

Wars Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Wars

Project type

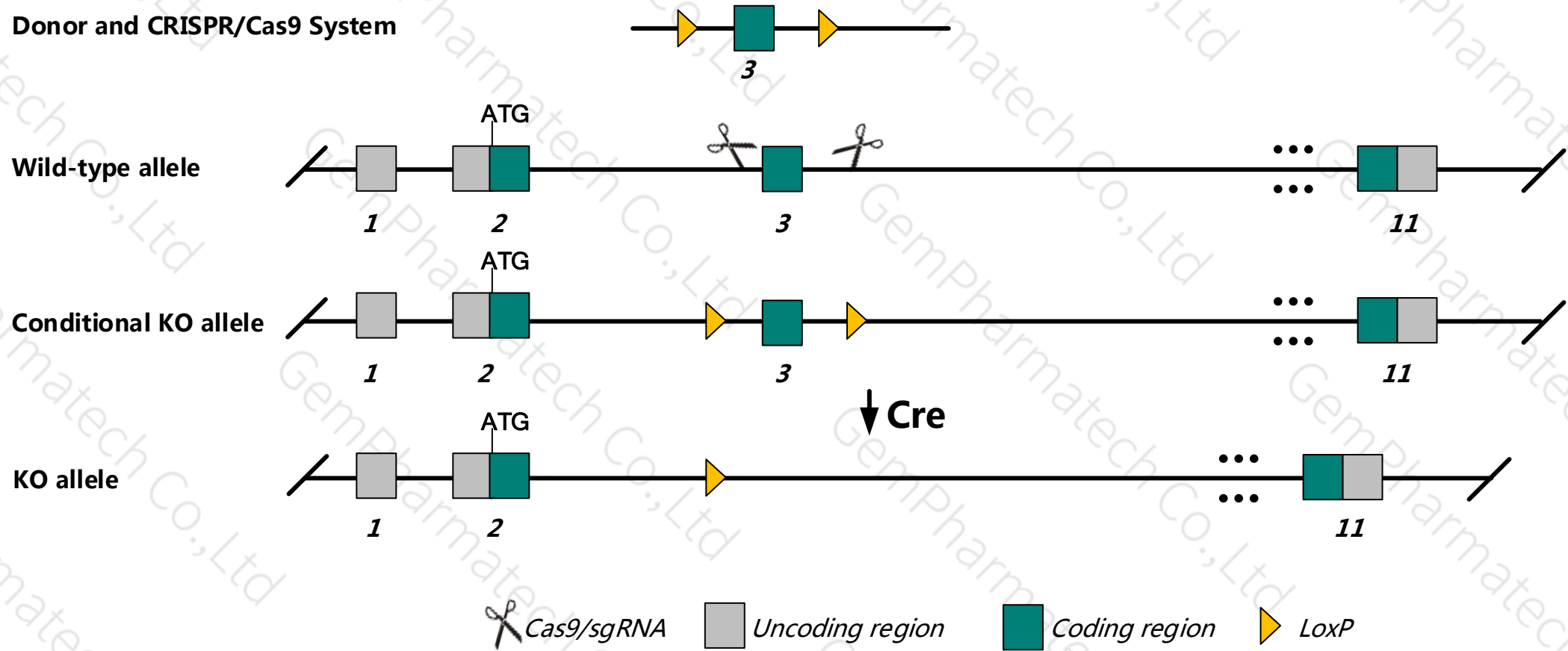
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Wars* gene has 7 transcripts. According to the structure of *Wars* gene, exon3 of *Wars*-204 (ENSMUST00000161154.1) transcript is recommended as the knockout region. The region contains 214bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wars* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Wars* gene is located on the Chr12. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Wars tryptophanyl-tRNA synthetase [*Mus musculus* (house mouse)]

Gene ID: 22375, updated on 9-Sep-2018

Summary

Official Symbol Wars provided by [MGI](#)

Official Full Name tryptophanyl-tRNA synthetase provided by [MGI](#)

Primary source [MGI:MGI:104630](#)

