

Il20ra Cas9-KO Strategy

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Project Overview



Project Name

Il20ra

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il20ra* gene. The schematic diagram is as follows:



- The *Il20ra* gene has 2 transcripts. According to the structure of *Il20ra* gene, exon2-exon6 of *Il20ra-201* (ENSMUST00000020185.4) transcript is recommended as the knockout region. The region contains 776bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il20ra* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit increased bone mineral density, impaired osteoclast differentiation, and resistance to ovariectomized-induced bone loss.
- The *Il20ra* gene is located on the Chr10. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Il20ra interleukin 20 receptor, alpha [Mus musculus (house mouse)]

Gene ID: 237313, updated on 31-Jan-2019

Summary



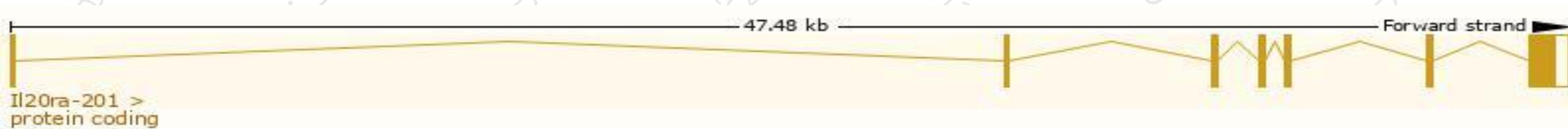
| | |
|---------------------------|---|
| Official Symbol | Il20ra provided by MGI |
| Official Full Name | interleukin 20 receptor, alpha provided by MGI |
| Primary source | MGI:MGI:3605069 |
| See related | Ensembl:ENSMUSG00000020007 |
| Gene type | protein coding |
| RefSeq status | PROVISIONAL |
| Organism | Mus musculus |
| Lineage | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| Also known as | E230031K19 |
| Expression | Low expression observed in reference dataset See more |
| Orthologs | human all |

Transcript information (Ensembl)

