Exoc3 Cas9-CKO Strategy

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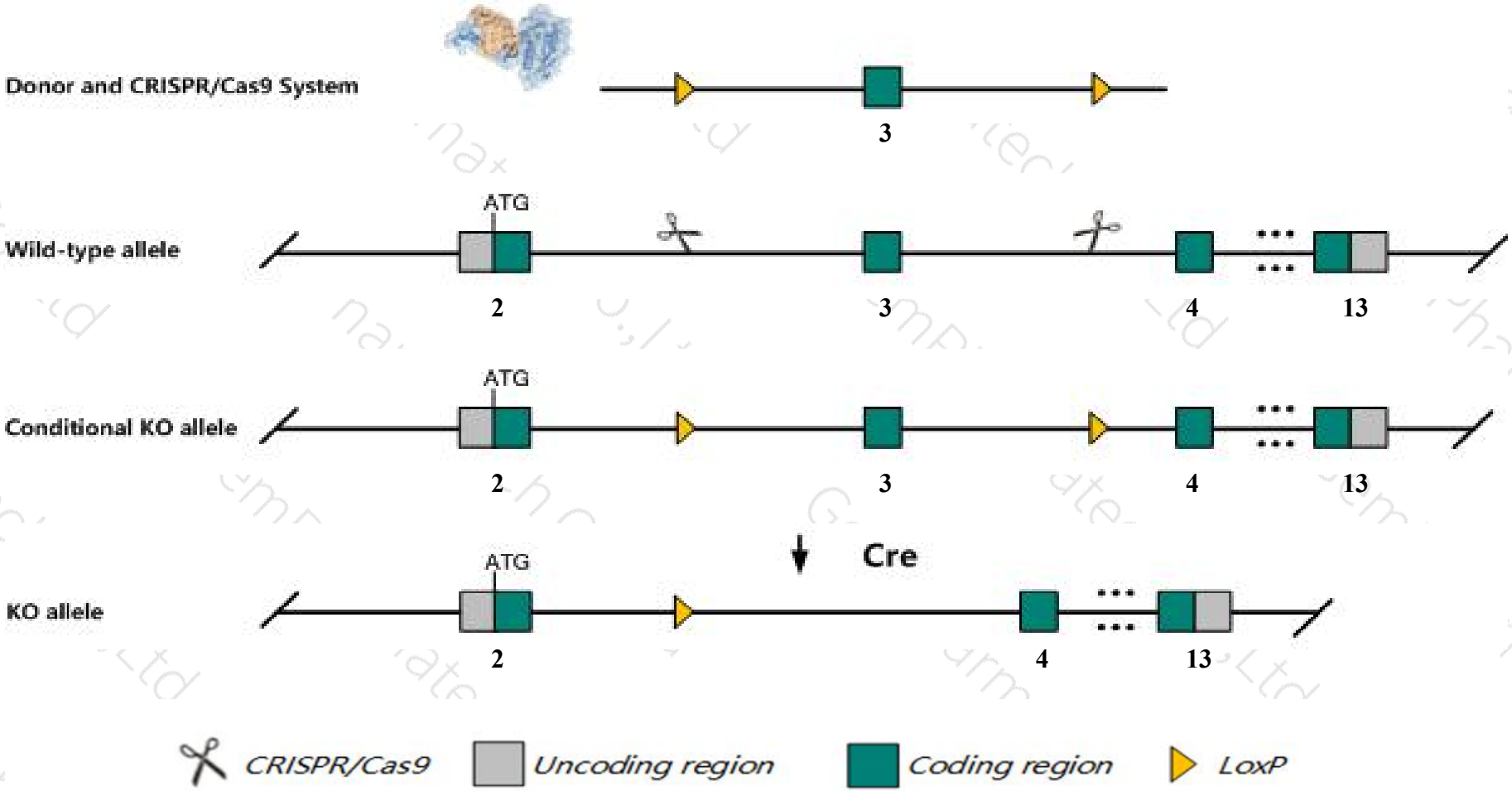
Project Overview

Project Name	***Exoc3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Exoc3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Exoc3* gene has 6 transcripts. According to the structure of *Exoc3* gene, exon3 of *Exoc3-201*(ENSMUST00000035934.6) transcript is recommended as the knockout region.The region contains 220bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Exoc3* 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.

