

Xpo5 Cas9-CKO Strategy

Designer:

Daohua Xu

Design Date:

2019-7-18

Project Overview



Project Name

Xpo5

Project type

Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

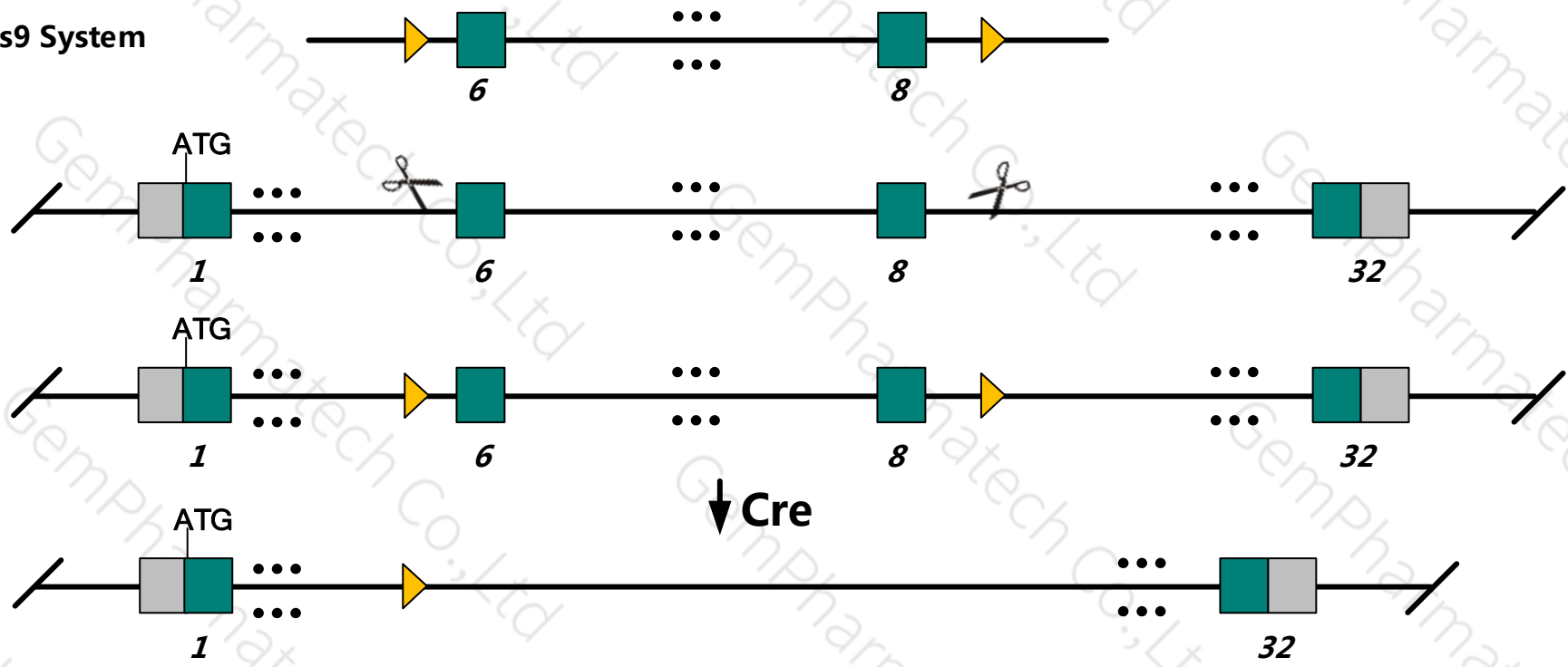
This model will use CRISPR/Cas9 technology to edit the *Xpo5* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

KO allele



 Cas9/sgRNA  Uncoding region  Coding region  LoxP

Technical routes

- The *Xpo5* gene has 3 transcripts. According to the structure of *Xpo5* gene, exon6-exon8 of *Xpo5*-201 (ENSMUST00000087031.6) transcript is recommended as the knockout region. The region contains 290bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Xpo5* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Xpo5* gene is located on the Chr17. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Xpo5 exportin 5 [*Mus musculus* (house mouse)]

