

Eda Cas9-CKO Strategy

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Project Overview

Project Name

Eda

Project type

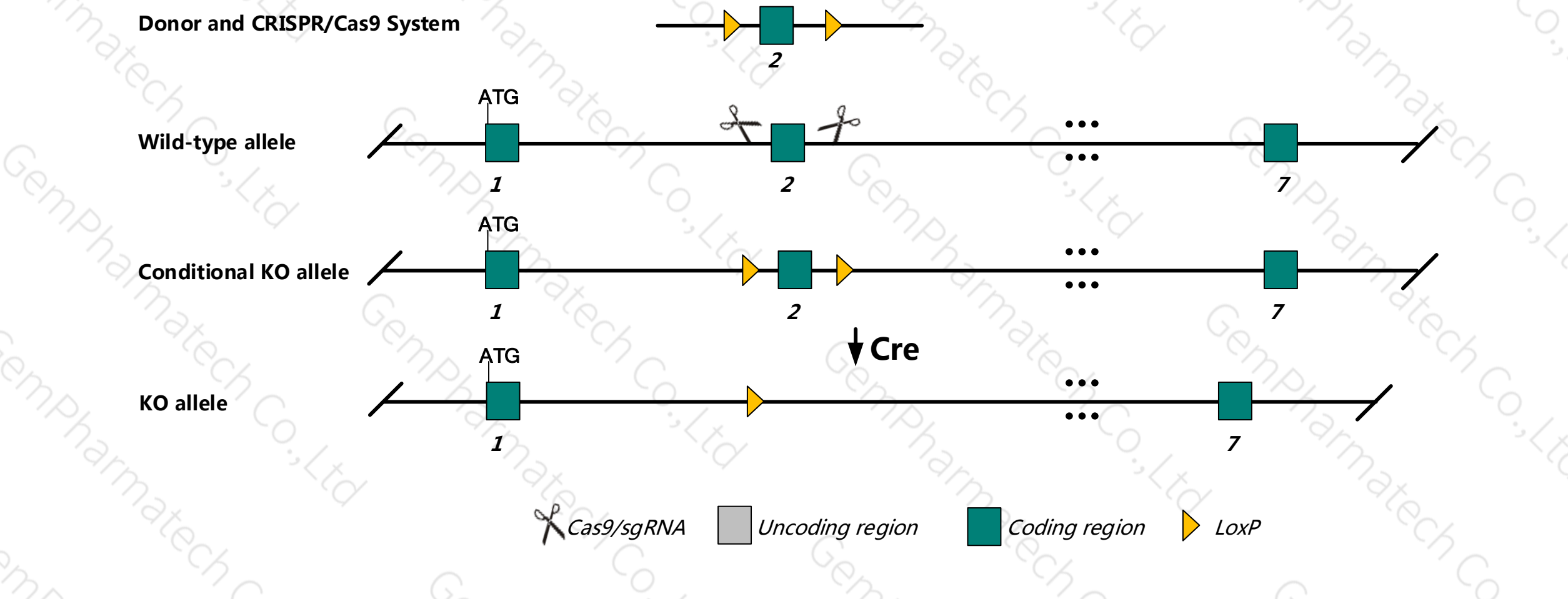
Cas9-CKO

Animal background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Eda* gene has 12 transcripts, According to the structure of *Eda* gene, exon2 of *Eda-201* transcript is recommended as the knockout region. The region contains the 106bp coding sequence. Knock out the region, result in destruction of protein.
- This project uses CRISPR/Cas9 technology to modify *Eda* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed, Cas9, sgRNA and donor were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.
- The flox mice was 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.

- The *Eda* gene is located in the ChrX. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Eda ectodysplasin-A [*Mus musculus* (house mouse)]

