Zfp513 Cas9-CKO Strategy

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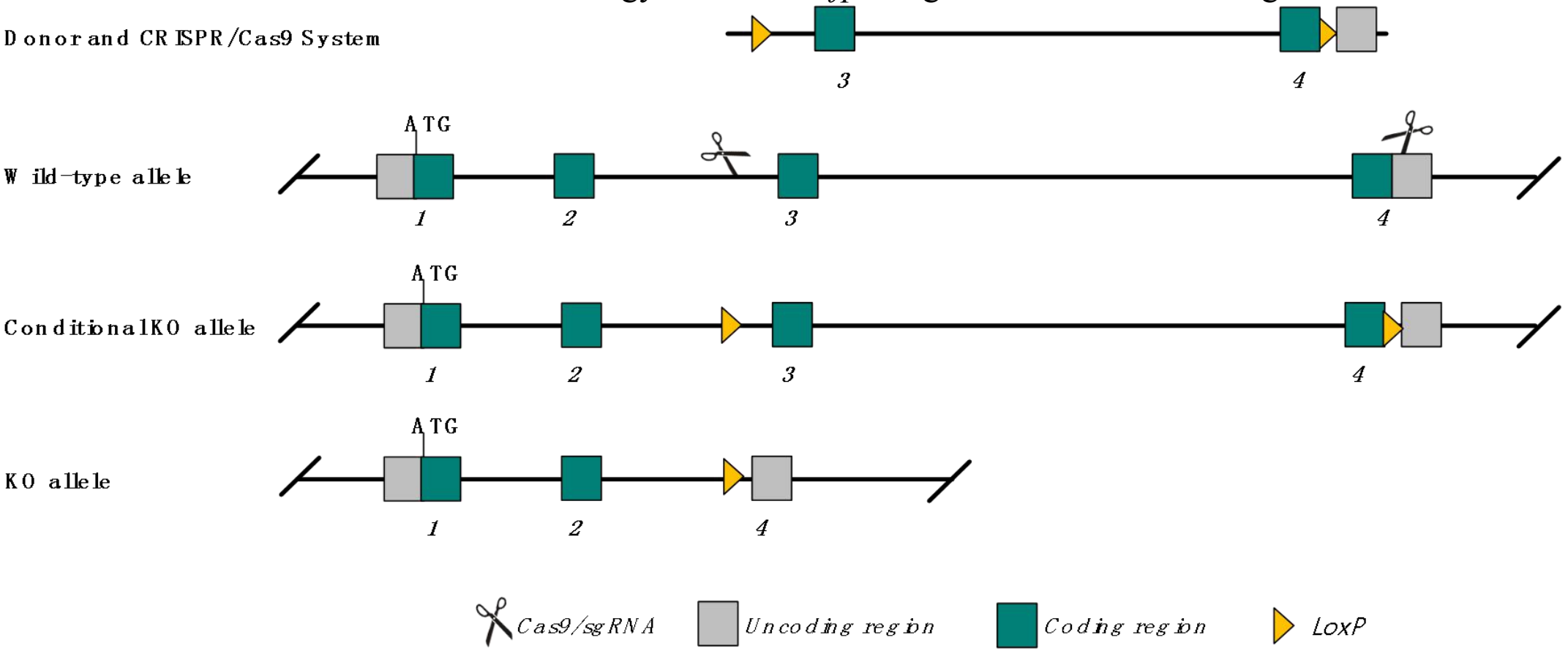
Project Overview

Project Name	***Zfp513***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfp513* gene. The schematic diagram is as follows:



Technical routes

- The *Zfp513* gene has 8 transcripts. According to the structure of *Zfp513* gene, exon3-exon4 of *Zfp513-202* (ENSMUST00000114590.7) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Zfp513* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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 *Zfp513* gene is located on the Chr5. 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.
- CKO region may affect the gene to the 3 utr function.
- The knockout region is very close to the other gene at the three end and may affect the Snx17 gene
- 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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Zfp513 zinc finger protein 513 [Mus musculus (house mouse)]

