Prrg4 Cas9-CKO Strategy

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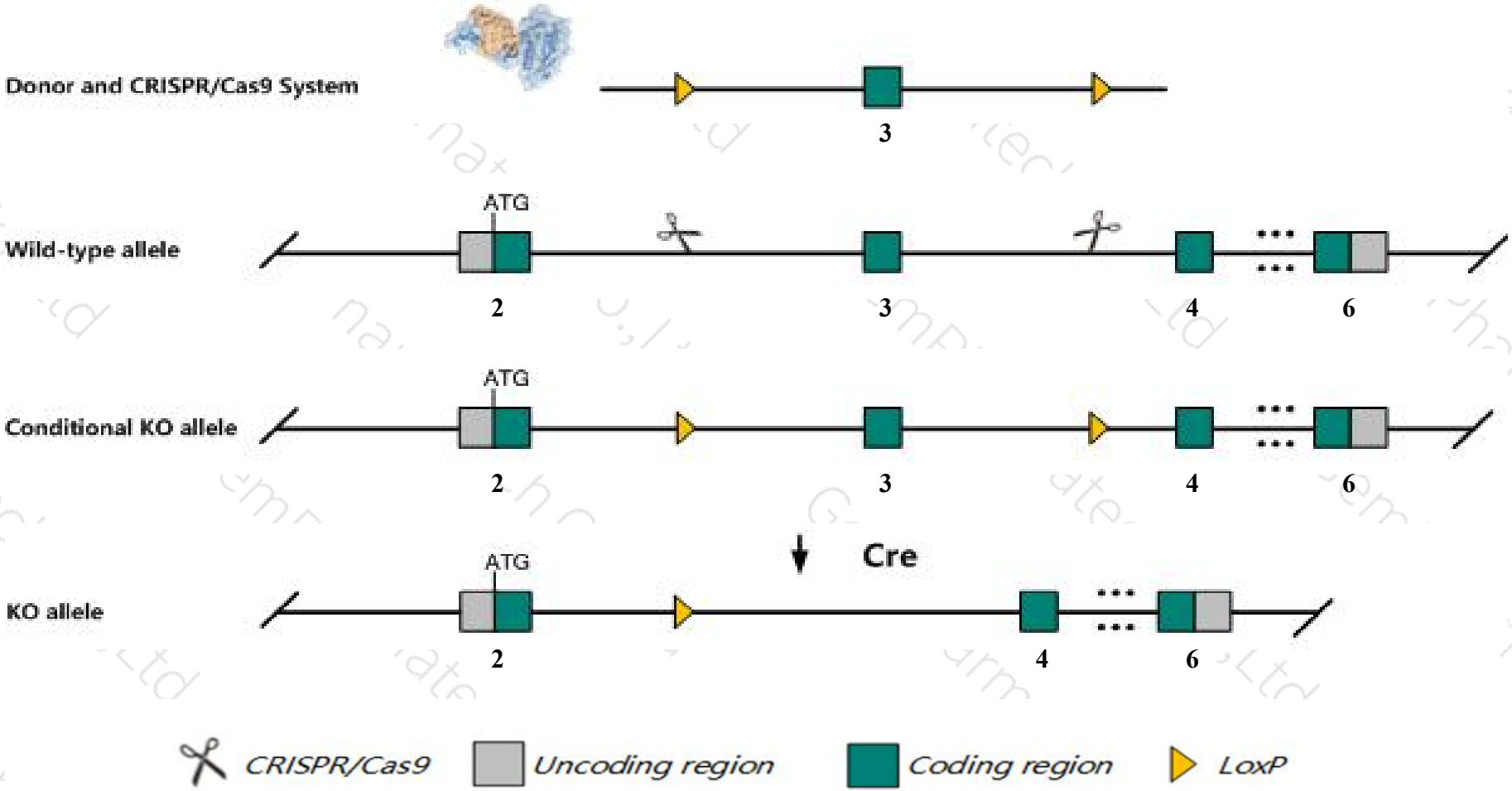
Project Overview

Project Name	***Prrg4***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prrg4* gene. The schematic diagram is as follows:



Technical routes

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- The *Prrg4* gene has 2 transcripts. According to the structure of *Prrg4* gene, exon3 of *Prrg4-201* (ENSMUST00000028593.10) transcript is recommended as the knockout region.The region contains 164bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Prrg4* 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 *Prrg4* 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）

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Prrg4 proline rich Gla (G-carboxyglutamic acid) 4 (transmembrane) [Mus musculus (house mouse)]

