GemPharmatech™

Arhgef37 Cas9-CKO Strategy

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Overview

Target Gene Name

- *Arhgef37*

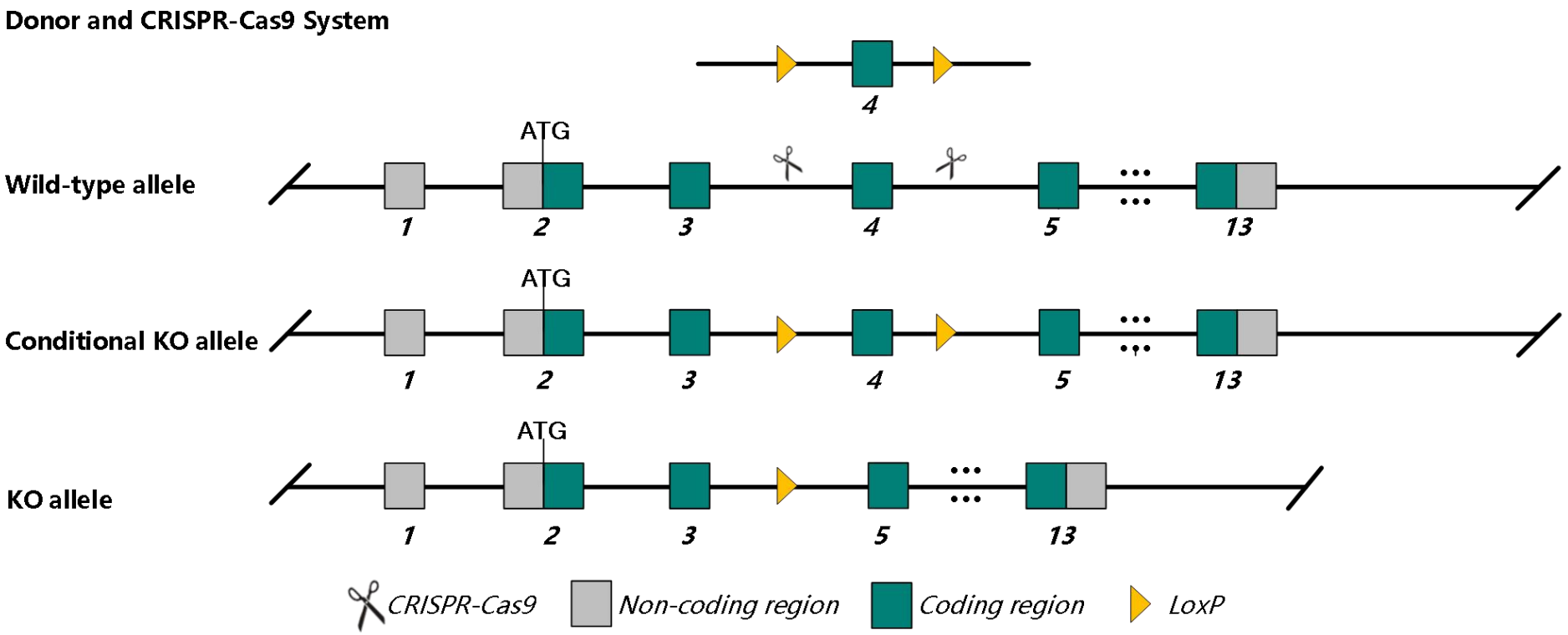
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy

