Mex3d Cas9-KO Strategy

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Overview

Target Gene Name

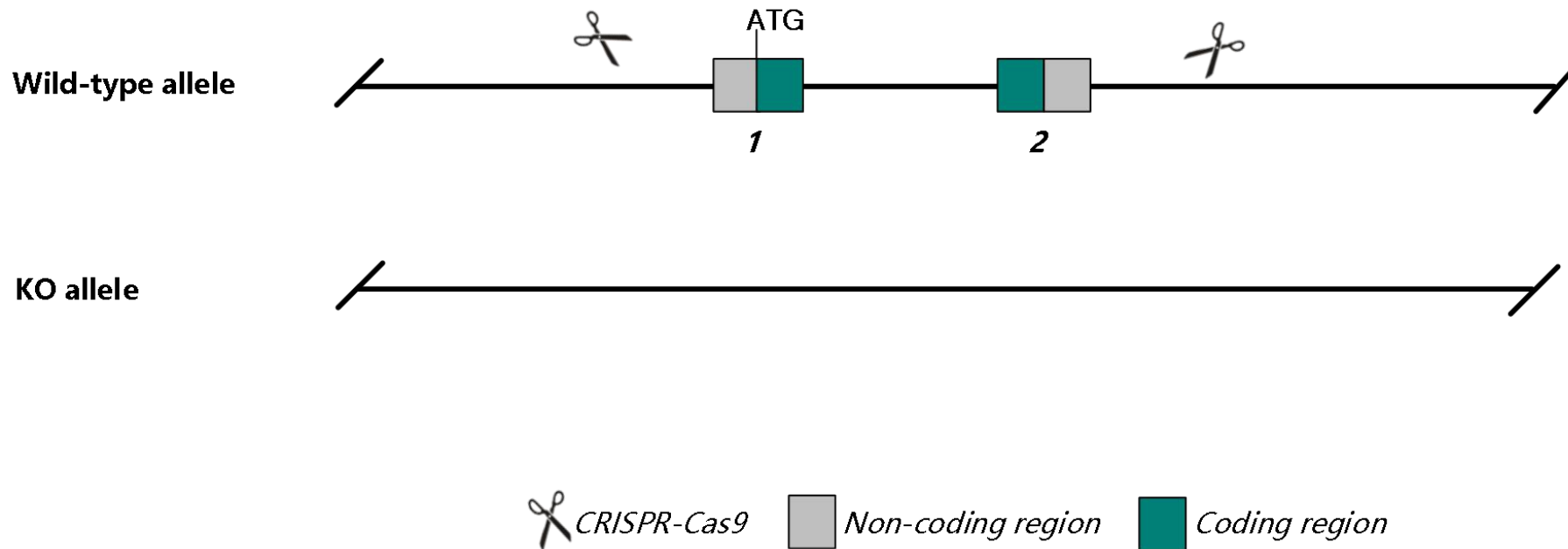- Mex3d

Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

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Strain Strategy

Schematic representation of CRISPR-Cas9 engineering used to edit the *Mex3d* gene.

Technical Information

- The *Mex3d* gene has 2 transcripts. According to the structure of *Mex3d* gene, exon1-exon2 of *Mex3d* -201(ENSMUST00000105350.3) transcript is recommended as the knockout region.The region contains all coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR-Cas9 technology to modify *Mex3d* gene. The brief process is as follows: CRISPR-Cas9 system 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.

Gene Information

Mex3d   mex3 RNA binding family member D [*Mus musculus* (house mouse)]

Gene ID: 237400, updated on 7-Sep-2023

⬆ **Download Datasets**

🔼 **Summary**   ⏫ ❓

Official Symbol	Mex3d provided by MGI
Official Full Name	mex3 RNA binding family member D provided by MGI
Primary source	MGI:MGI:2681847
See related	Ensembl:ENSMUSG00000048696 AllianceGenome:MGI:2681847
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	Rkhd1
Summary	Predicted to enable mRNA 3'-UTR AU-rich region binding activity. Predicted to act upstream of or within RNA destabilization and mRNA catabolic process. Predicted to be located in nucleus and perinuclear region of cytoplasm. Orthologous to human MEX3D (mex-3 RNA binding family member D). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Biased expression in testis adult (RPKM 193.1), ovary adult (RPKM 36.0) and 7 other tissues See more
Orthologs	human all
NEW	**Try the new Gene table** **Try the new Transcript table**