Gene ID: 13607, updated on 30-Apr-2019

Summary

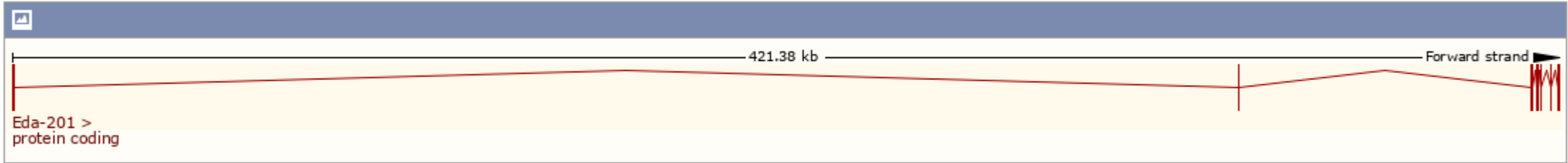
Official Symbol	Eda provided by MGI
Official Full Name	ectodysplasin-A provided by MGI
Primary source	MGI:MGI:1195272
See related	Ensembl:ENSMUSG00000059327
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ta; Ed1; HED; EDA1; XLHED; tabby; Eda-A1; Eda-A2; Tnlg7c
Expression	Ubiquitous expression in limb E14.5 (RPKM 2.5), subcutaneous fat pad adult (RPKM 1.6) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

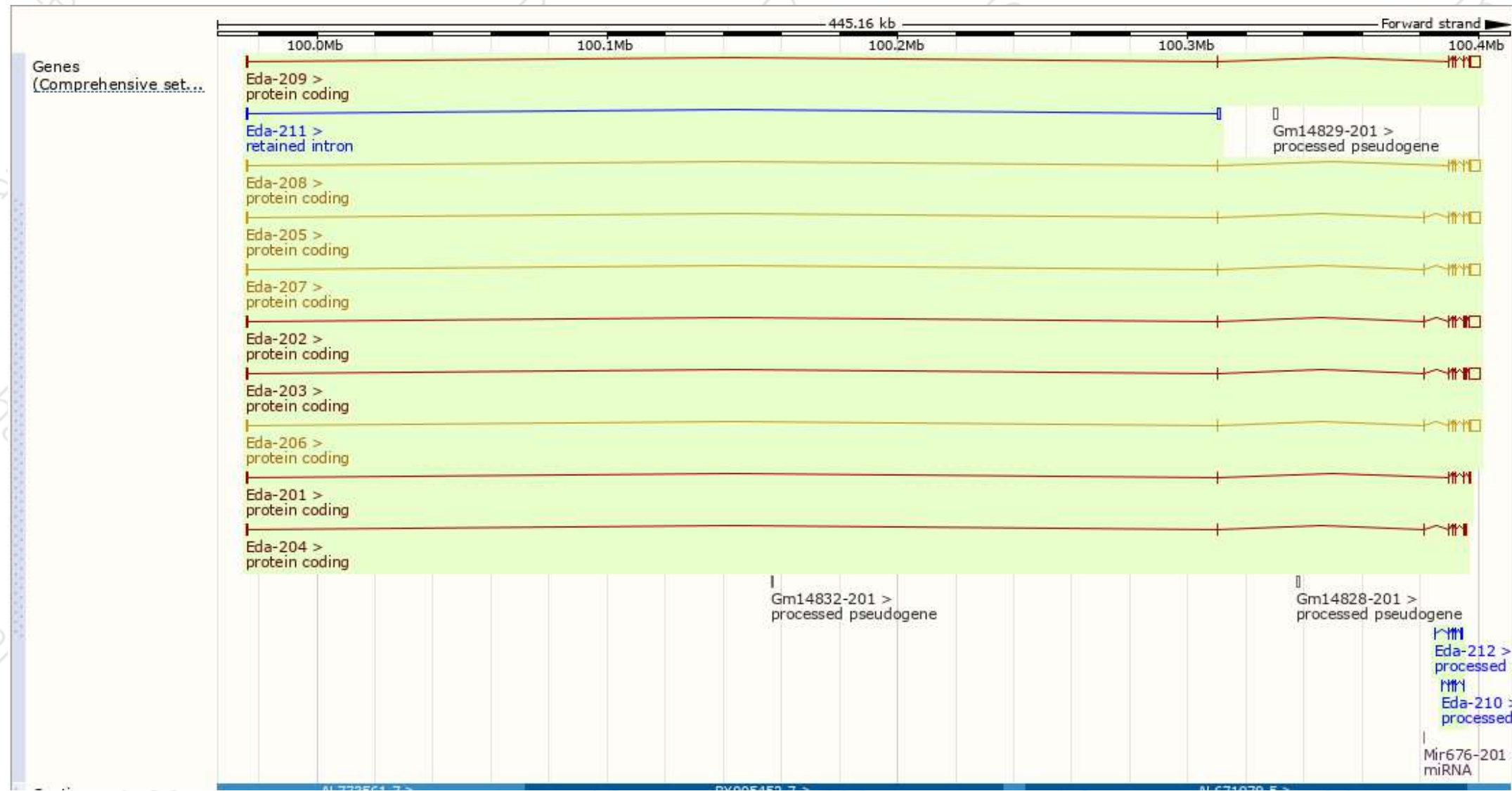
The gene has 12 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Eda-203	ENSMUST00000113776.7	5105	351aa	Protein coding	CCDS53142	Q1L2D6	TSL:1	GENCODE basic
Eda-202	ENSMUST00000113775.7	5088	351aa	Protein coding	CCDS53142	Q1L2D6	TSL:1	GENCODE basic
Eda-206	ENSMUST00000113779.7	4955	391aa	Protein coding	CCDS30299	O54693 Q3UV69	TSL:1	GENCODE basic APPRIS P3
Eda-205	ENSMUST00000113778.7	4942	386aa	Protein coding	CCDS53143	O54693	TSL:1	GENCODE basic APPRIS ALT1
Eda-207	ENSMUST00000113780.7	4915	377aa	Protein coding	CCDS53141	O54693	TSL:1	GENCODE basic
Eda-208	ENSMUST00000113781.7	4915	378aa	Protein coding	CCDS53145	Q1L2D8	TSL:1	GENCODE basic
Eda-201	ENSMUST00000071453.2	1152	383aa	Protein coding	CCDS53144	Q1L2D9	TSL:1	GENCODE basic
Eda-204	ENSMUST00000113777.7	1056	351aa	Protein coding	CCDS53142	Q1L2D6	TSL:5	GENCODE basic
Eda-209	ENSMUST00000113783.7	4930	383aa	Protein coding	-	Q1L2D9	TSL:5	GENCODE basic
Eda-212	ENSMUST00000145063.7	658	No protein	Processed transcript	-	-	TSL:3	
Eda-210	ENSMUST00000123547.1	403	No protein	Processed transcript	-	-	TSL:5	
Eda-211	ENSMUST00000134582.1	1877	No protein	Retained intron	-	-	TSL:1	