Notice

➢ The *Exoc3* gene is located on the Chr13. 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）

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Exoc3 exocyst complex component 3 [Mus musculus (house mouse)]

Gene ID: 211446, updated on 13-Mar-2020

Summary

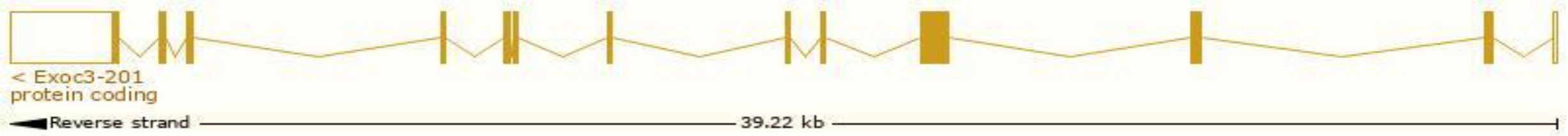
Official Symbol	Exoc3 provided by MGI
Official Full Name	exocyst complex component 3 provided by MGI
Primary source	MGI:MGI:2443972
See related	Ensembl:ENSMUSG00000034152
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810050O03Rik, E430013E20Rik, Sec6, Sec6l1
Expression	Ubiquitous expression in CNS E18 (RPKM 10.0), CNS E11.5 (RPKM 9.6) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