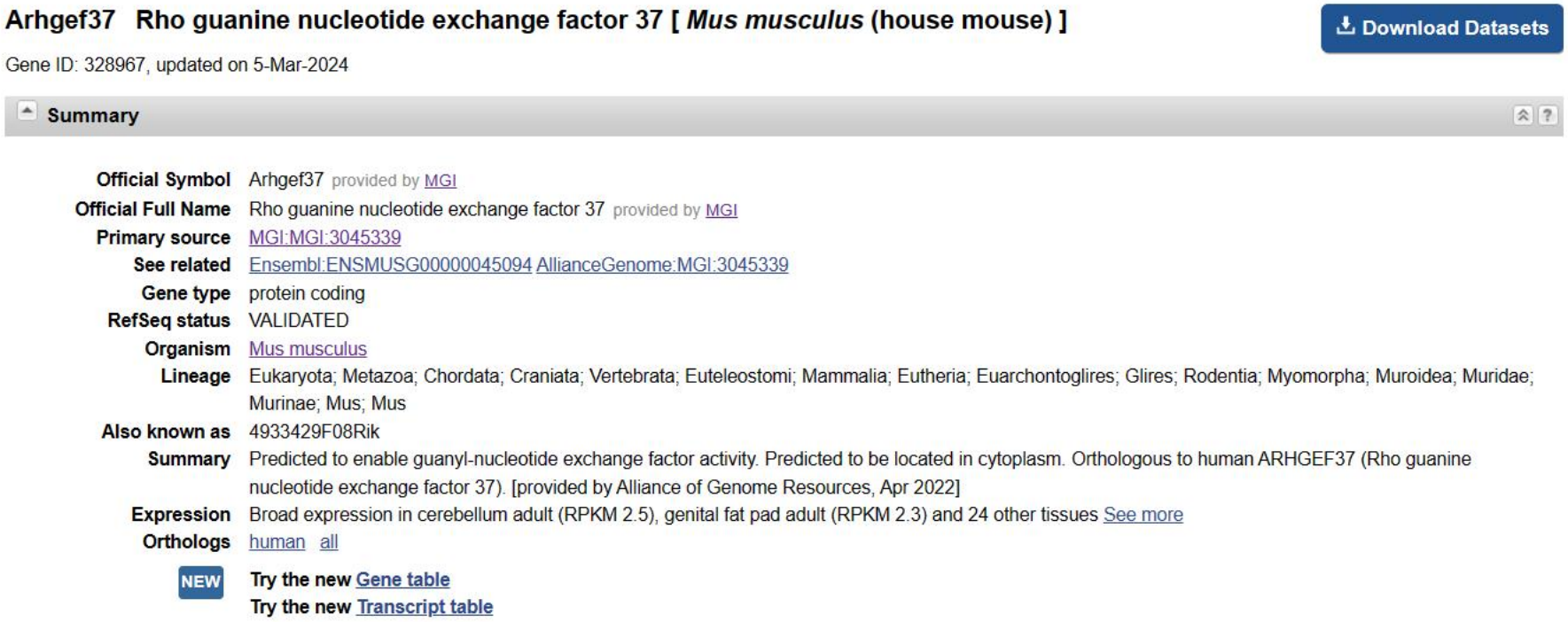


Schematic representation of CRISPR-Cas9 engineering used to edit the *Arhgef37* gene.

Technical Information

- The *Arhgef37* gene has 3 transcript. According to the structure of *Arhgef37* gene, exon 4 of *Arhgef37*-201 (ENSMUST00000171629.3) is recommended as the knockout region. The region contains 148 bp of coding sequence. Knocking out the region may result in disruption of gene function.
- In this project we use CRISPR-Cas9 technology to modify *Arhgef37* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information



Arhgef37 Rho guanine nucleotide exchange factor 37 [*Mus musculus* (house mouse)]

Download Datasets

Gene ID: 328967, updated on 5-Mar-2024

Summary

Official Symbol	Arhgef37 provided by MGI
Official Full Name	Rho guanine nucleotide exchange factor 37 provided by MGI
Primary source	MGI:MGI:3045339
See related	Ensembl:ENSMUSG00000045094 AllianceGenome:MGI:3045339
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	4933429F08Rik
Summary	Predicted to enable guanyl-nucleotide exchange factor activity. Predicted to be located in cytoplasm. Orthologous to human ARHGEF37 (Rho guanine nucleotide exchange factor 37). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Broad expression in cerebellum adult (RPKM 2.5), genital fat pad adult (RPKM 2.3) and 24 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/328967

