Nup153 Cas9-KO *Strategy*

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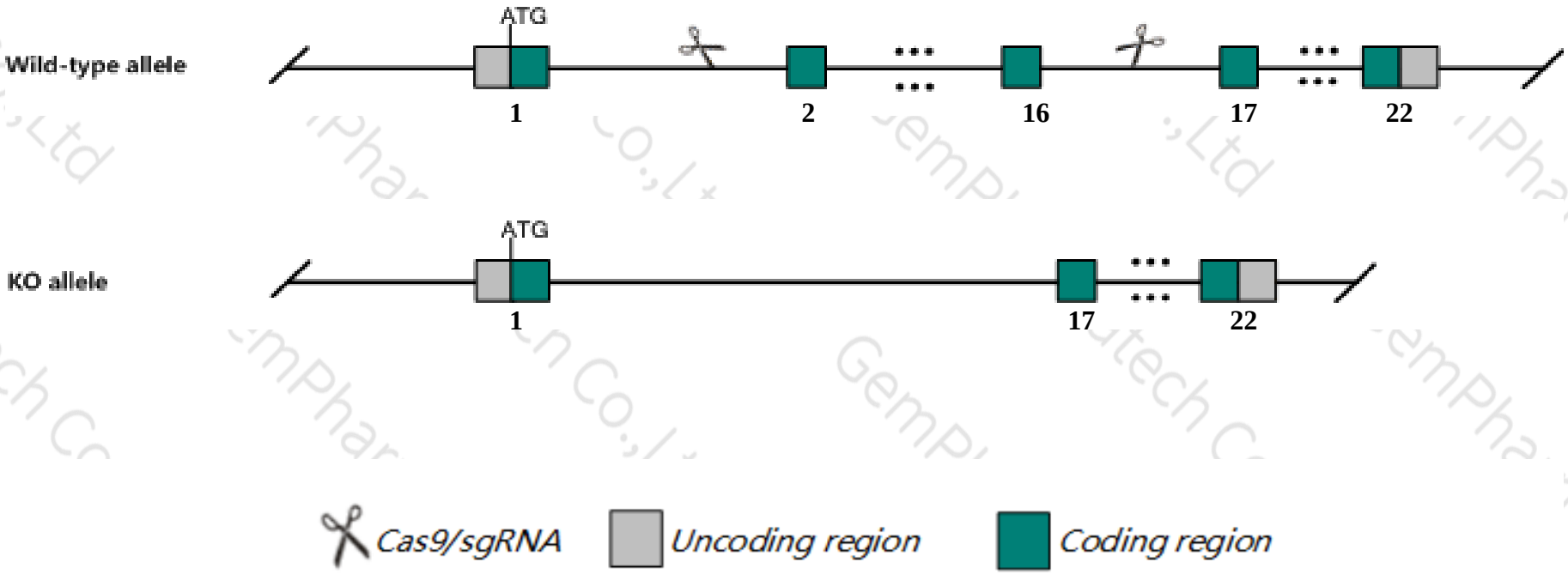
Project Overview

Project Name	***Nup153***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nup153* gene. The schematic diagram is as follows:



Technical routes

➢ The *Nup153* gene has 9 transcripts. According to the structure of *Nup153* gene, exon2-exon16 of *Nup153-201* (ENSMUST00000021803.9) transcript is recommended as the knockout region.The region contains 2326bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Nup153* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

➢ The *Nup153* gene is located on the Chr13. 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）

集萃药康 GemPharmatech

Nup153 nucleoporin 153 [*Mus musculus* (house mouse)]

Gene ID: 218210, updated on 12-Aug-2019

Summary

Official Symbol	Nup153 provided by MGI
Official Full Name	nucleoporin 153 provided by MGI
Primary source	MGI:MGI:2385621
See related	Ensembl:ENSMUSG00000021374
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	C88147; B130015D15Rik
Expression	Ubiquitous expression in testis adult (RPKM 42.1), thymus adult (RPKM 15.1) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 9 transcripts,all transcripts are shown below:

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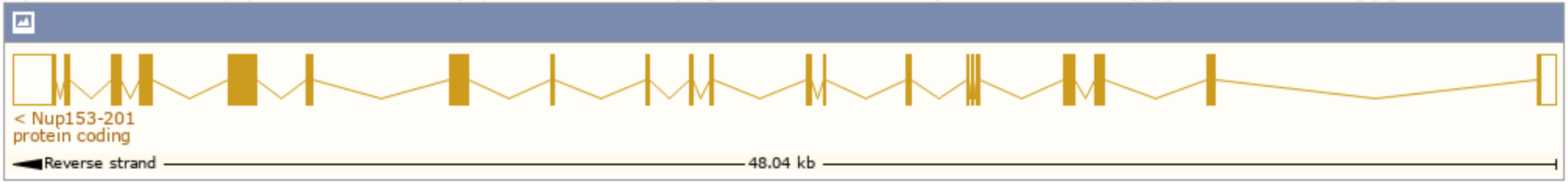
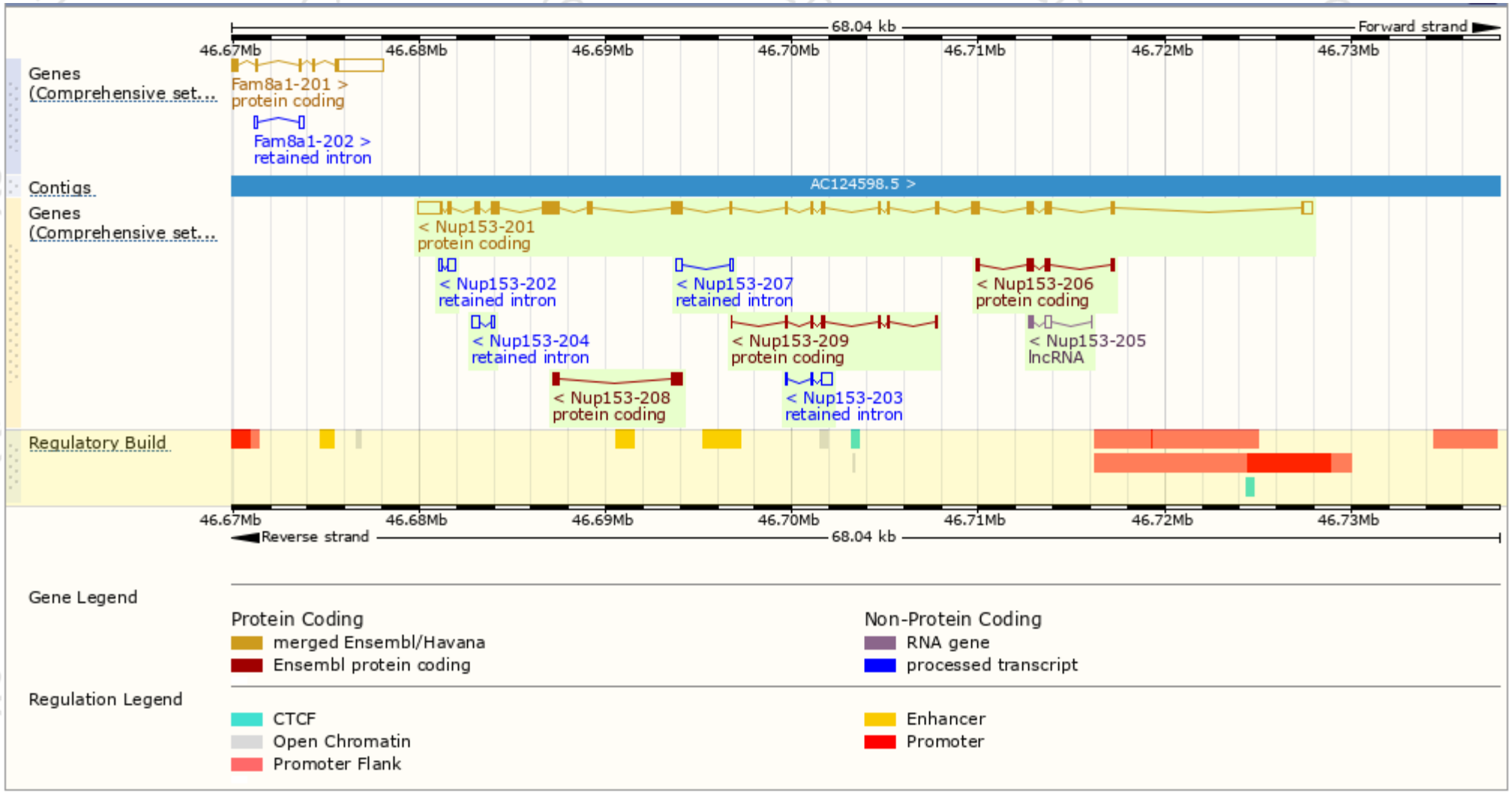
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nup153-201	ENSMUST00000021803.9	6109	1462aa	Protein coding	CCDS26486	E9Q3G8	TSL:1 GENCODE basic APPRIS P1
Nup153-202	ENSMUST00000182156.1	597	No protein	Retained intron	-	-	TSL:1
Nup153-203	ENSMUST00000182358.1	711	No protein	Retained intron	-	-	TSL:3
Nup153-204	ENSMUST00000182914.1	557	No protein	Retained intron	-	-	TSL:2
Nup153-205	ENSMUST00000183299.2	509	No protein	lncRNA	-	-	TSL:3
Nup153-206	ENSMUST00000224062.1	766	256aa	Protein coding	-	A0A286YCP2	CDS 5' and 3' incomplete
Nup153-207	ENSMUST00000224186.1	554	No protein	Retained intron	-	-	-
Nup153-208	ENSMUST00000224203.1	909	303aa	Protein coding	-	A0A286YE24	CDS 5' and 3' incomplete
Nup153-209	ENSMUST00000225894.1	610	203aa	Protein coding	-	A0A286YCY7	CDS 5' and 3' incomplete