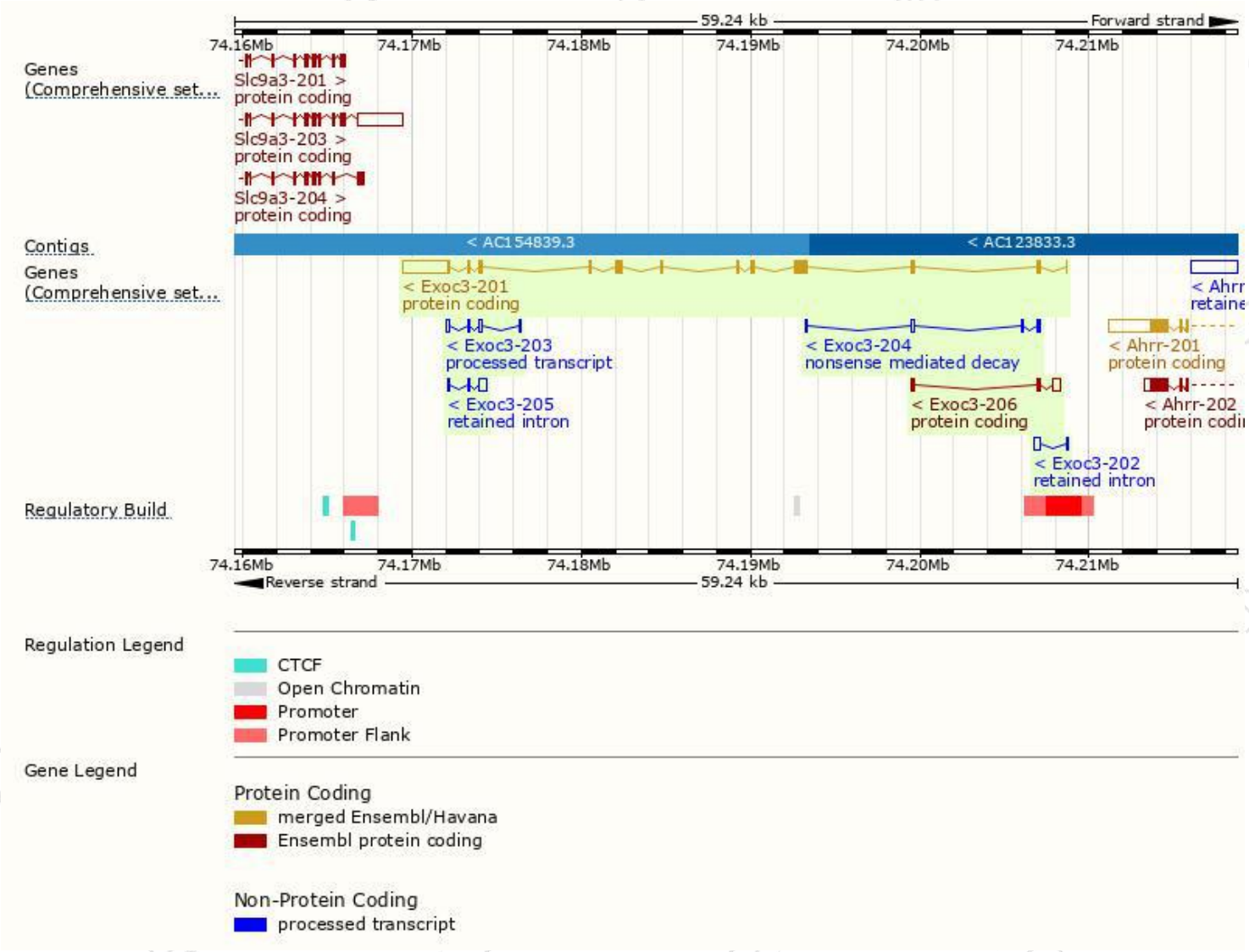
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Exoc3-201	ENSMUST00000035934.6	4922	755aa	Protein coding	CCDS26640	Q6KAR6 Q8K0E2	TSL:1 GENCODE basic APPRIS P1
Exoc3-206	ENSMUST00000223045.1	775	106aa	Protein coding	-	A0A1Y7VKY4	CDS 3' incomplete TSL:3
Exoc3-204	ENSMUST00000222213.1	450	72aa	Nonsense mediated decay	-	A0A1Y7VP30	TSL:5
Exoc3-203	ENSMUST00000220679.1	635	No protein	Processed transcript	-	-	TSL:3
Exoc3-205	ENSMUST00000222248.1	696	No protein	Retained intron	-	-	TSL:2
Exoc3-202	ENSMUST00000220548.1	461	No protein	Retained intron	-	-	TSL:2

