

Abo Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Abo

Project type

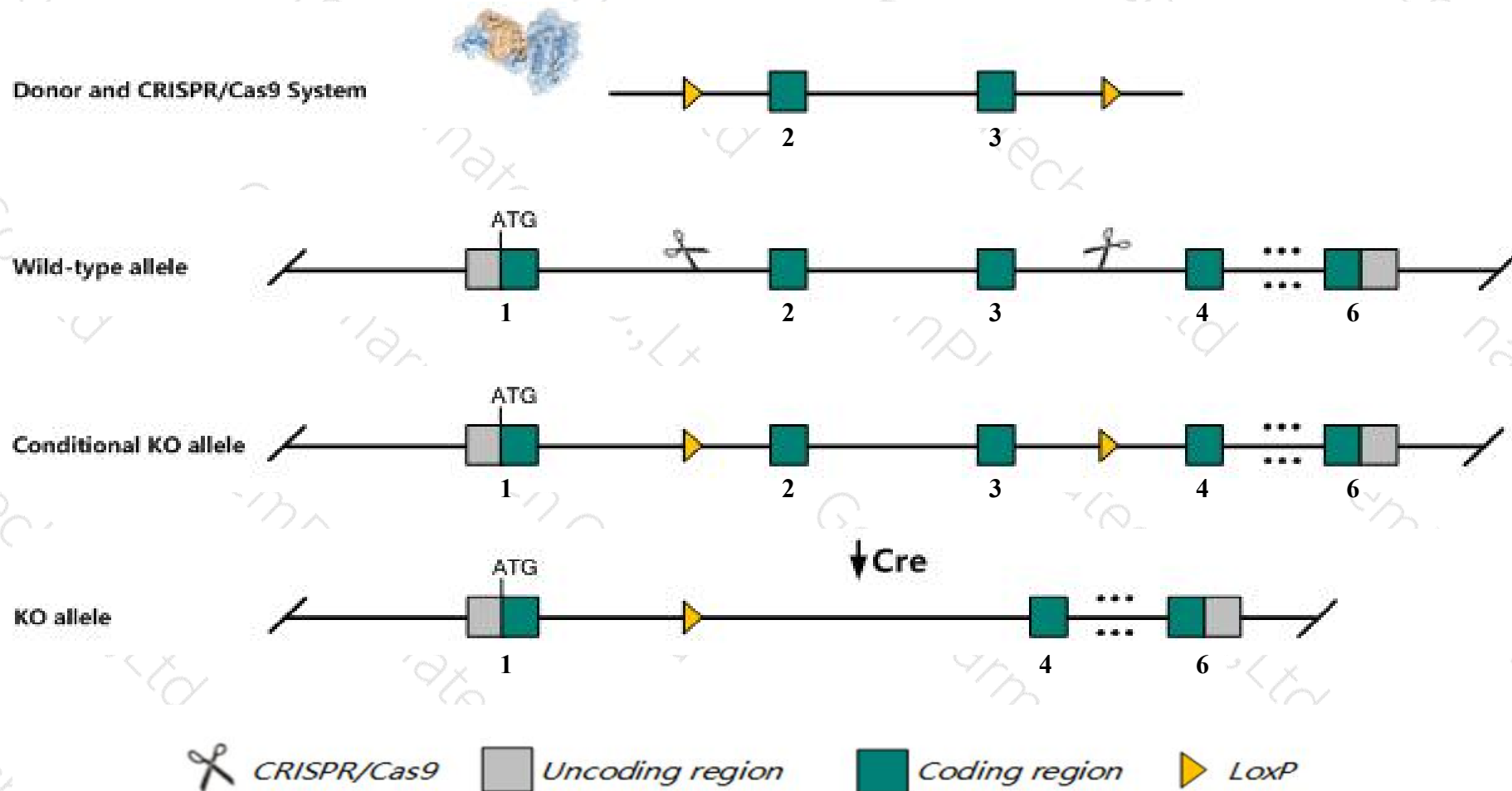
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Abo* gene has 2 transcripts. According to the structure of *Abo* gene, exon2-exon3 of *Abo-201* (ENSMUST00000102900.1) transcript is recommended as the knockout region. The region contains 127bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abo* 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 *Abo* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Abo ABO blood group (transferase A, alpha 1-3-N-acetylgalactosaminyltransferase, transferase B, alpha 1-3-galactosyltransferase) [Mus musculus (house mouse)]

