

Nup153 Cas9-CKO Strategy

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Reviewer

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Project Overview



Project Name

Nup153

Project type

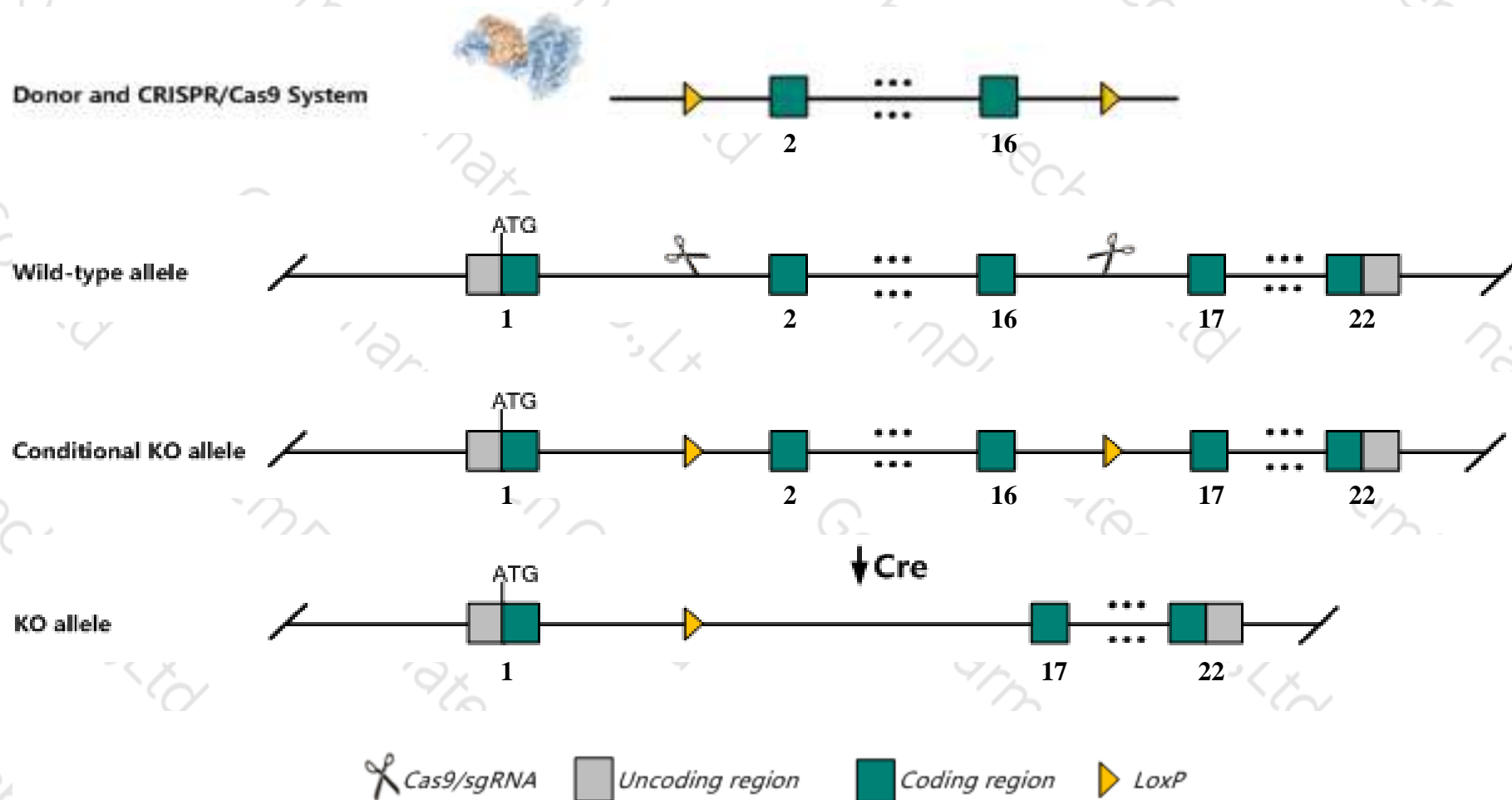
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional 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, 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 and cell types.

- 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

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

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

Summary

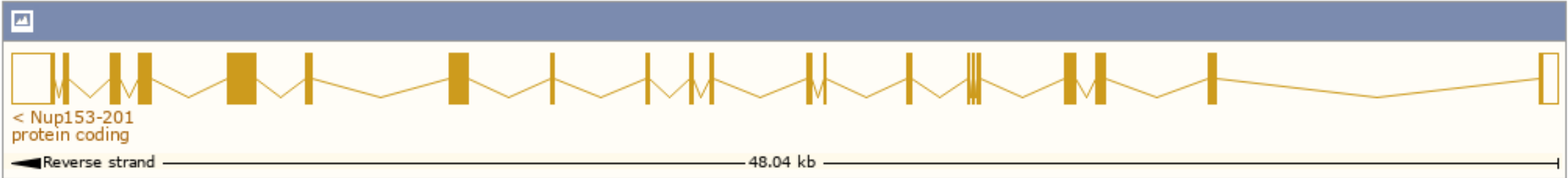
Official Symbol	Nup153 provided by MGI
Official Full Name	nucleoporin 153 provided by MGI
Primary source	MGI:MGI:2385621
See related	Ensembl:ENSMUSG00000021374
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; 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)

