

***Krt20* Cas9-CKO Strategy**

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Reviewer:

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Project Overview

Project Name

Krt20

Project type

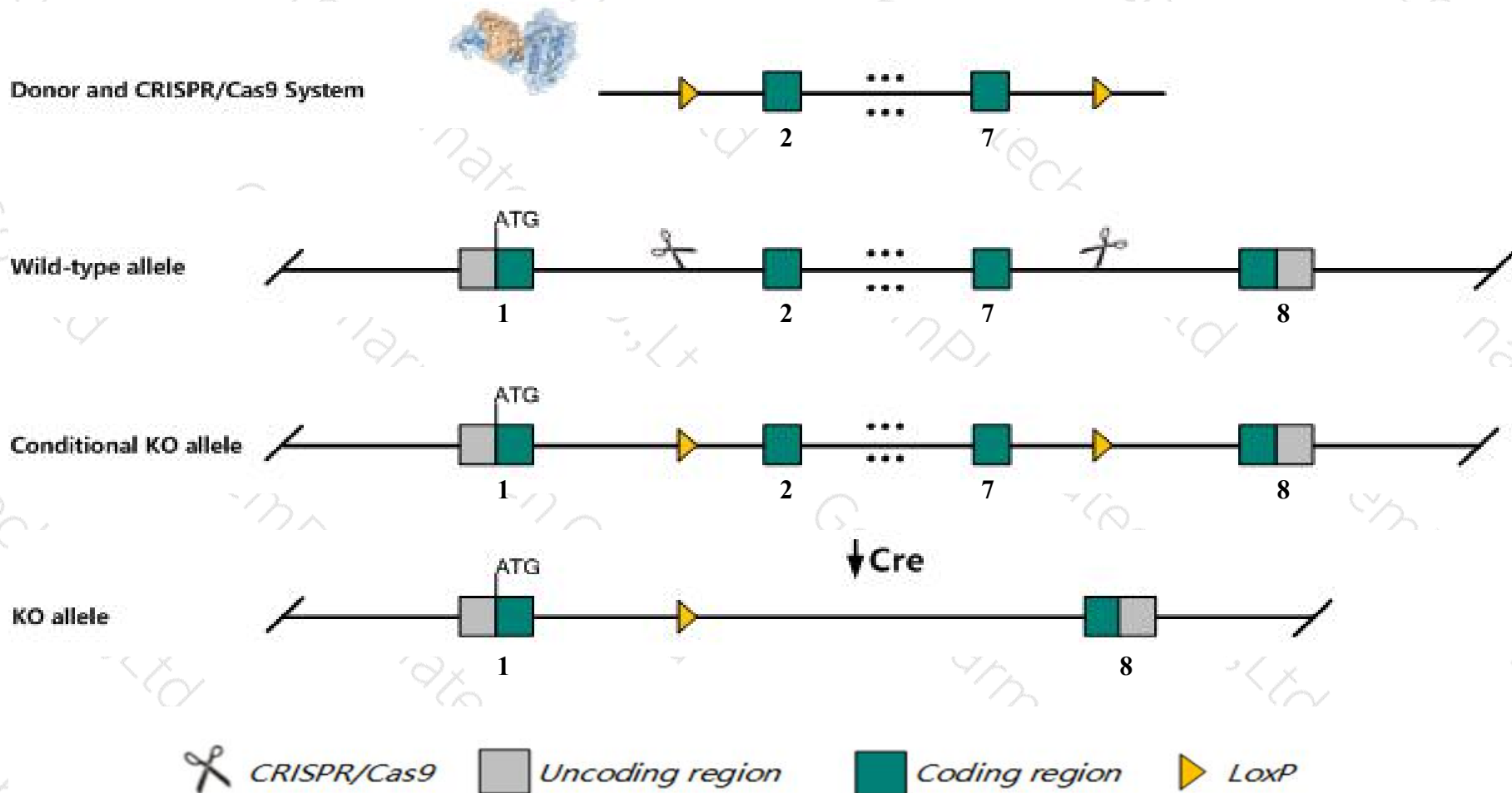
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Krt20* gene. The schematic diagram is as follows:



Technical routes

- The *Krt20* gene has 1 transcript. According to the structure of *Krt20* gene, exon2-exon7 of *Krt20-201* (ENSMUST00000017743.2) transcript is recommended as the knockout region. The region contains 787bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Krt20* 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 *Krt20* 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.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- 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)

Krt20 keratin 20 [Mus musculus (house mouse)]