Gene ID: 228413, updated on 13-Mar-2020

Summary

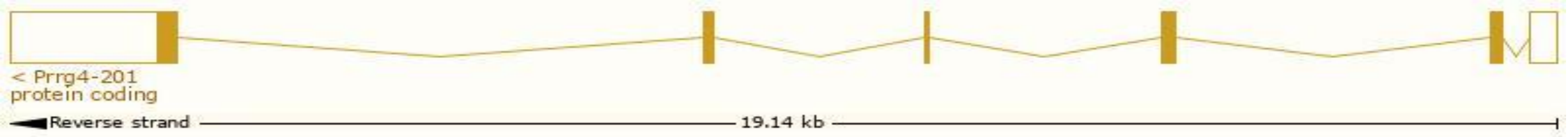
Official Symbol	Prrg4 provided by MGI
Official Full Name	proline rich Gla (G-carboxyglutamic acid) 4 (transmembrane) provided by MGI
Primary source	MGI:MGI:2442211
See related	Ensembl:ENSMUSG00000027171
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9930111I18Rik, TMG4
Expression	Biased expression in placenta adult (RPKM 2.9), bladder adult (RPKM 1.7) and 14 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

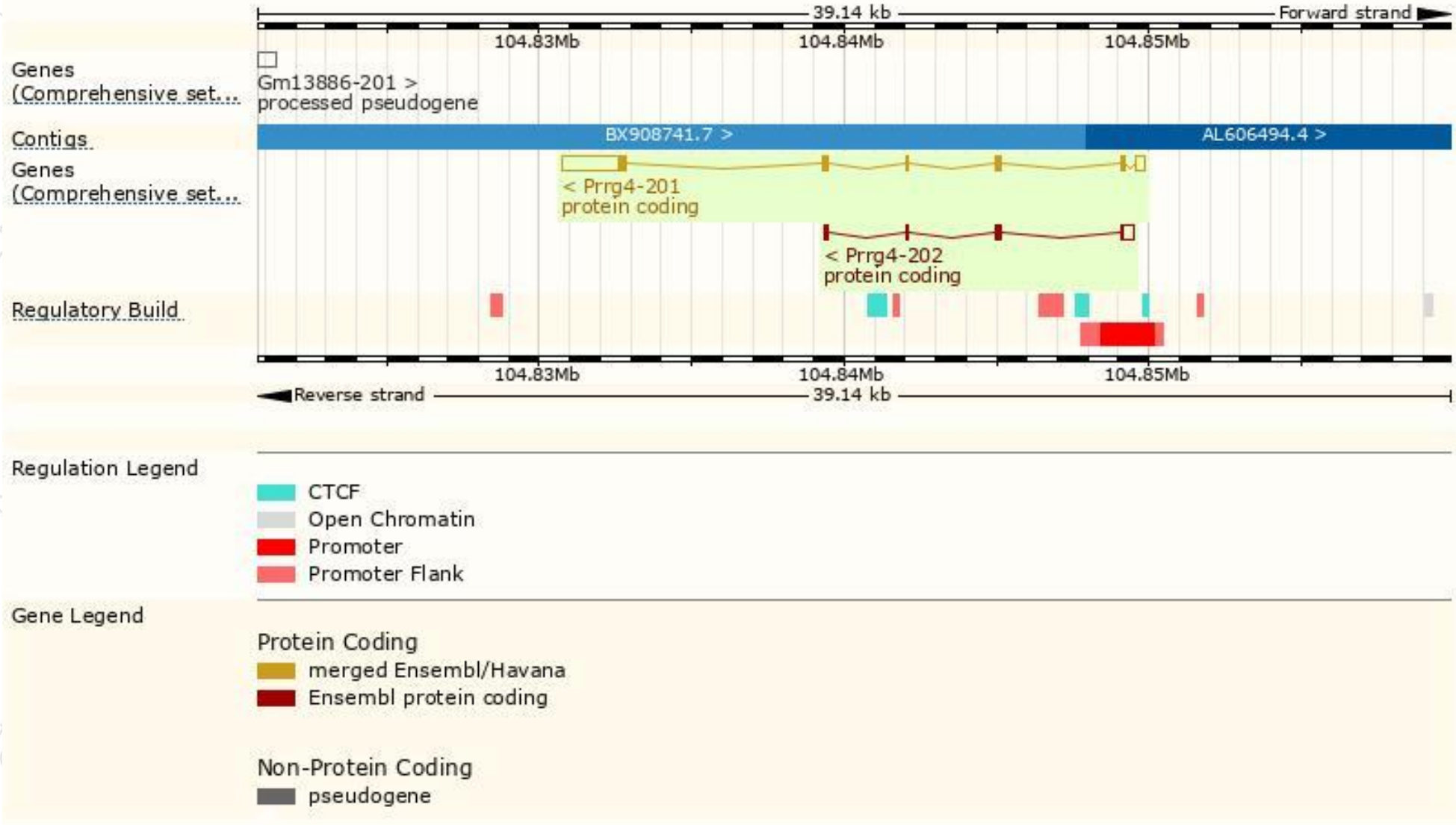
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prrg4-201	ENSMUST00000028593.10	2872	226aa	Protein coding	CCDS16493	Q4KL73 Q8BGN6	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Prrg4-202	ENSMUST00000126824.1	751	145aa	Protein coding	-	A2A6Z6	CDS 3' incomplete TSL:2

