Eda2r Cas9-KO Strategy

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Reviewer: Xiaojing Li

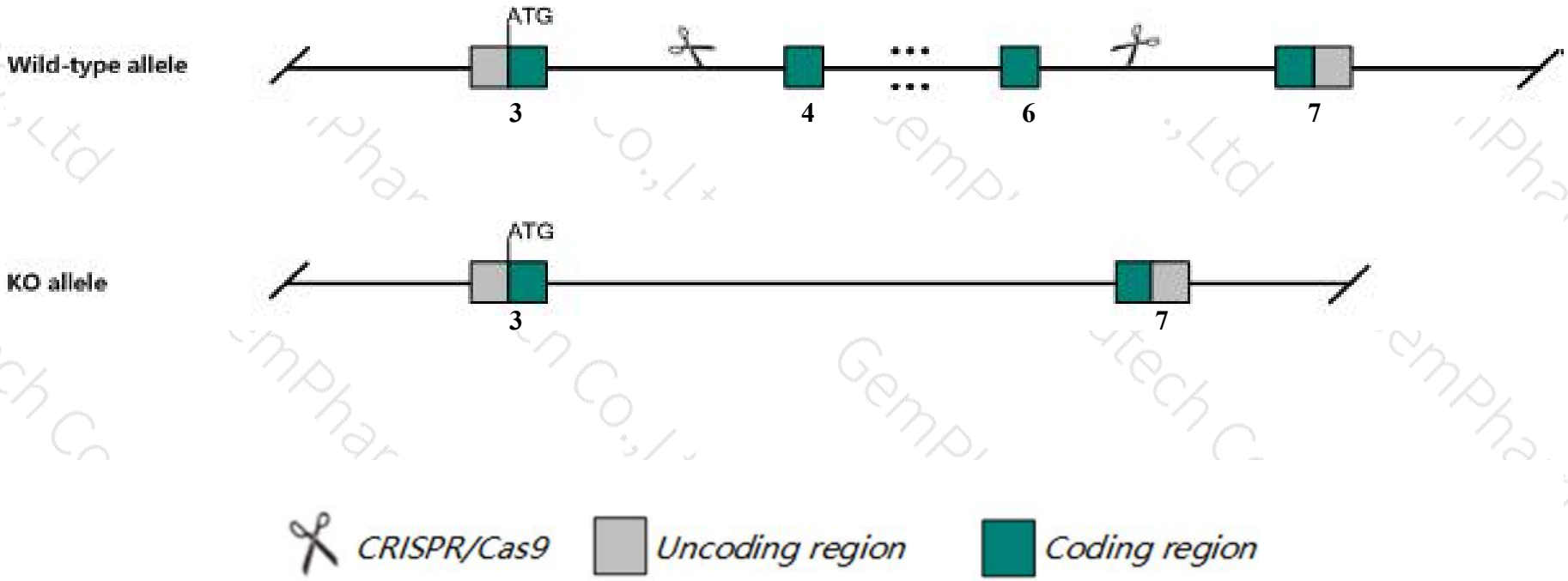
Design Date: 2020-3-3

Project Overview

Project Name	***Eda2r***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Eda2r* gene. The schematic diagram is as follows:



Technical routes

➢ The *Eda2r* gene has 4 transcripts. According to the structure of *Eda2r* gene, exon4-exon6 of *Eda2r-201* (ENSMUST00000037353.9) transcript is recommended as the knockout region.The region contains 430bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Eda2r* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Hemizygous null males are fertile and healthy with no histological abnormalities in any of the major organs.

- The *Eda2r* gene is located on the ChrX. 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）

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Eda2r ectodysplasin A2 receptor [Mus musculus (house mouse)]

Gene ID: 245527, updated on 31-Jan-2019

Summary

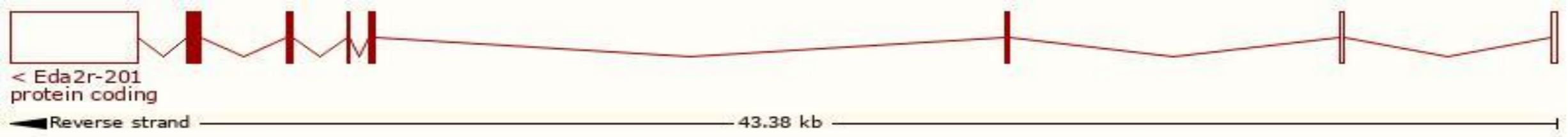
Official Symbol	Eda2r provided by MGI
Official Full Name	ectodysplasin A2 receptor provided by MGI
Primary source	MGI:MGI:2442860
See related	Ensembl:ENSMUSG00000034457
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9430060M22Rik, TNFRSF27, Xedar
Expression	Biased expression in subcutaneous fat pad adult (RPKM 1.0), bladder adult (RPKM 0.7) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