https://www.ncbi.nlm.nih.gov/gene/237400

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Transcript Information

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

Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000105350.3	Mex3d-201	3266	718aa	Protein coding	CCDS48629	D3YTR3	Ensembl Canonical GENCODE basic APPRIS P1 TSL:1
ENSMUST0000123141.2	Mex3d-202	1358	268aa	Protein coding		F6TY75	TSL:2 CDS 5' incomplete

The strategy is based on the design of *Mex3d* -201 transcript, the transcription is shown below:

< Mex3d-201 - ENSMUST00000105350
protein coding

Reverse strand   7.30 kb
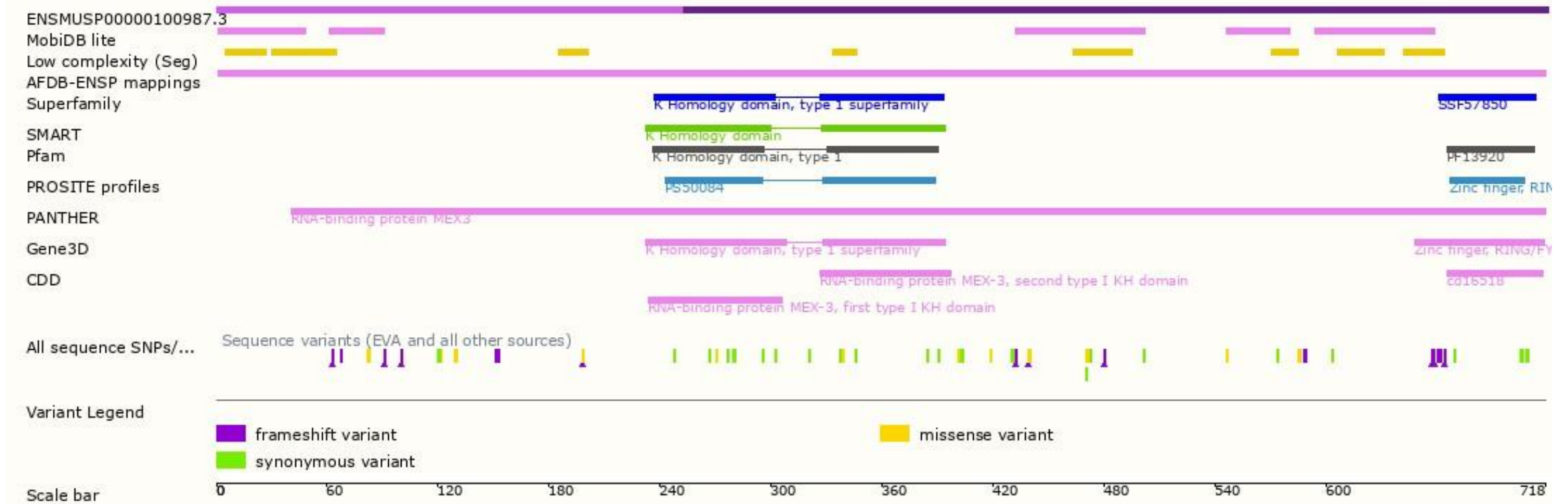
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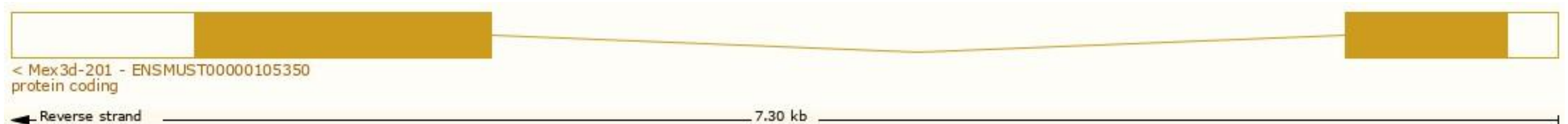
Genomic Information
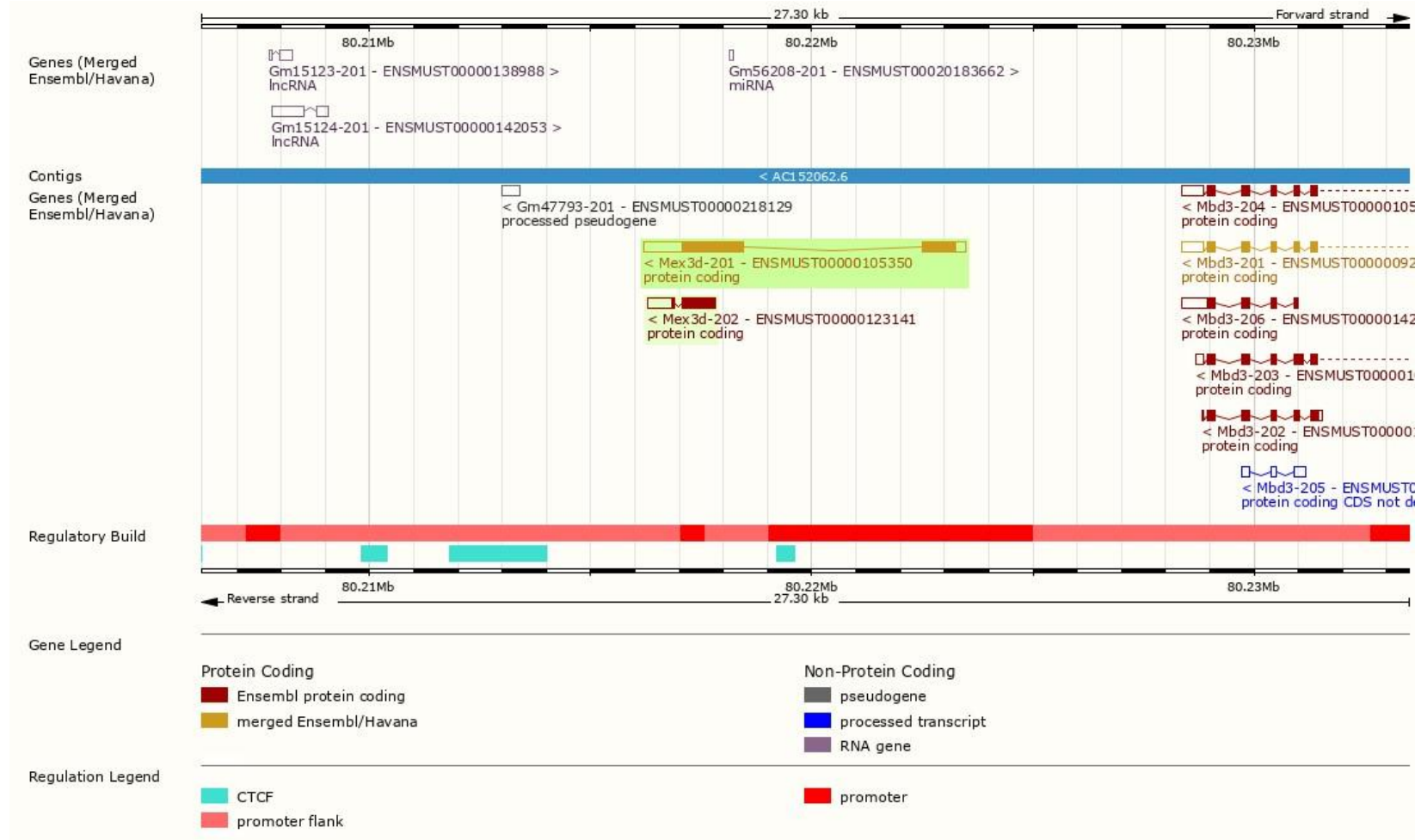
Protein Information

Important Information

- The knockout region will delete *Gm56208*, the risk is unknown.

- The knockout region is 2.5kb away from the 5' of *Gm47793*, which may affect the 5' regulation of *Gm47793*.

- The *Mex3d* 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.