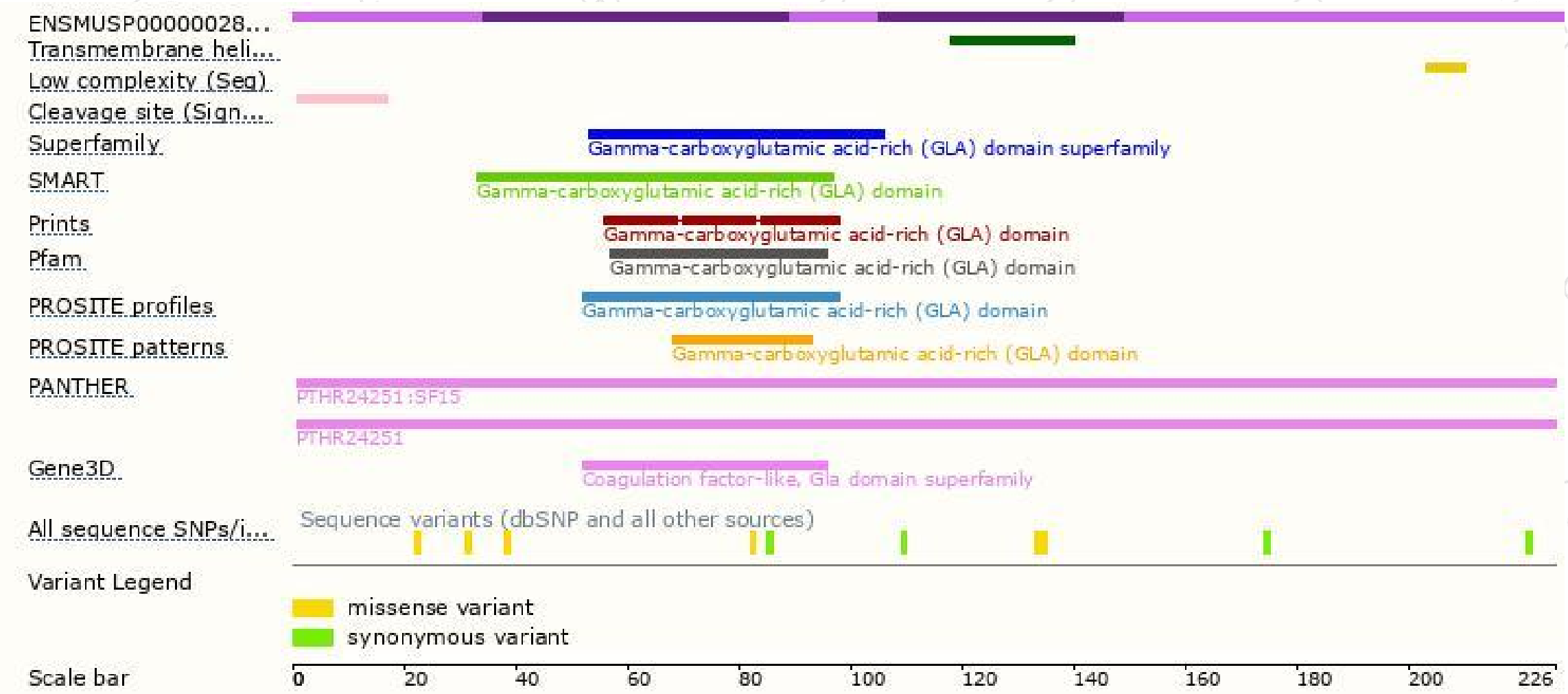
The strategy is based on the design of *Prrg4-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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