The strategy is based on the design of *Nup153-201* transcript,The transcription is shown below:

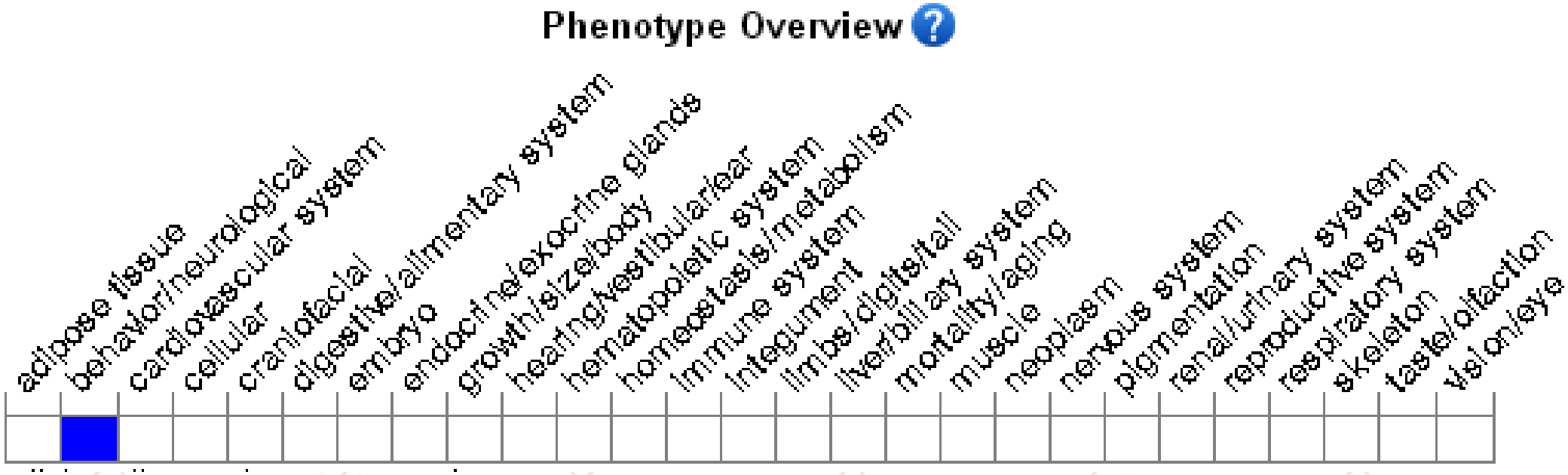


Genomic location distribution



Protein domain

Mouse phenotype description(MGI)



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

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