Larp4 Cas9-CKO Strategy

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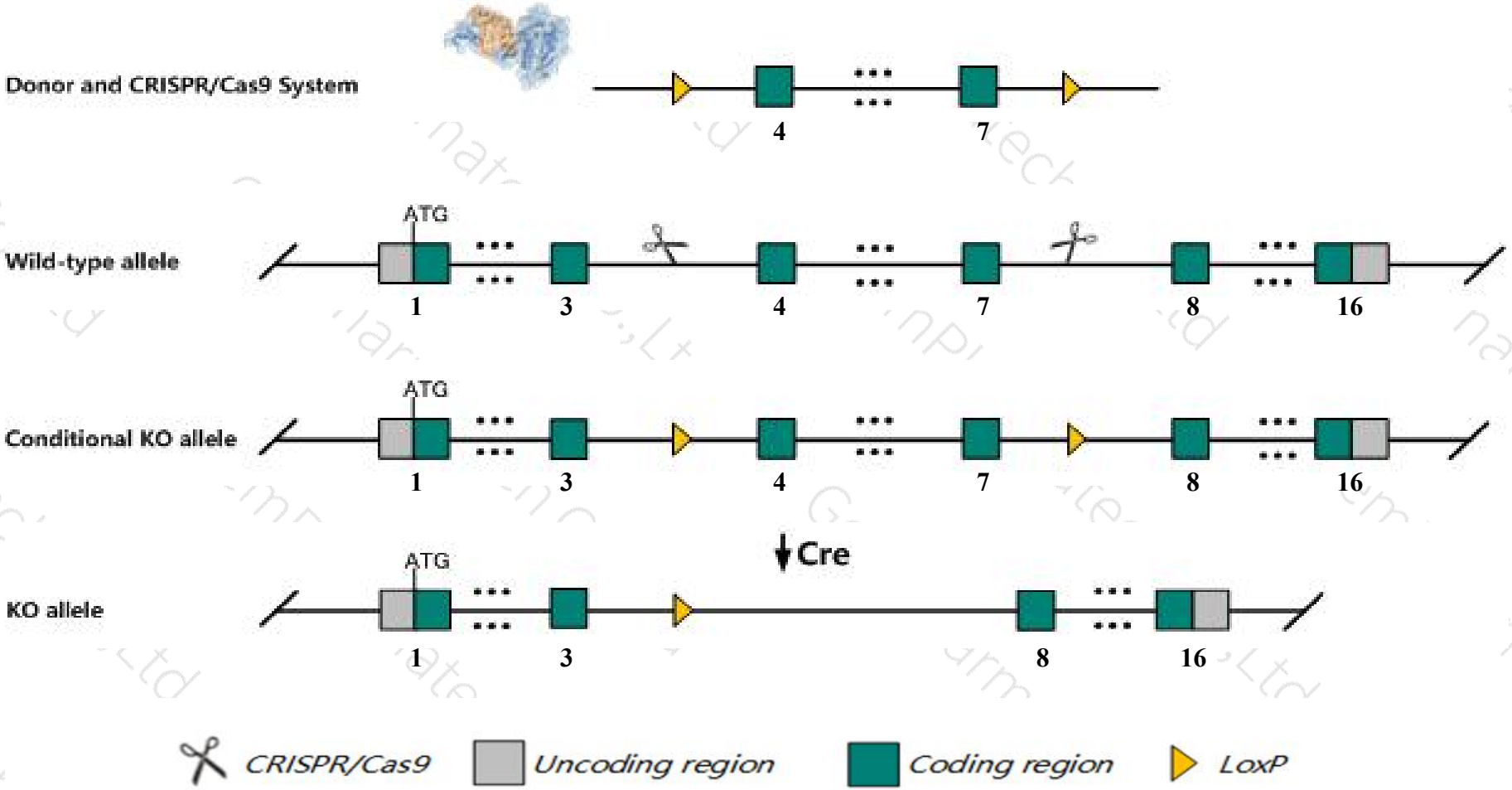
Project Overview

Project Name	***Larp4***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Larp4* gene. The schematic diagram is as follows:



Technical routes

- The *Larp4* gene has 9 transcripts. According to the structure of *Larp4* gene, exon4-exon7 of *Larp4-202* (ENSMUST00000100206.3) transcript is recommended as the knockout region.The region contains 428bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Larp4* 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 *Larp4* gene is located on the Chr15. 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）

集萃药康 GemPharmatech

Larp4 La ribonucleoprotein domain family, member 4 [Mus musculus (house mouse)]

