

Sox9 Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Sox9

Project type

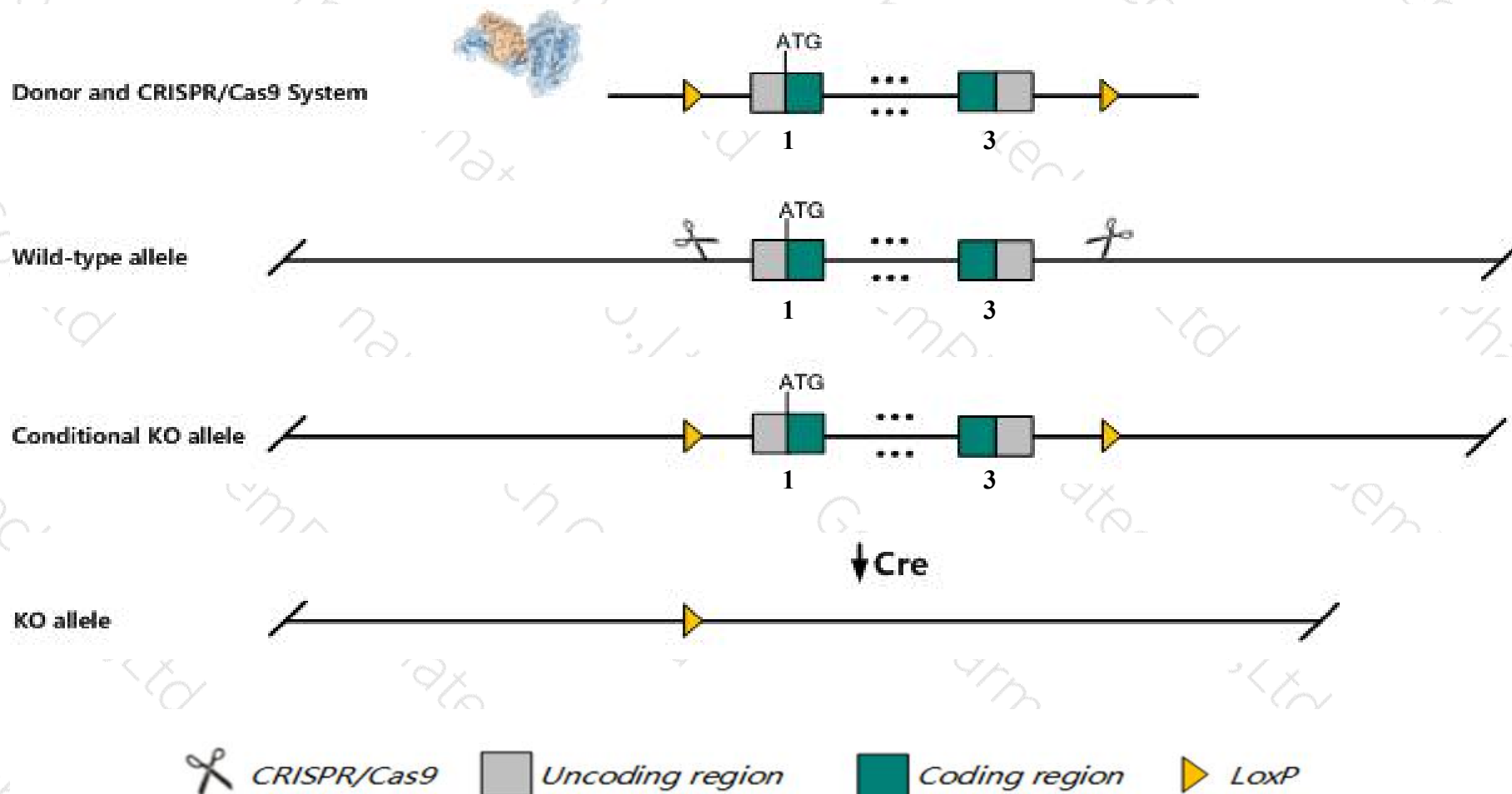
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sox9* gene. The schematic diagram is as follows:



- The *Sox9* gene has 1 transcript. According to the structure of *Sox9* gene, exon1-exon3 of *Sox9-201* (ENSMUST00000000579.2) 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 *Sox9* 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.