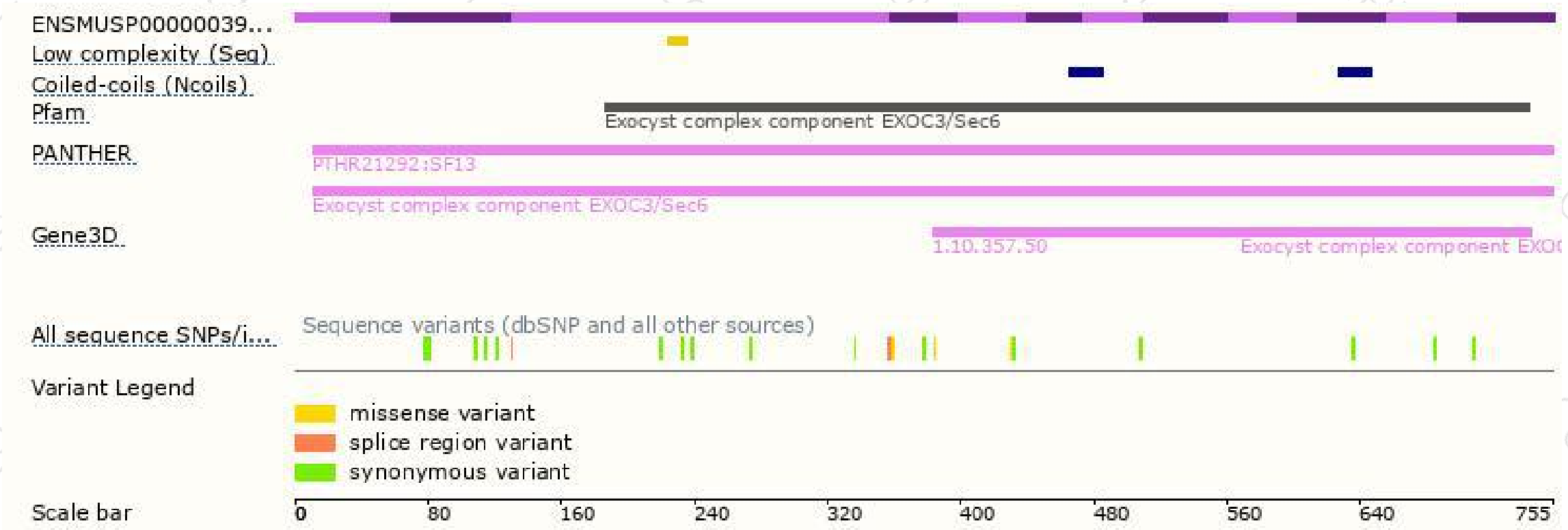
The strategy is based on the design of *Exoc3-201* transcript,the transcription is shown below:



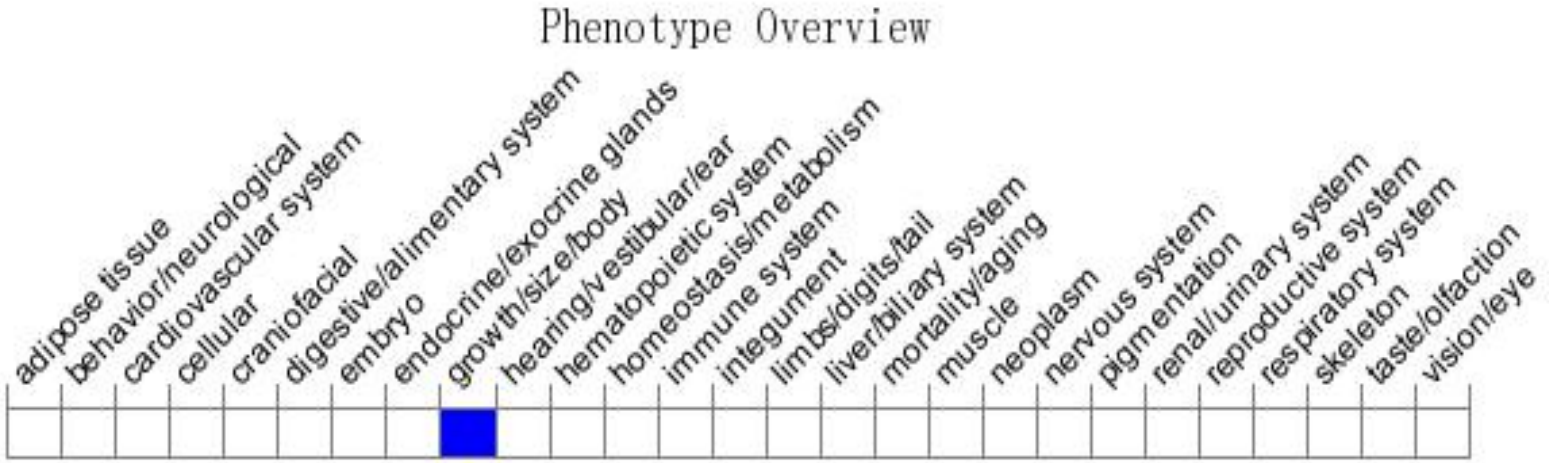
Genomic location distribution



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/).

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

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