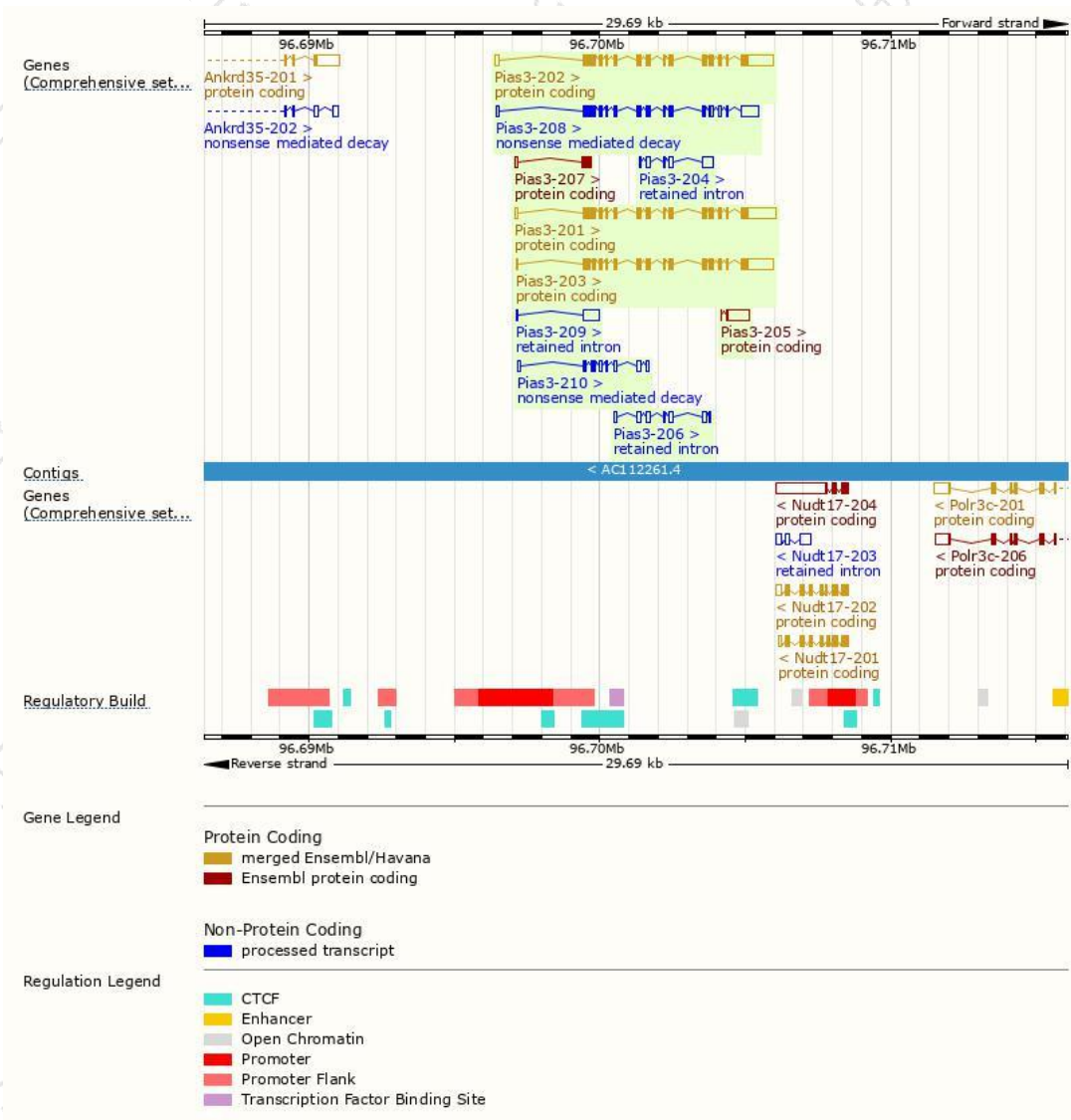
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Pias3-201	ENSMUST00000064900.15	2931	628aa	ENSMUSP00000069259.9	Protein coding	CCDS51007	Q54714	TSL:1 GENCODE basic APPRIS ALT1
Pias3-202	ENSMUST00000107076.9	2858	619aa	ENSMUSP00000102691.3	Protein coding	CCDS38559	Q54714	TSL:1 GENCODE basic APPRIS P3
Pias3-203	ENSMUST00000107077.3	2695	593aa	ENSMUSP00000102692.3	Protein coding	CCDS17645	Q54714	TSL:1 GENCODE basic
Pias3-205	ENSMUST00000162156.2	812	27aa	ENSMUSP00000135843.1	Protein coding	-	H3BLM4	CDS 5' incomplete TSL:3
Pias3-207	ENSMUST00000162778.2	439	90aa	ENSMUSP00000125377.2	Protein coding	-	E0CZH5	CDS 3' incomplete TSL:3