- The KO region contains functional region of the *BC006965* gene. Knockout the region may affect the function of *BC006965* gene.
- The *Sox9* gene is located on the Chr11. 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)

Sox9 SRY (sex determining region Y)-box 9 [*Mus musculus* (house mouse)]

Gene ID: 20682, updated on 29-Mar-2020

Summary

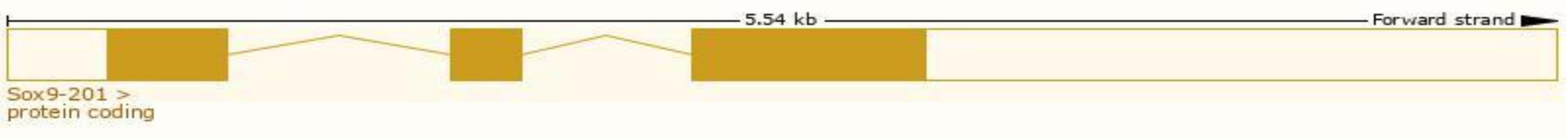
Official Symbol	Sox9 provided by MGI
Official Full Name	SRY (sex determining region Y)-box 9 provided by MGI
Primary source	MGI:MGI:98371
See related	Ensembl:ENSMUSG000000000567
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV220920; mKIAA4243; 2010306G03Rik
Expression	Broad expression in limb E14.5 (RPKM 30.6), colon adult (RPKM 27.7) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

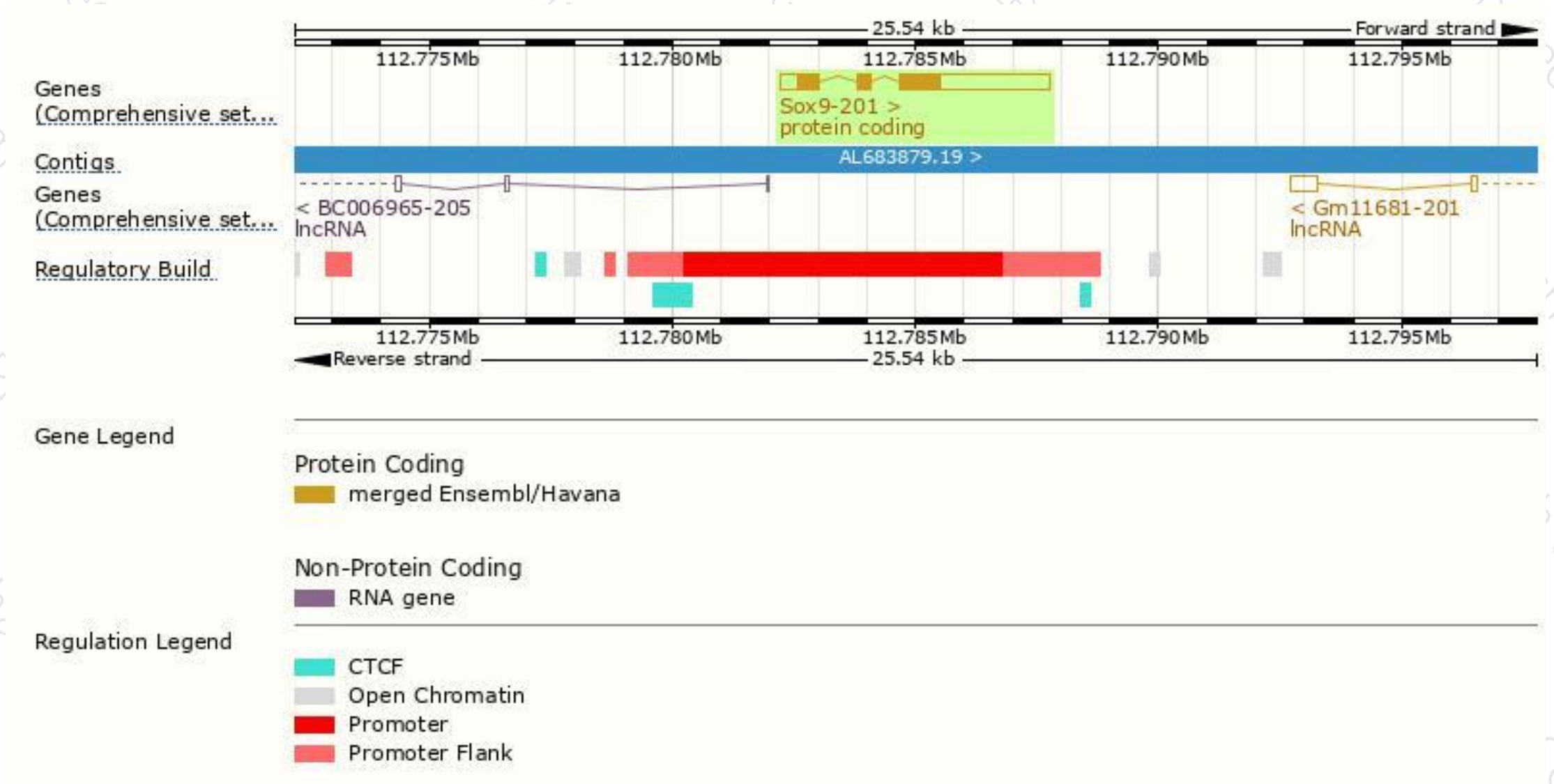
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sox9-201	ENSMUST00000000579.2	4135	507aa	Protein coding	CCDS25595	Q04887	TSL:1 GENCODE basic APPRIS P1