Gene ID: 66809, updated on 31-Jan-2019

Summary



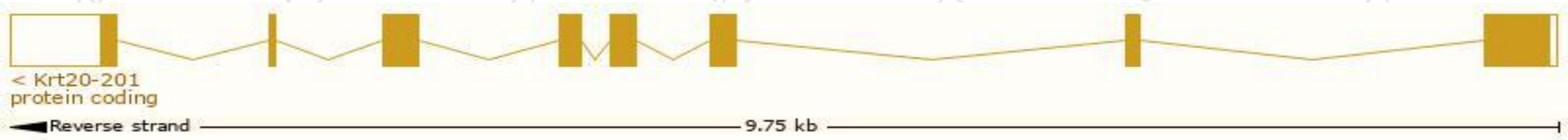
Official Symbol	Krt20 provided by MGI
Official Full Name	keratin 20 provided by MGI
Primary source	MGI:MGI:1914059
See related	Ensembl:ENSMUSG00000035775
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9030623C06Rik, Ck-20, Ck20, K20, Krt21
Summary	This gene encodes a member of the keratin protein family and is found within a cluster of cytokeratin genes on chromosome 11. Keratins are cytoskeletal proteins that are preferentially expressed in epithelial cells. The encoded protein may help maintain intermediate filament organization in intestinal epithelium. Phosphorylation of this protein may also influence mucin secretion in the small intestine. [provided by RefSeq, Dec 2015]
Expression	Biased expression in large intestine adult (RPKM 276.4), small intestine adult (RPKM 251.1) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

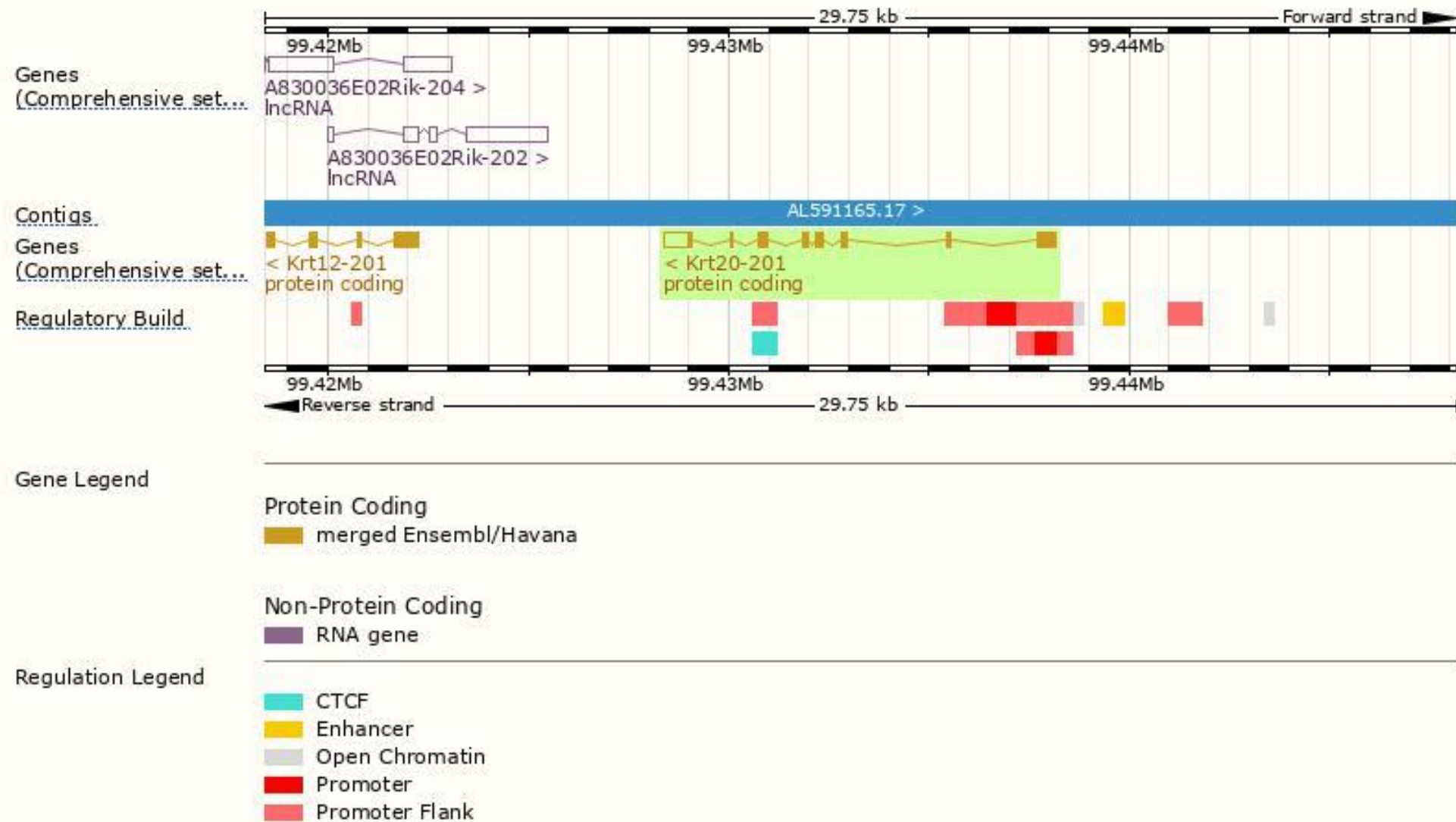
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Krt20-201	ENSMUST00000017743.2	1927	431aa	Protein coding	CCDS25381	Q9D312	TSL:1 GENCODE basic APPRIS P1