Gene ID: 80908, updated on 31-Jan-2019

Summary



Official Symbol Abo provided by [MGI](#)

Official Full Name ABO blood group (transferase A, alpha 1-3-N-acetylgalactosaminyltransferase, transferase B, alpha 1-3-galactosyltransferase) provided by [MGI](#)

Primary source [MGI:MGI:2135738](#)

See related [Ensembl:ENSMUSG00000015787](#)

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 NAGAT

Expression Biased expression in genital fat pad adult (RPKM 4.6), colon adult (RPKM 3.3) and 2 other tissues [See more](#)

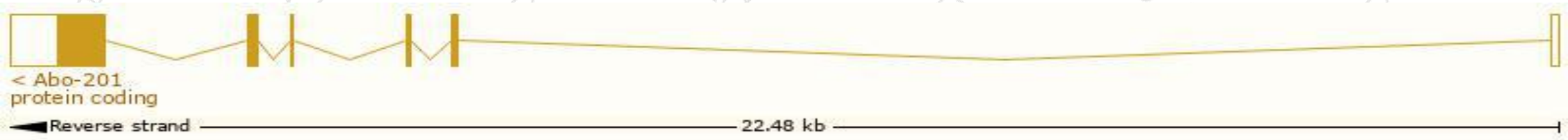
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

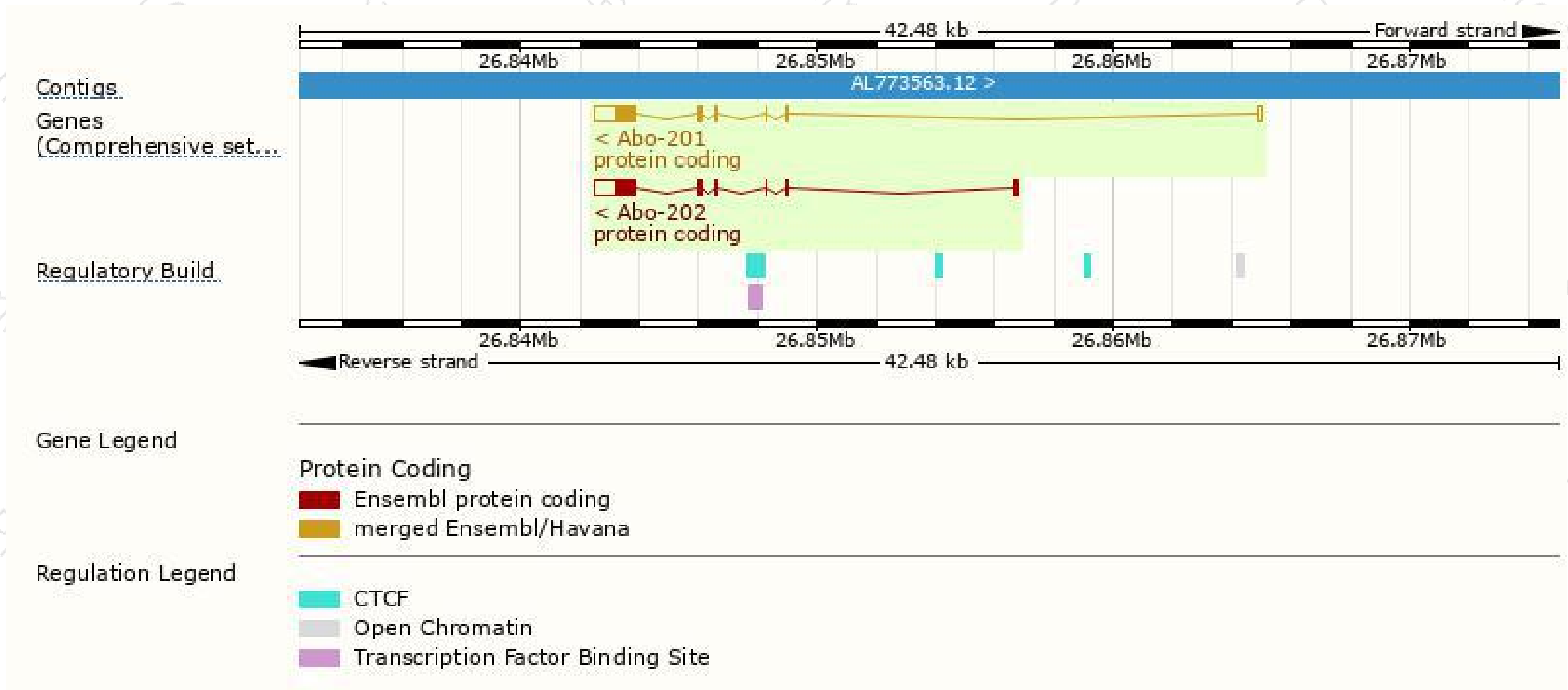
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abo-201	ENSMUST00000102900.1	1779	332aa	Protein coding	CCDS15811	P38649	TSL:1 GENCODE basic APPRIS P2
Abo-202	ENSMUST00000114045.8	1811	334aa	Protein coding	-	Z4YLB0	TSL:5 GENCODE basic APPRIS ALT2