See related [Ensembl:ENSMUSG000000021266](#) [Vega:OTTMUSG000000034952](#)

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 WRS; TrpRS

Expression Ubiquitous expression in genital fat pad adult (RPKM 173.4), colon adult (RPKM 54.6) and 26 other tissues [See more](#)

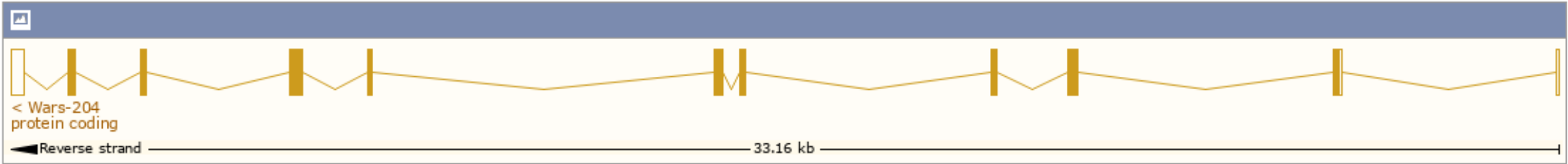
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

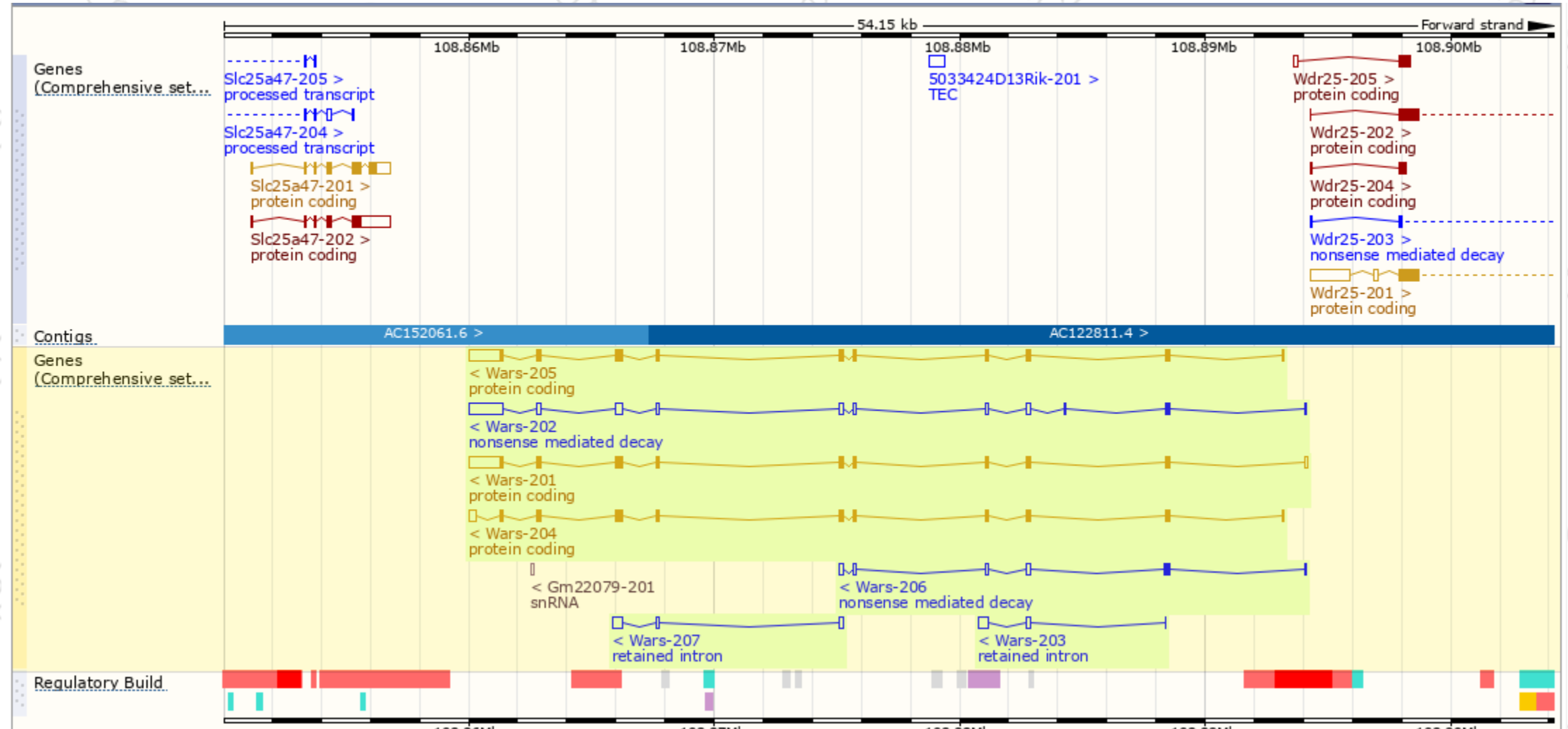
The gene has 7 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Wars-201	ENSMUST00000109848.9	2831	475aa	Protein coding	CCDS49171	P32921 Q3U6U7	NM_001164314 NP_001157786	TSL:1	GENCODE basic APPRIS ALT2
Wars-205	ENSMUST00000161410.7	2764	475aa	Protein coding	CCDS49171	P32921 Q3U6U7	NM_001164488 NP_001157960	TSL:1	GENCODE basic APPRIS ALT2
Wars-204	ENSMUST00000161154.1	1824	481aa	Protein coding	CCDS26166	P32921	NM_011710 NP_035840	TSL:1	GENCODE basic APPRIS P3
Wars-202	ENSMUST00000160477.7	2878	39aa	Nonsense mediated decay	-	E0CXX4	-	TSL:1	
Wars-206	ENSMUST00000162748.1	896	59aa	Nonsense mediated decay	-	E0CXQ4	-	TSL:3	
Wars-207	ENSMUST00000162952.1	698	No protein	Retained intron	-	-	-	TSL:2	
Wars-203	ENSMUST00000160974.1	652	No protein	Retained intron	-	-	-	TSL:2	