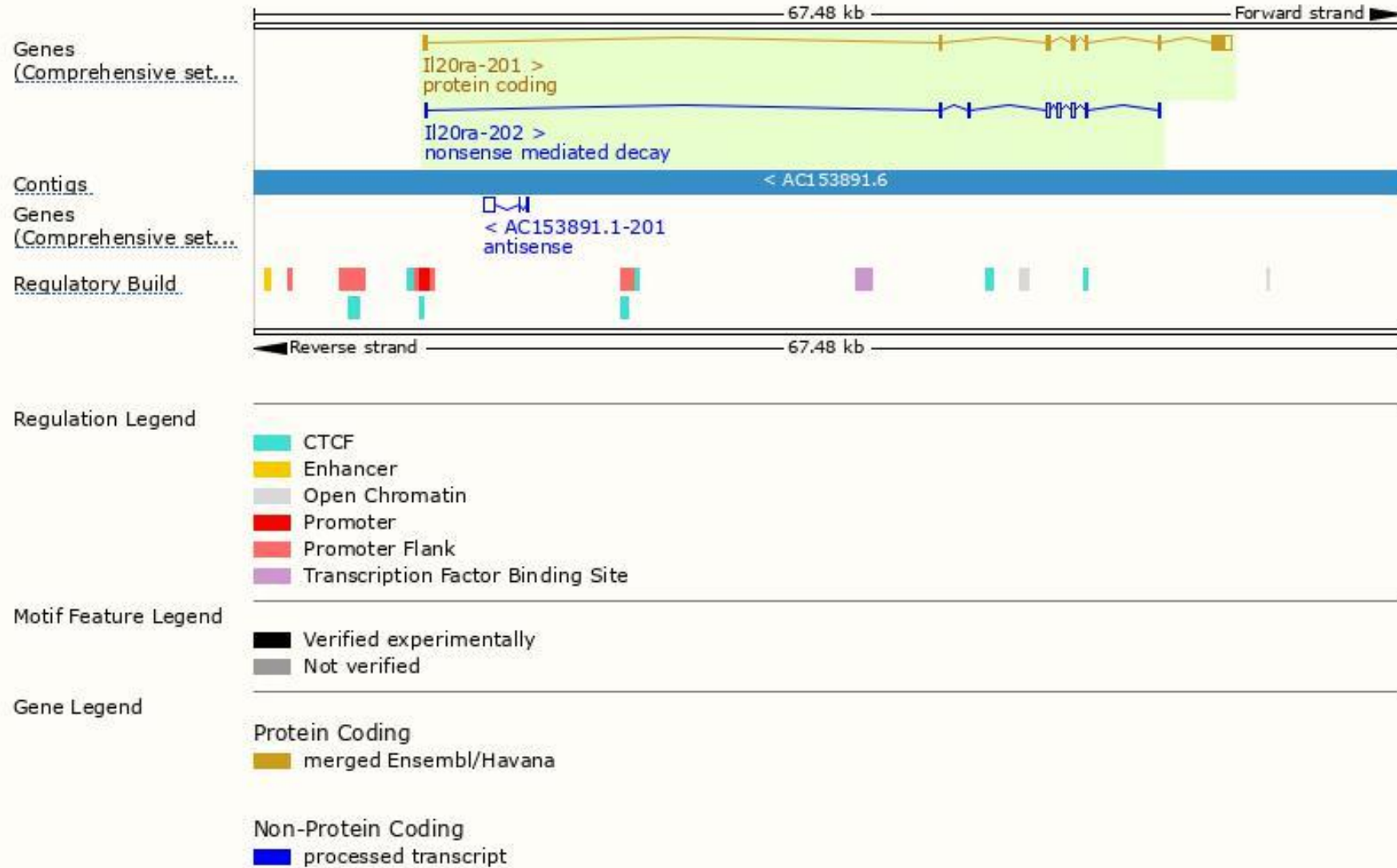
The gene has 2 transcripts, all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|-------------------|--------------------------------------|------|-----------------------|-------------------------|---------------------------|------------------------|-------------------------------|
| Il20ra-201 | ENSMUST00000020185.4 | 2105 | 546aa | Protein coding | CCDS23718 | Q6PHB0 | TSL:1 GENCODE basic APPRIS P1 |
| Il20ra-202 | ENSMUST00000217389.1 | 1095 | 105aa | Nonsense mediated decay | - | E6Y2L0 | TSL:1 |

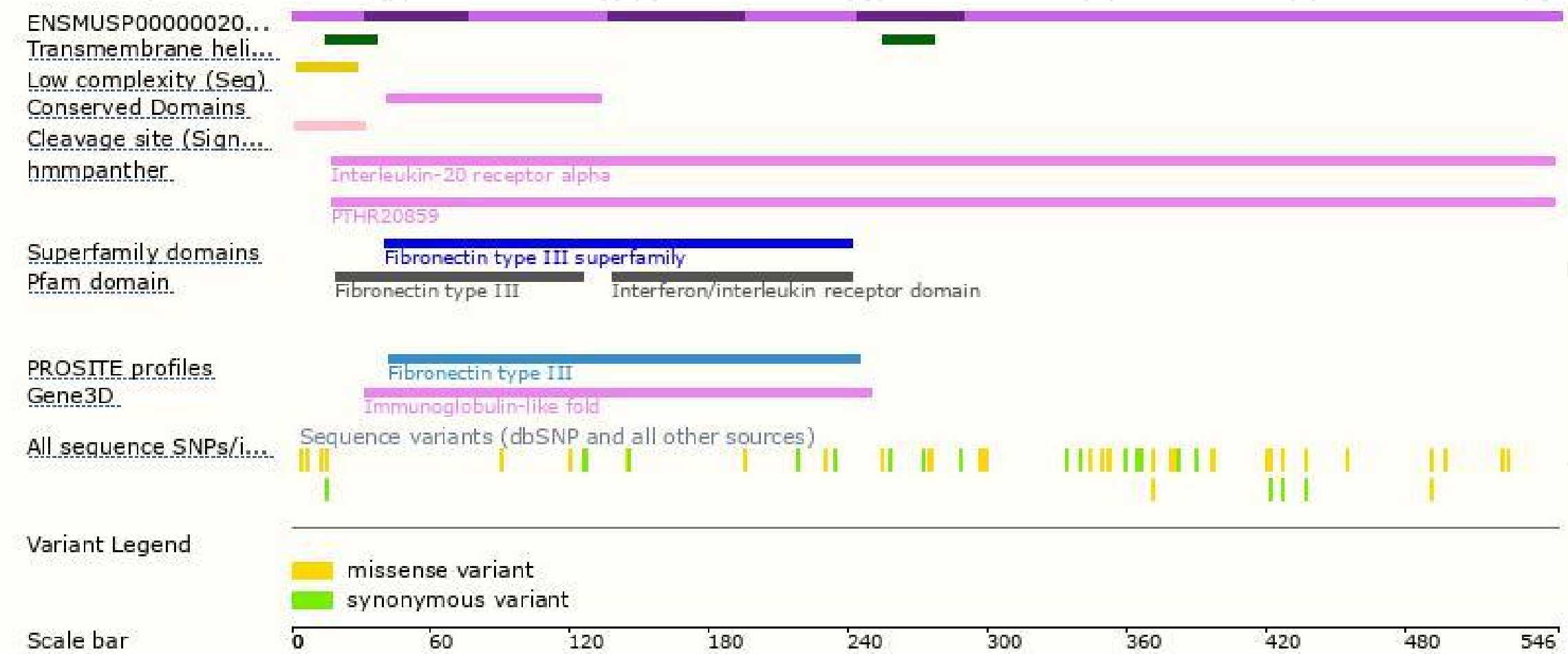
The strategy is based on the design of *Il20ra-201* transcript, The transcription is shown below