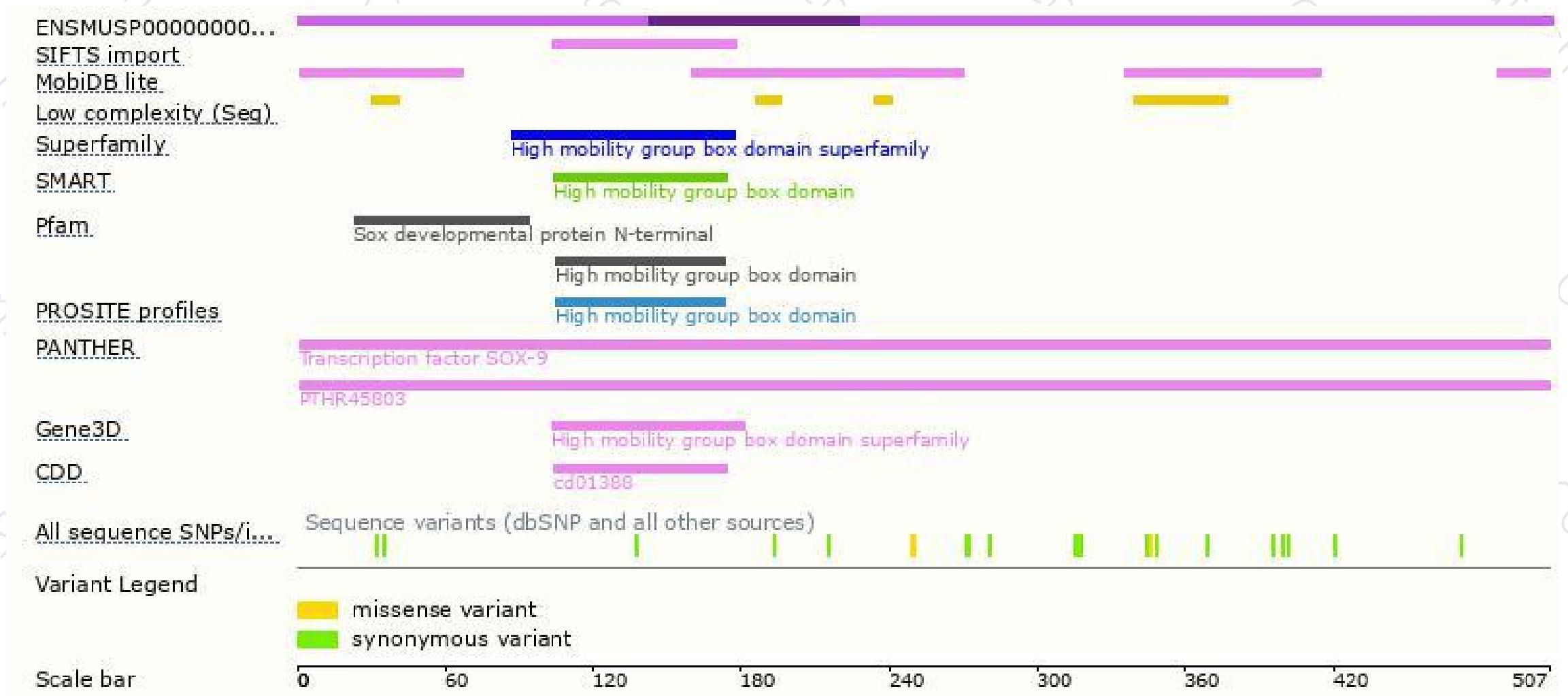
The strategy is based on the design of Sox9-201 transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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