Gene ID: 101023, updated on 31-Jan-2019

Summary

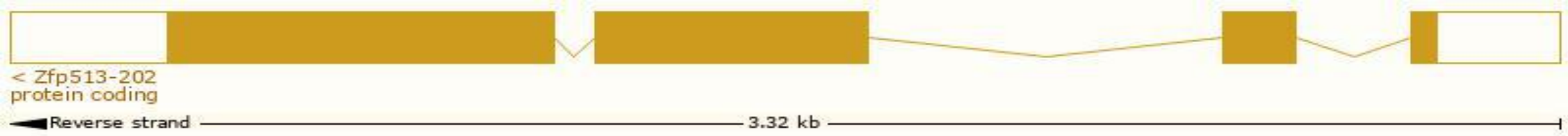
Official Symbol	Zfp513 provided by MGI
Official Full Name	zinc finger protein 513 provided by MGI
Primary source	MGI:MGI:2141255
See related	Ensembl:ENSMUSG00000043059
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW990386, D430028M17Rik, Znf513
Expression	Ubiquitous expression in ovary adult (RPKM 22.0), adrenal adult (RPKM 21.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

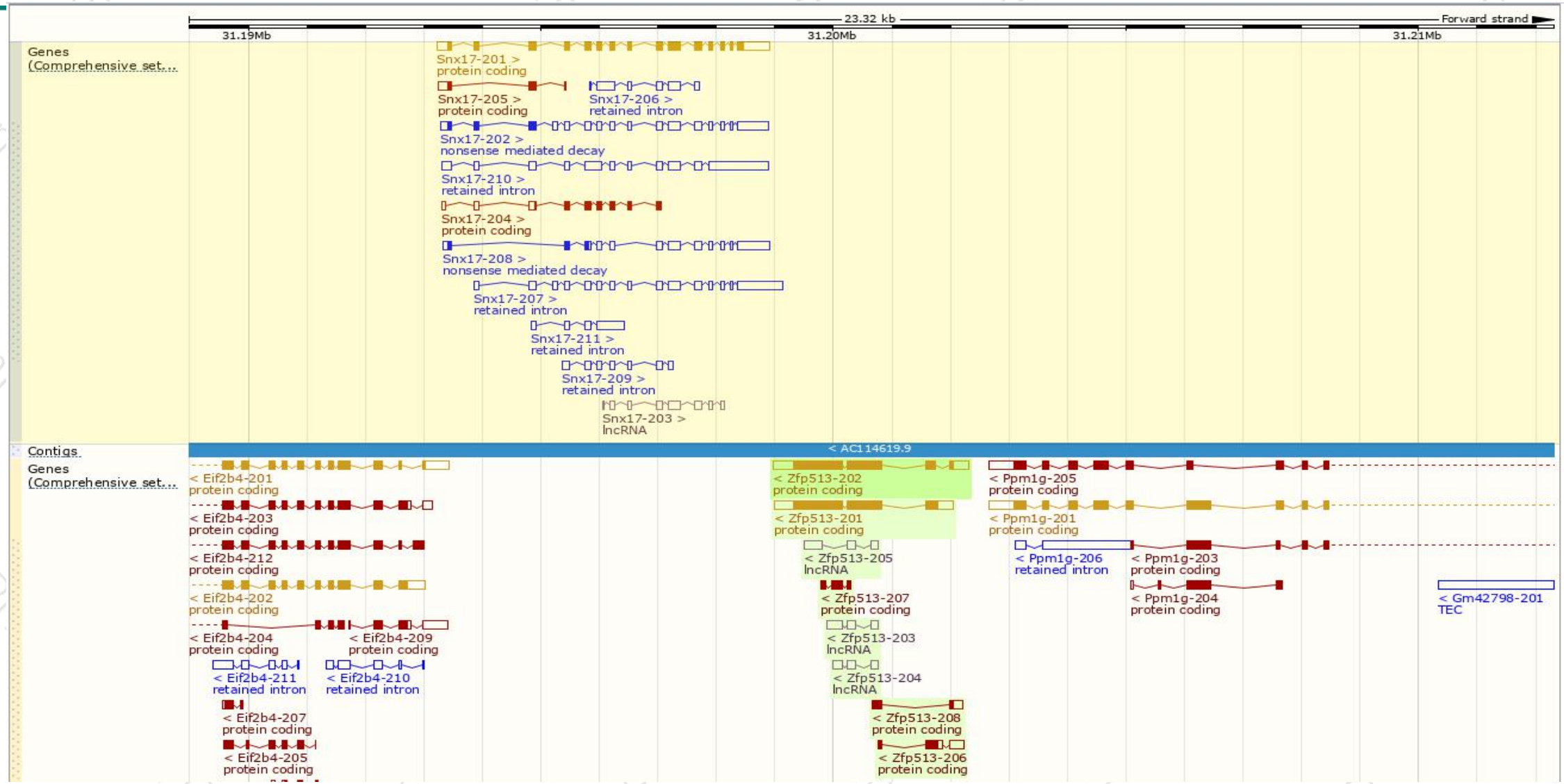
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfp513-202	ENSMUST00000114590.7	2228	541aa	Protein coding	CCDS19178	Q6PD29	TSL:1 GENCODE basic APPRIS P1
Zfp513-201	ENSMUST00000031562.10	2213	539aa	Protein coding	CCDS51458	Q6PD29	TSL:1 GENCODE basic
Zfp513-206	ENSMUST00000201231.1	584	90aa	Protein coding	-	A0A0J9YUG7	CDS 3' incomplete TSL:5
Zfp513-208	ENSMUST00000202929.1	383	69aa	Protein coding	-	A0A0J9YTR6	CDS 3' incomplete TSL:3
Zfp513-207	ENSMUST00000201968.1	307	92aa	Protein coding	-	H3BL06	CDS 5' incomplete TSL:1
Zfp513-205	ENSMUST00000201119.3	566	No protein	lncRNA	-	-	TSL:2
Zfp513-203	ENSMUST00000200992.3	530	No protein	lncRNA	-	-	TSL:2
Zfp513-204	ENSMUST00000201078.1	419	No protein	lncRNA	-	-	TSL:3