Gene ID: 72322, updated on 8-Oct-2018

Summary

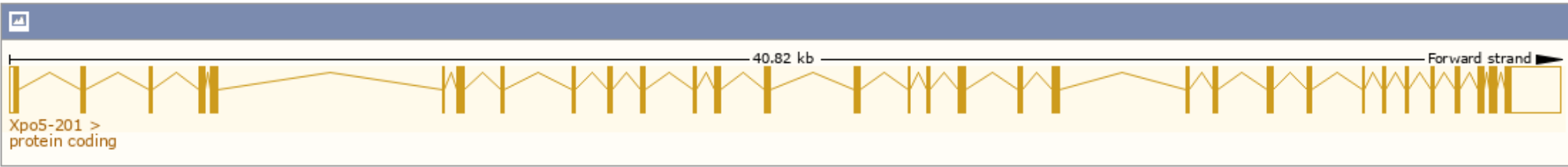
Official Symbol	Xpo5 provided by MGI
Official Full Name	exportin 5 provided by MGI
Primary source	MGI:MGI:1913789
See related	Ensembl:ENSMUSG00000067150
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Exp5; RanBp21; A1648907; AW549301; mKIAA1291; 2410004H11Rik; 2700038C24Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 20.1), CNS E14 (RPKM 15.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

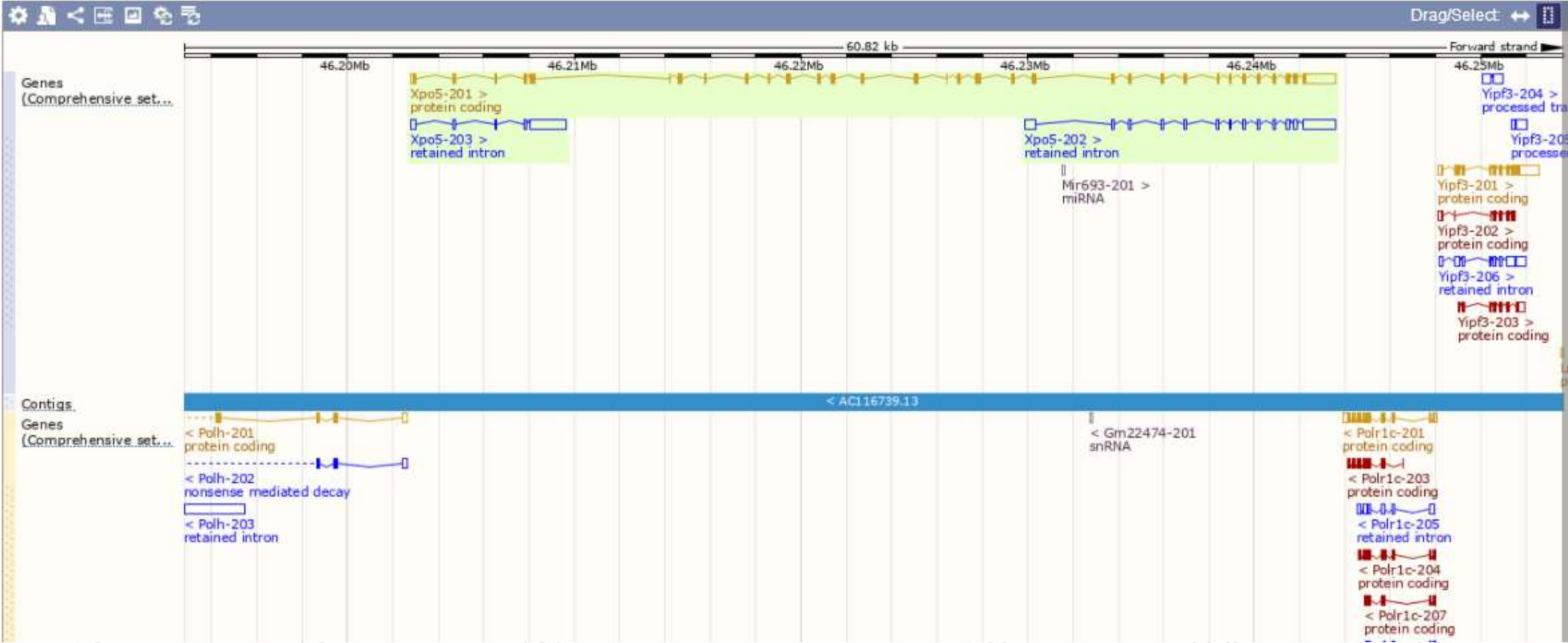
The gene has 3 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden) Filter							
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq
Xpo5-201	ENSMUST00000087031.6	5081	1204aa	Protein coding	CCDS37631	Q924C1	NM_028198 NP_082474
Xpo5-202	ENSMUST00000232971.1	3145	No protein	Retained intron	-	-	-
Xpo5-203	ENSMUST00000233340.1	2137	No protein	Retained intron	-	-	-