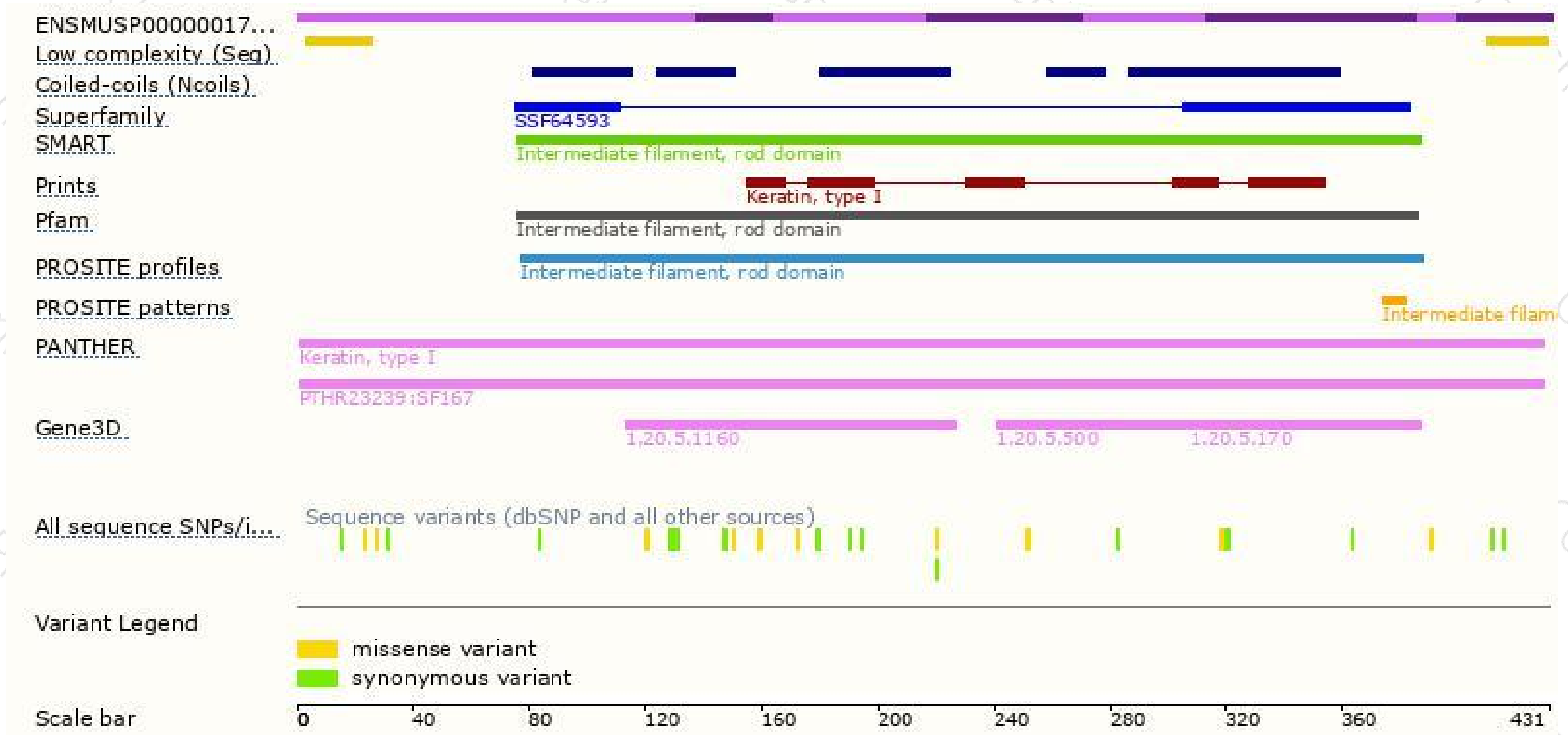
The strategy is based on the design of *Krt20-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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