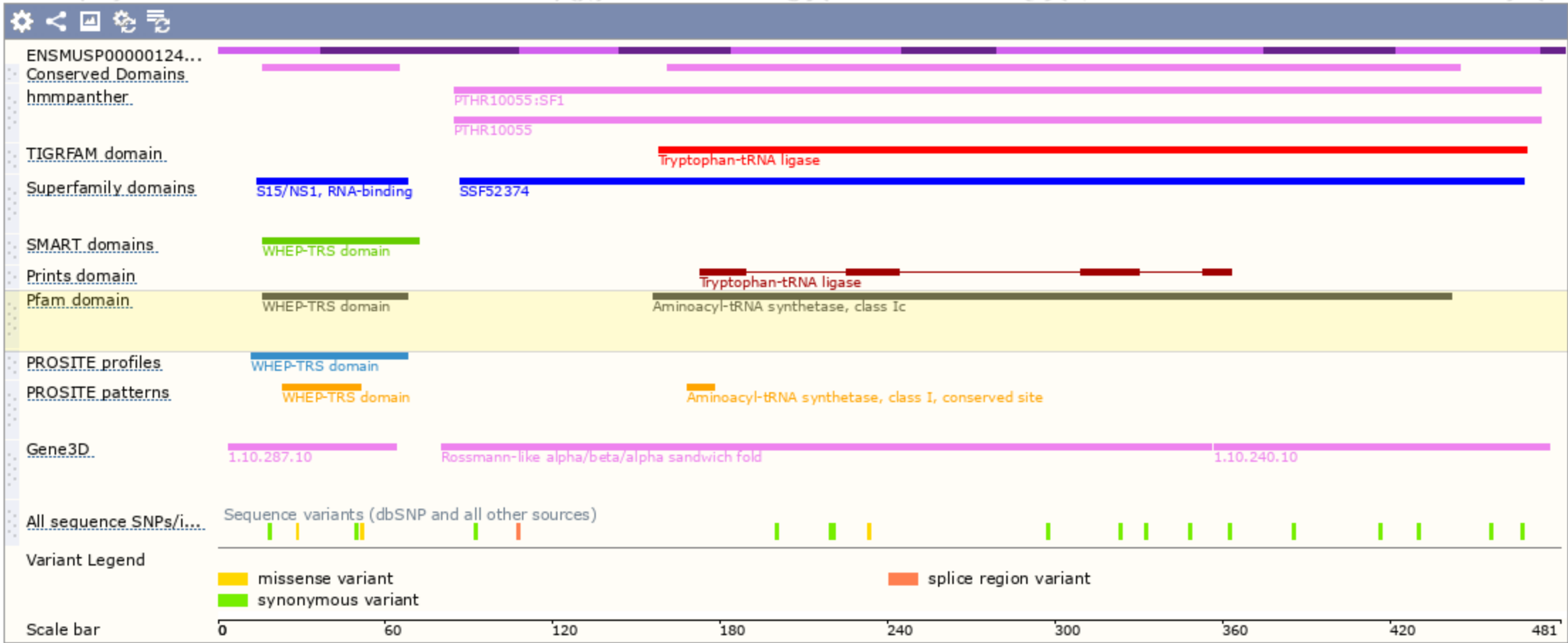
The strategy is based on the design of Wars-204 transcript,The transcription is shown below