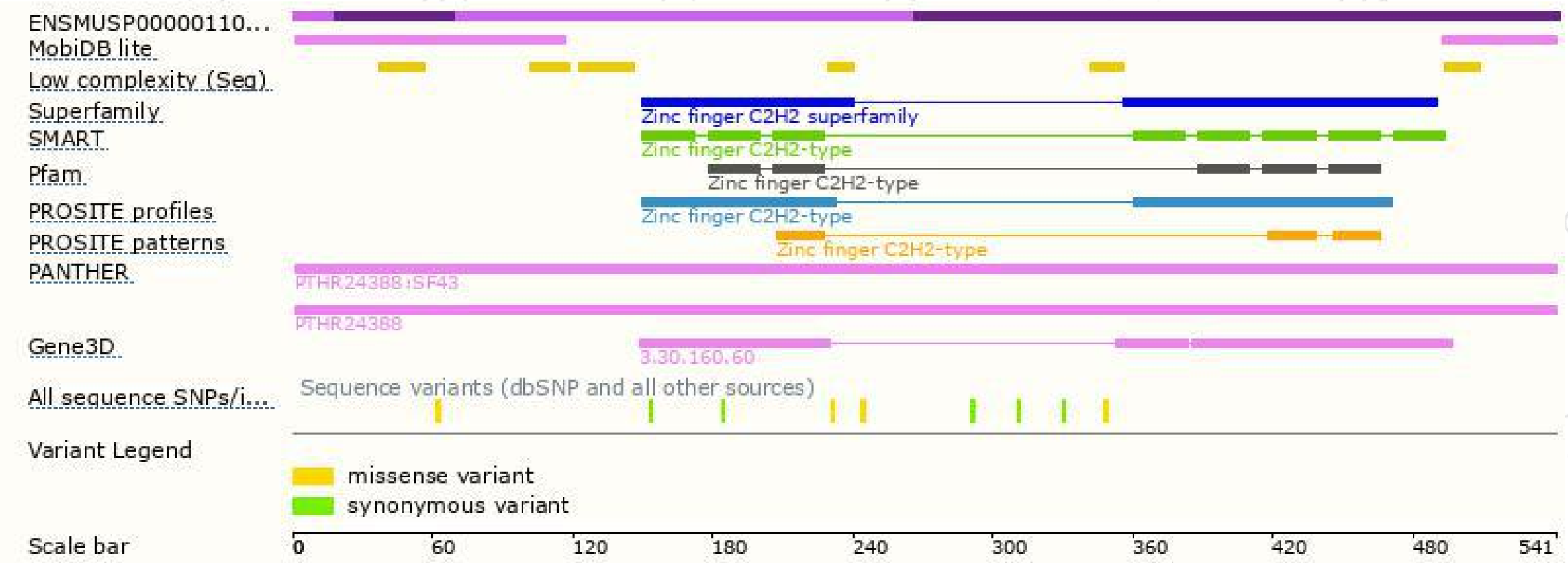
The strategy is based on the design of *Zfp513-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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