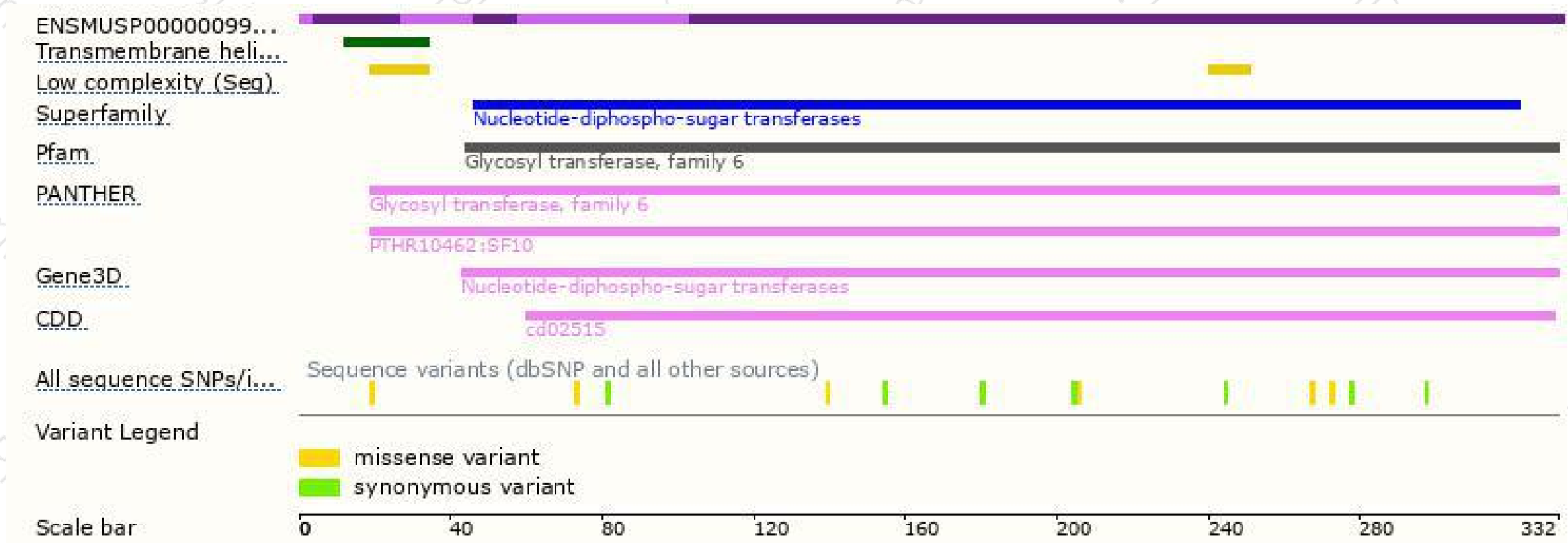
The strategy is based on the design of *Abo-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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