Gene ID: 207214, updated on 31-Jan-2019

Summary

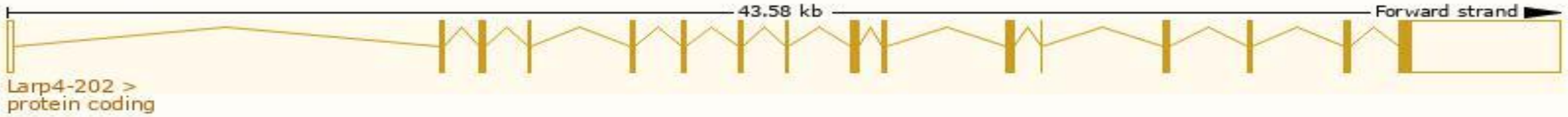
Official Symbol	Larp4 provided by MGI
Official Full Name	La ribonucleoprotein domain family, member 4 provided by MGI
Primary source	MGI:MGI:2443114
See related	Ensembl:ENSMUSG00000023025
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DXErtd793, DXErtd793e
Expression	Ubiquitous expression in placenta adult (RPKM 11.6), CNS E11.5 (RPKM 5.7) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

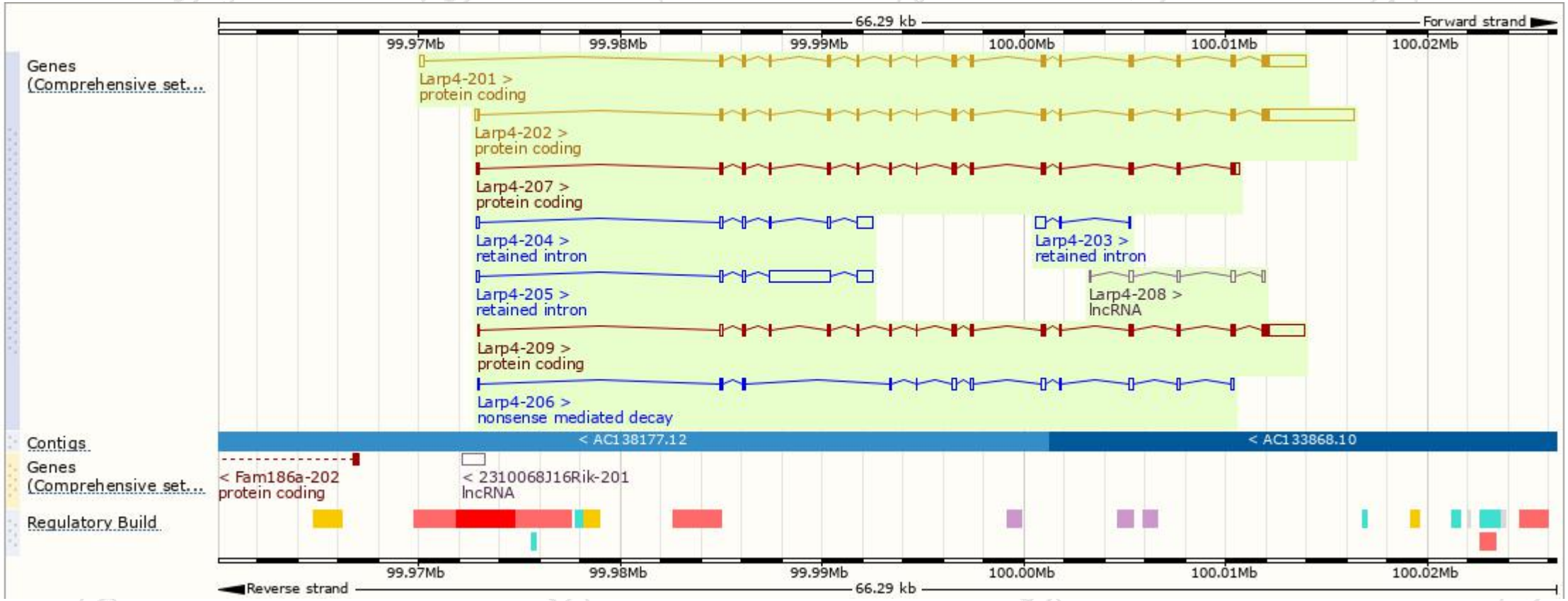
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Larp4-202	ENSMUST00000100206.3	6530	719aa	Protein coding	CCDS37208	G3X9Q6	TSL:1 GENCODE basic APPRIS P3
Larp4-201	ENSMUST00000057632.15	4196	718aa	Protein coding	CCDS49730	E9Q066	TSL:1 GENCODE basic APPRIS ALT2
Larp4-209	ENSMUST00000231160.1	3935	660aa	Protein coding	-	A0A2R8VKL5	GENCODE basic APPRIS ALT2
Larp4-207	ENSMUST00000230956.1	2192	610aa	Protein coding	-	A0A2R8W6Y5	GENCODE basic APPRIS ALT2
Larp4-206	ENSMUST00000230521.1	1499	107aa	Nonsense mediated decay	-	A0A2R8VHW8	-
Larp4-205	ENSMUST00000229891.1	4207	No protein	Retained intron	-	-	-
Larp4-204	ENSMUST00000229553.1	1420	No protein	Retained intron	-	-	-
Larp4-203	ENSMUST00000229426.1	606	No protein	Retained intron	-	-	-
Larp4-208	ENSMUST00000231128.1	643	No protein	lncRNA	-	-	-