Pias3-208	ENSMUST00000162934.7	2281	430aa	ENSMUSP00000125747.1	Nonsense mediated decay	-	E0CZ31	TSL:1
Pias3-210	ENSMUST00000176302.7	744	52aa	ENSMUSP00000134835.1	Nonsense mediated decay	-	H3BJ41	TSL:5
Pias3-206	ENSMUST00000162707.8	795	No protein	-	Retained intron	-	-	TSL:5
Pias3-204	ENSMUST00000161296.1	770	No protein	-	Retained intron	-	-	TSL:3
Pias3-209	ENSMUST00000176288.1	627	No protein	-	Retained intron	-	-	TSL:2

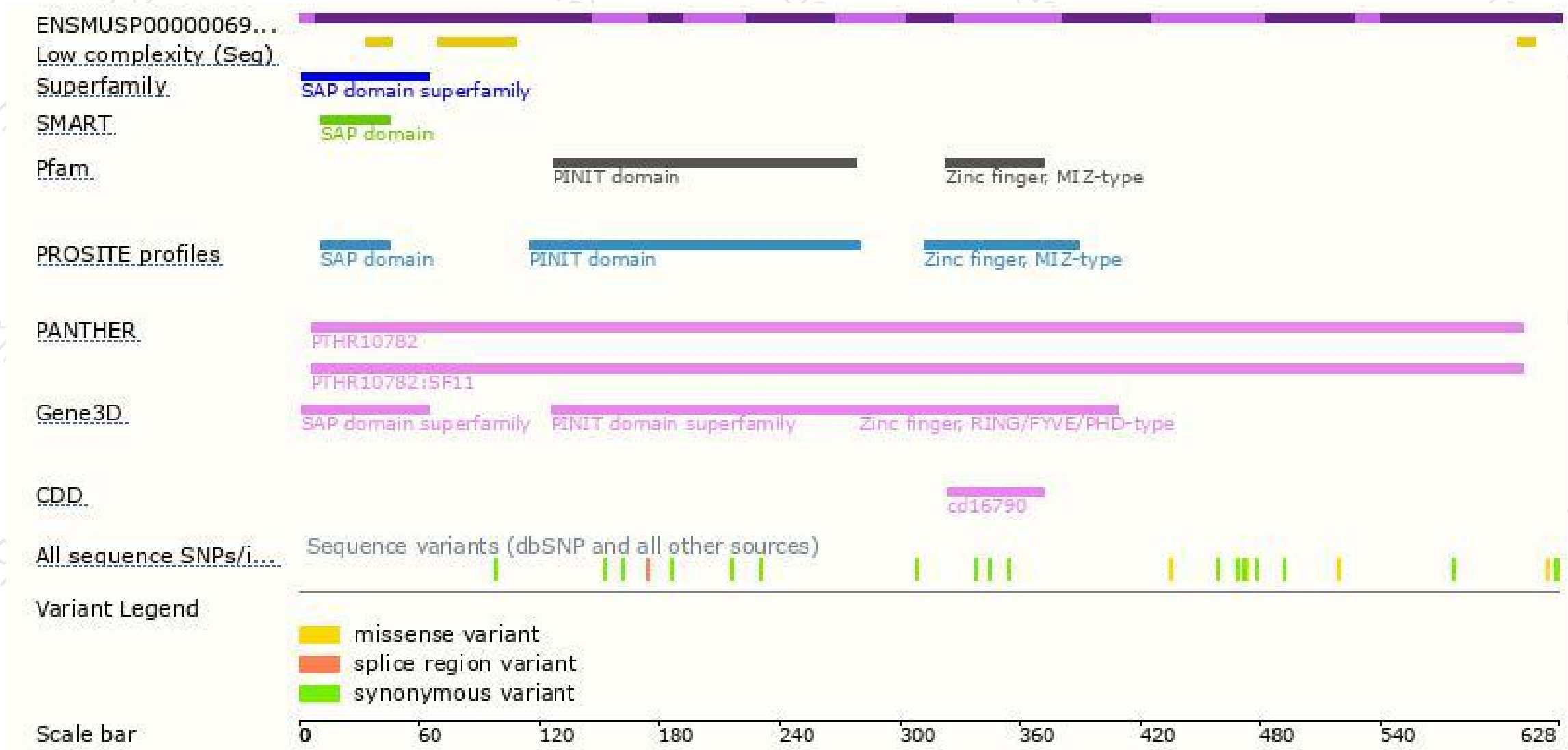
The strategy is based on the design of *Pias3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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