Transcript Information

The gene has 3 transcript, all transcripts are shown below:

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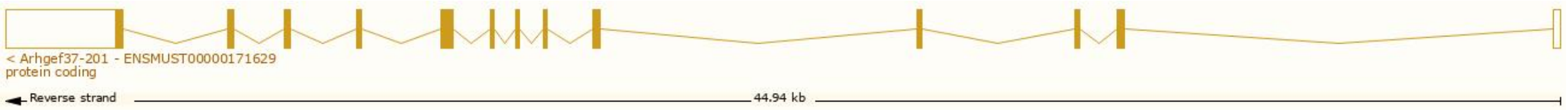
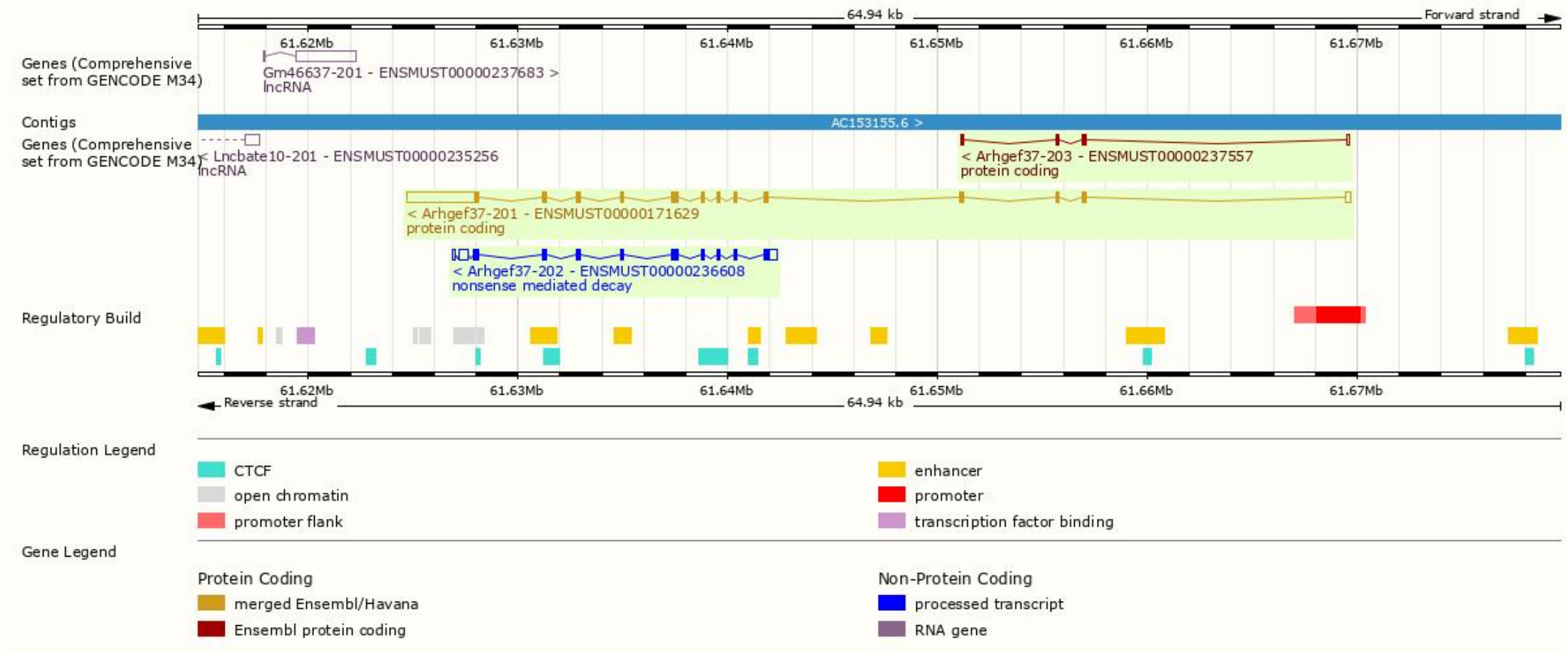
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000171629.3	Arhgef37-201	5429	676aa	Protein coding	CCDS50302	E9Q5R6	Ensembl Canonical, GENCODE basic, APPRIS P1, TSL:5
ENSMUST00000236608.2	Arhgef37-202	2661	536aa	Nonsense mediated decay		A1IGU4-2	-
ENSMUST00000237557.2	Arhgef37-203	530	135aa	Protein coding		A0A494BAB2	CDS 3' incomplete