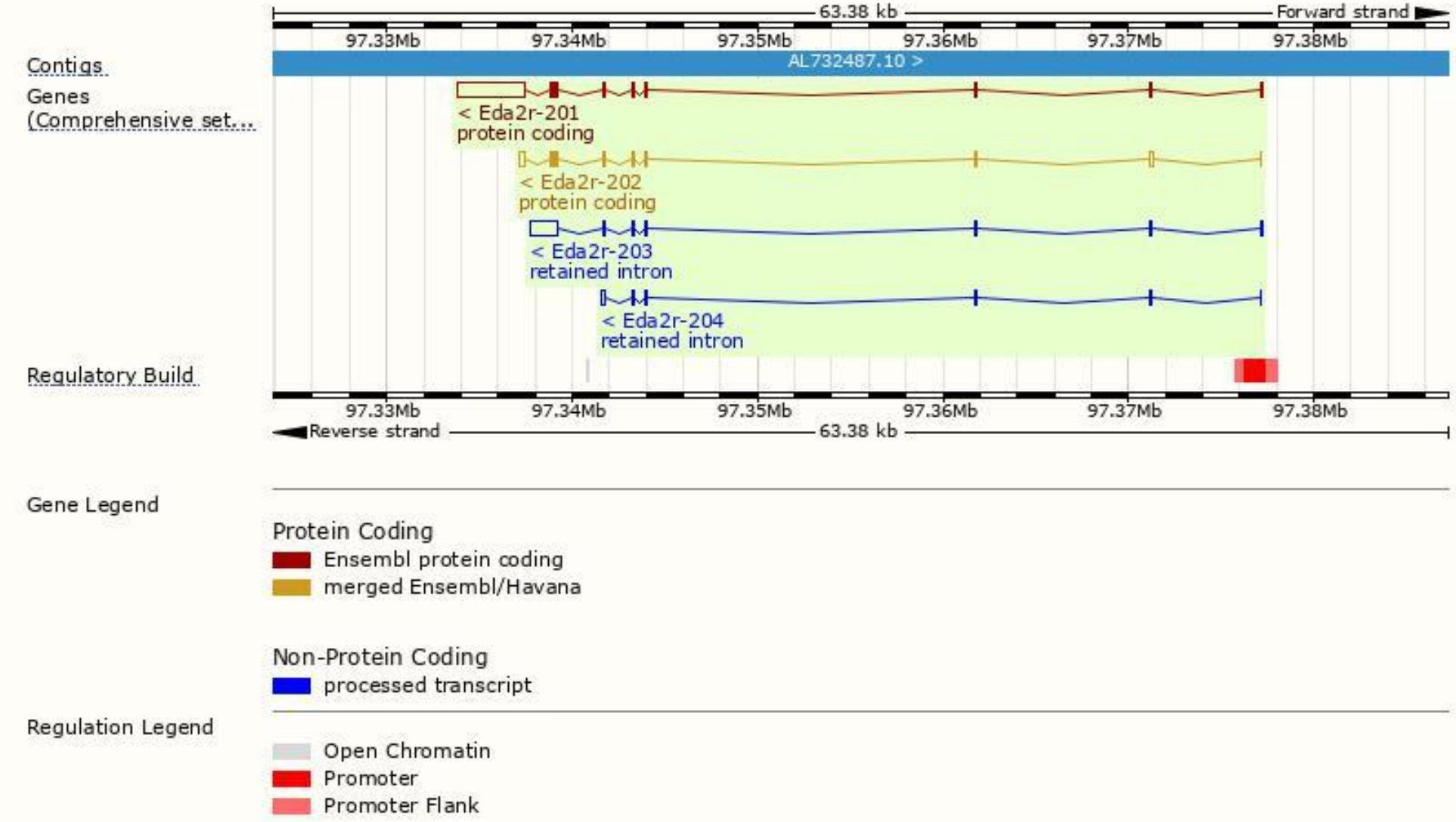
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Eda2r-201	ENSMUST00000037353.9	4752	297aa	Protein coding	CCDS30293	Q3KP88 Q8BX35	TSL:1 GENCODE basic APPRIS P1
Eda2r-202	ENSMUST00000113832.1	1433	297aa	Protein coding	CCDS30293	Q3KP88 Q8BX35	TSL:1 GENCODE basic APPRIS P1
Eda2r-203	ENSMUST00000126283.7	2153	No protein	Retained intron	-	-	TSL:1
Eda2r-204	ENSMUST00000126609.1	779	No protein	Retained intron	-	-	TSL:1