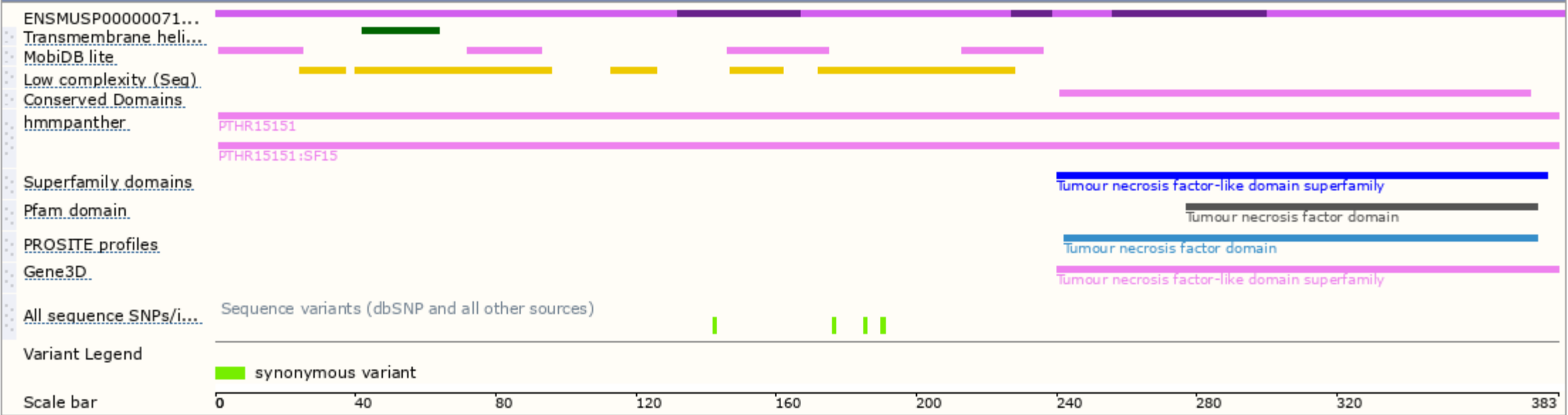
The strategy is based on the design of *Eda-201* transcript,The transcription is shown below :



Genomic location distribution



Protein domain



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