The strategy is based on the design of *Arhgef37*-201 transcript, the transcription is shown below:



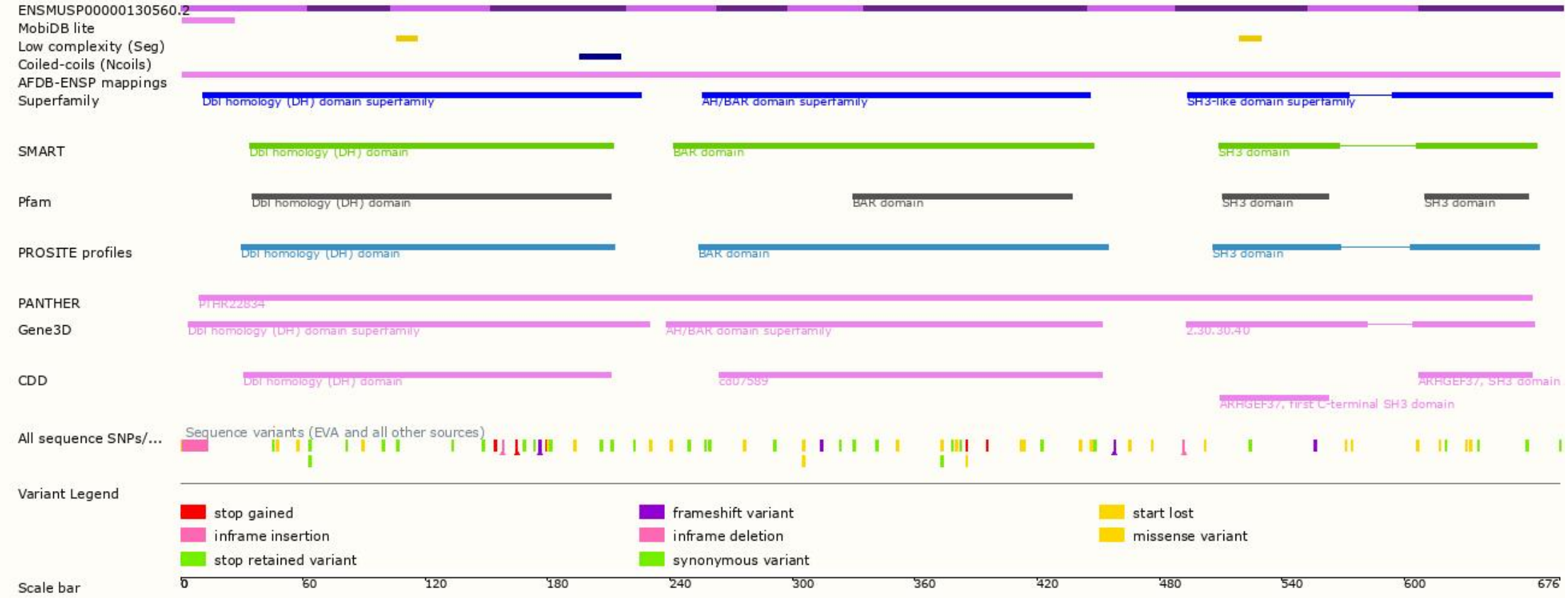
Source: http://asia.ensembl.org/

Genomic Information



Source: http://asia.ensembl.org/

Protein Information



Source: https://www.ensembl.org

Important Information

- *Arhgef37* is located on Chr 18. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.