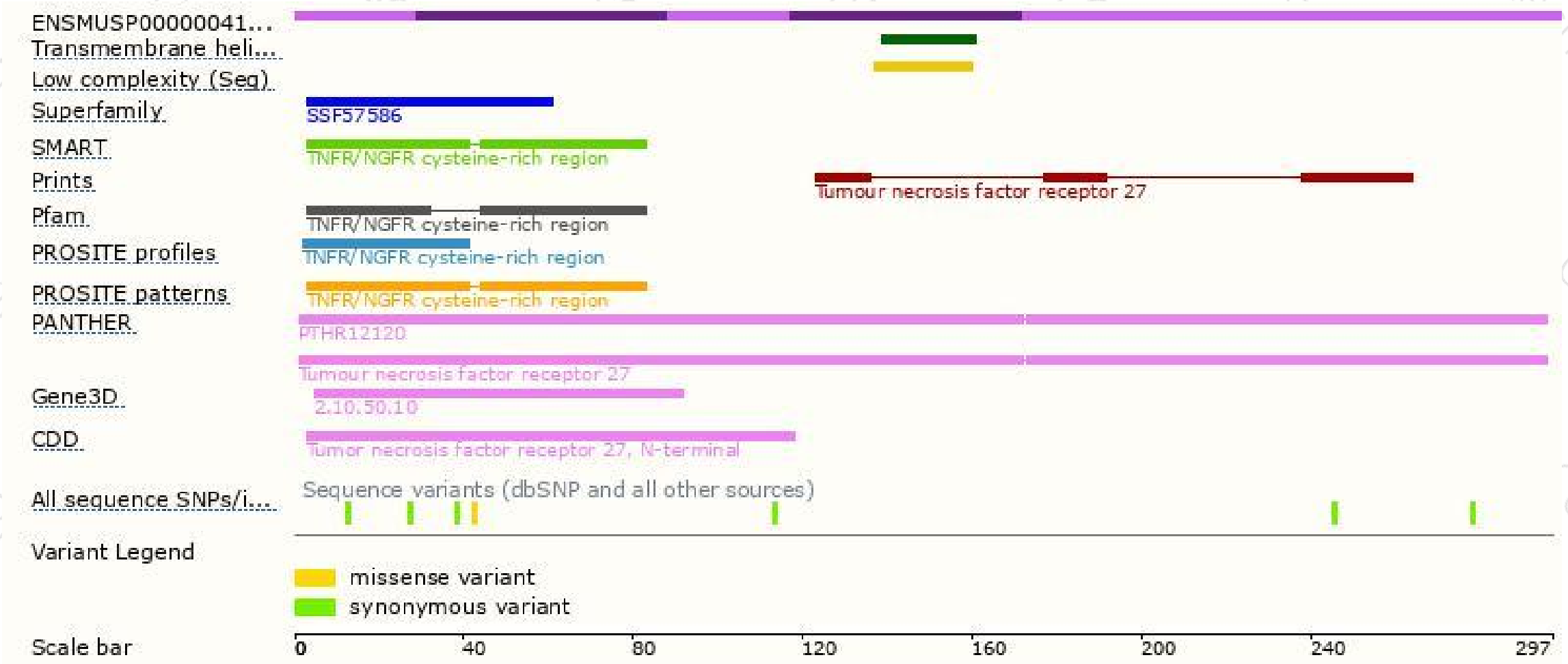
The strategy is based on the design of *Eda2r-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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