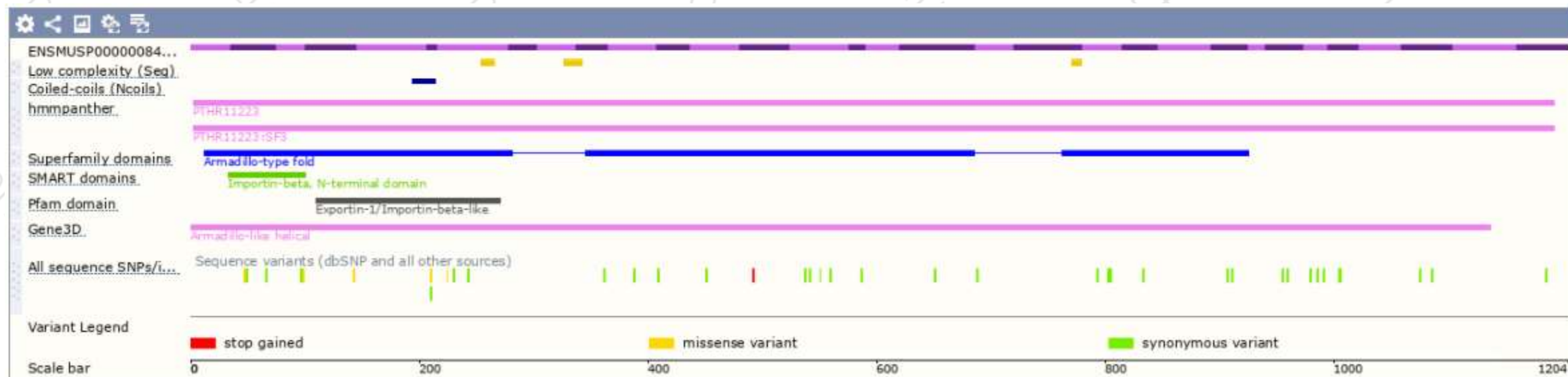
The strategy is based on the design of *Xpo5-201* transcript, The transcription is shown below



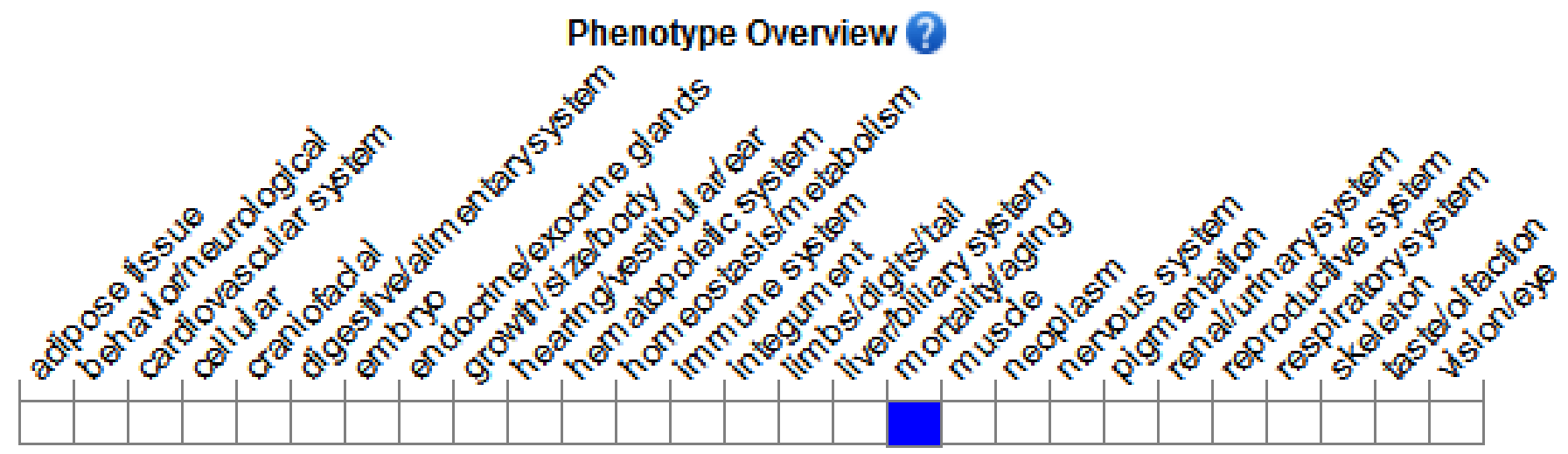
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Click cells to view annotations.

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

If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534