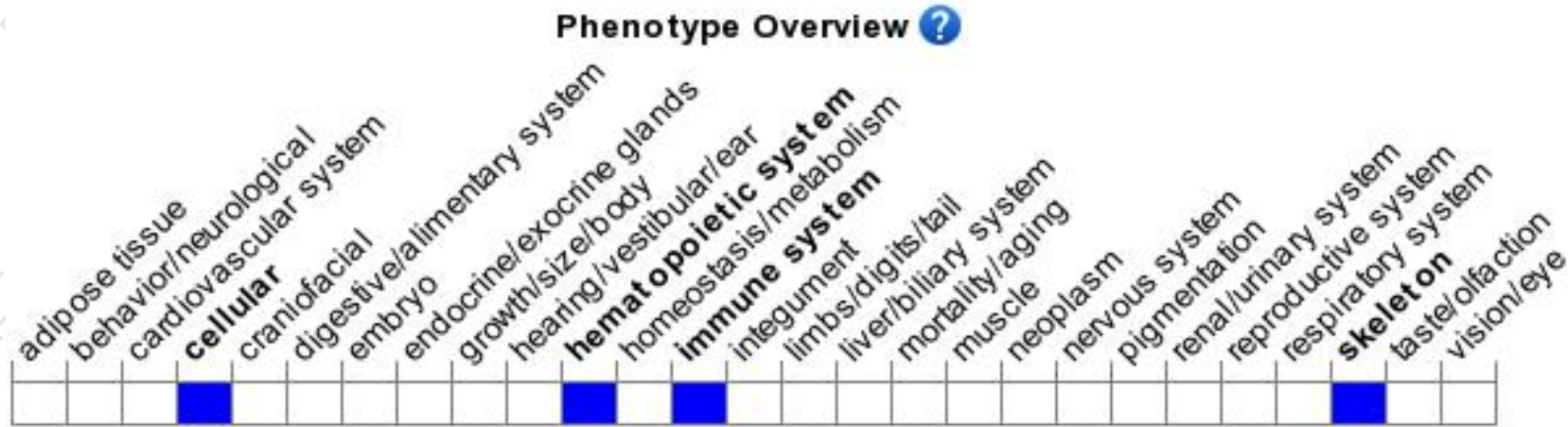
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit increased bone mineral density, impaired osteoclast differentiation, and resistance to ovariectomized-induced bone loss.

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

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