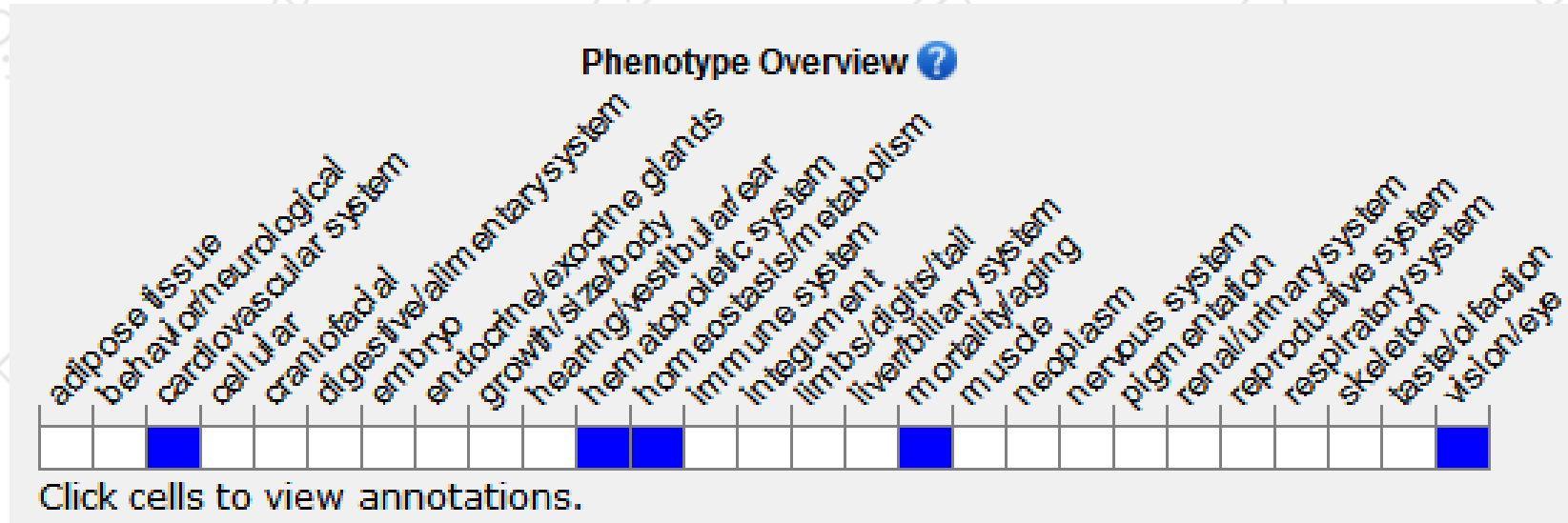
Genomic location distribution



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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