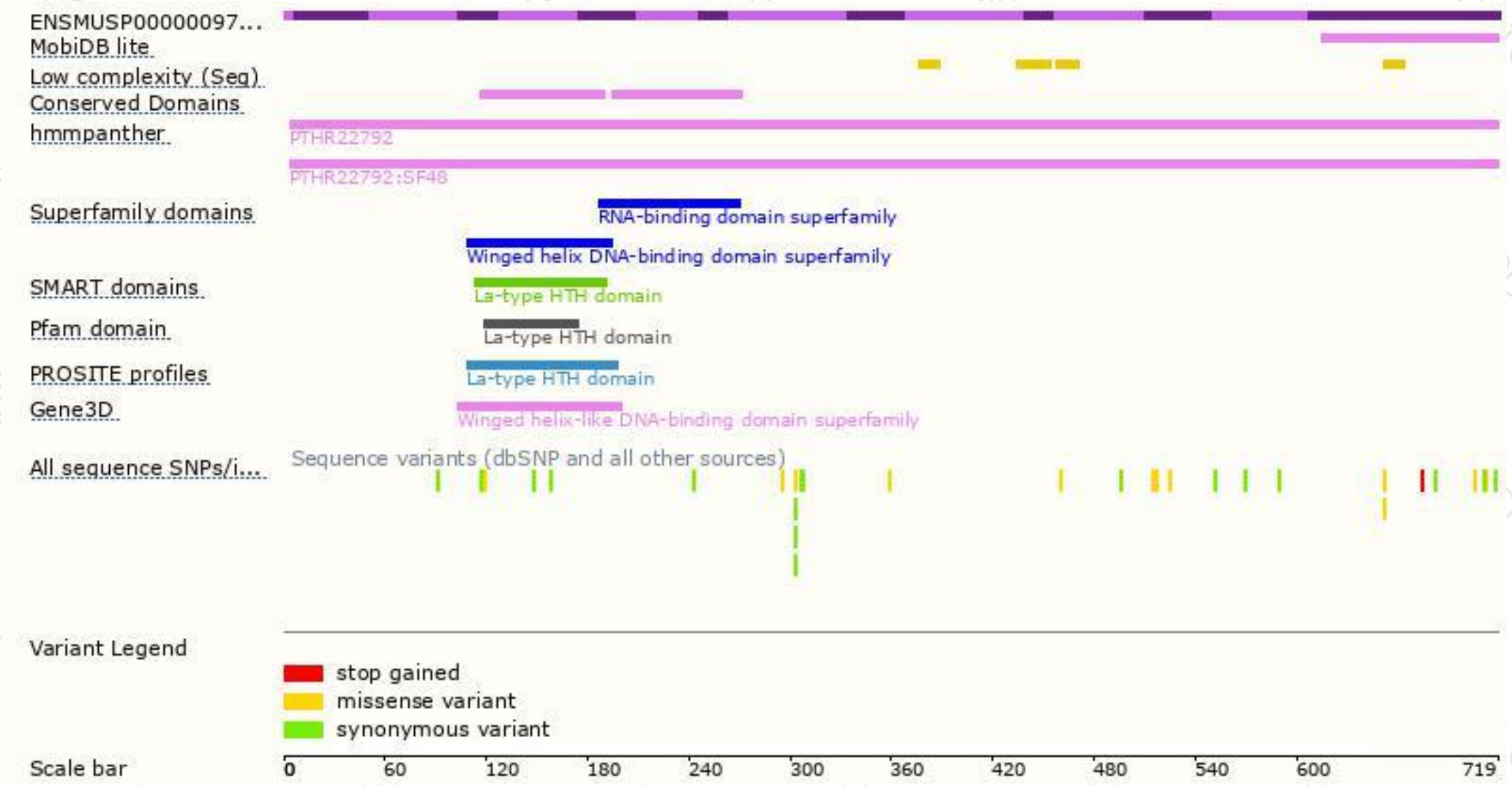
The strategy is based on the design of *Larp4-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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