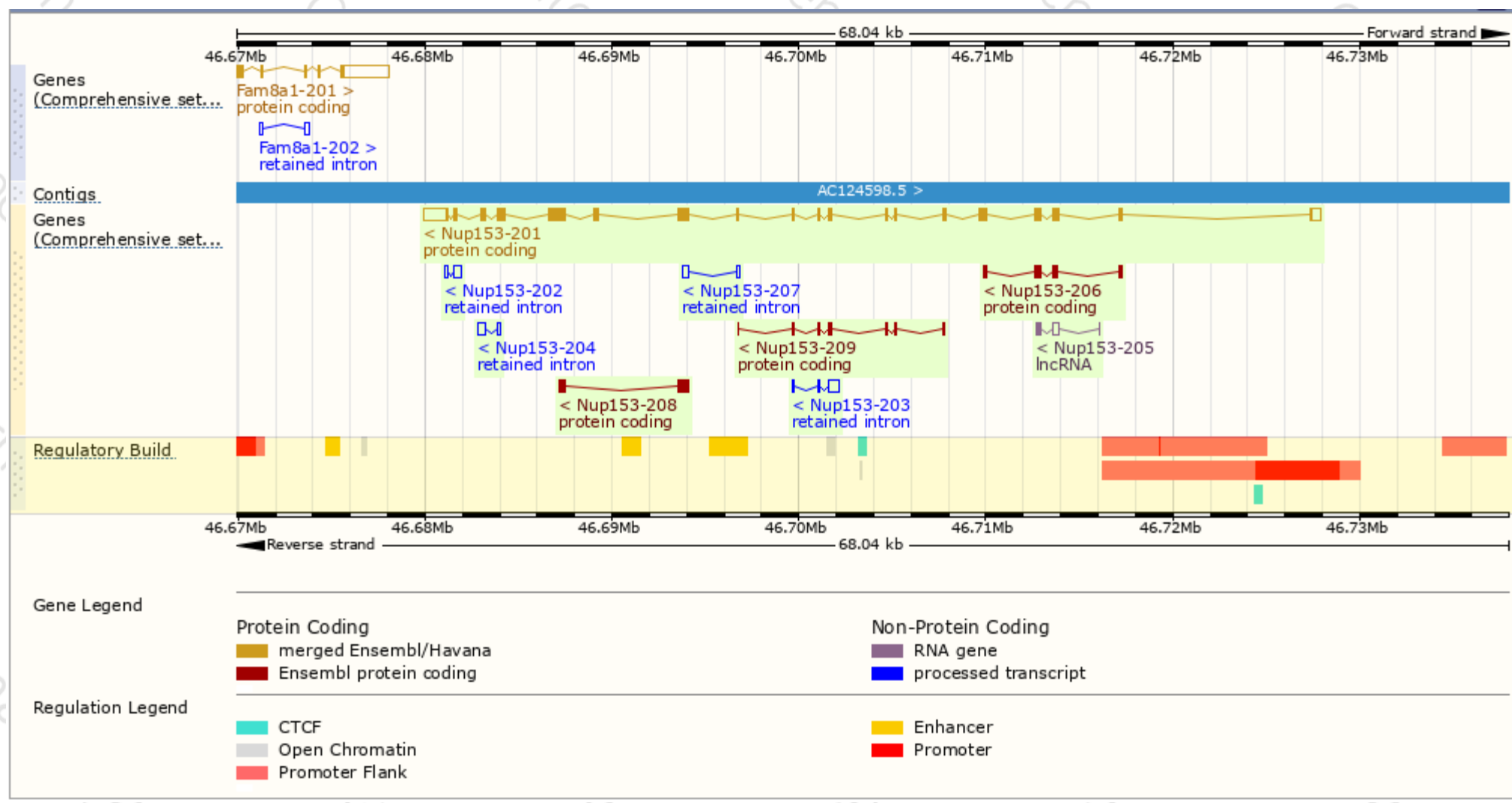
The gene has 9 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)							Filter	
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	-	ADA286YCP2	CDS 5' and 3' incomplete	
Nup153-207	ENSMUST00000224186.1	554	No protein	Retained intron	-	-		
Nup153-208	ENSMUST00000224203.1	909	303aa	Protein coding	-	ADA286YE24	CDS 5' and 3' incomplete	
Nup153-209	ENSMUST00000225894.1	610	203aa	Protein coding	-	ADA286YCY7	CDS 5' and 3' incomplete	

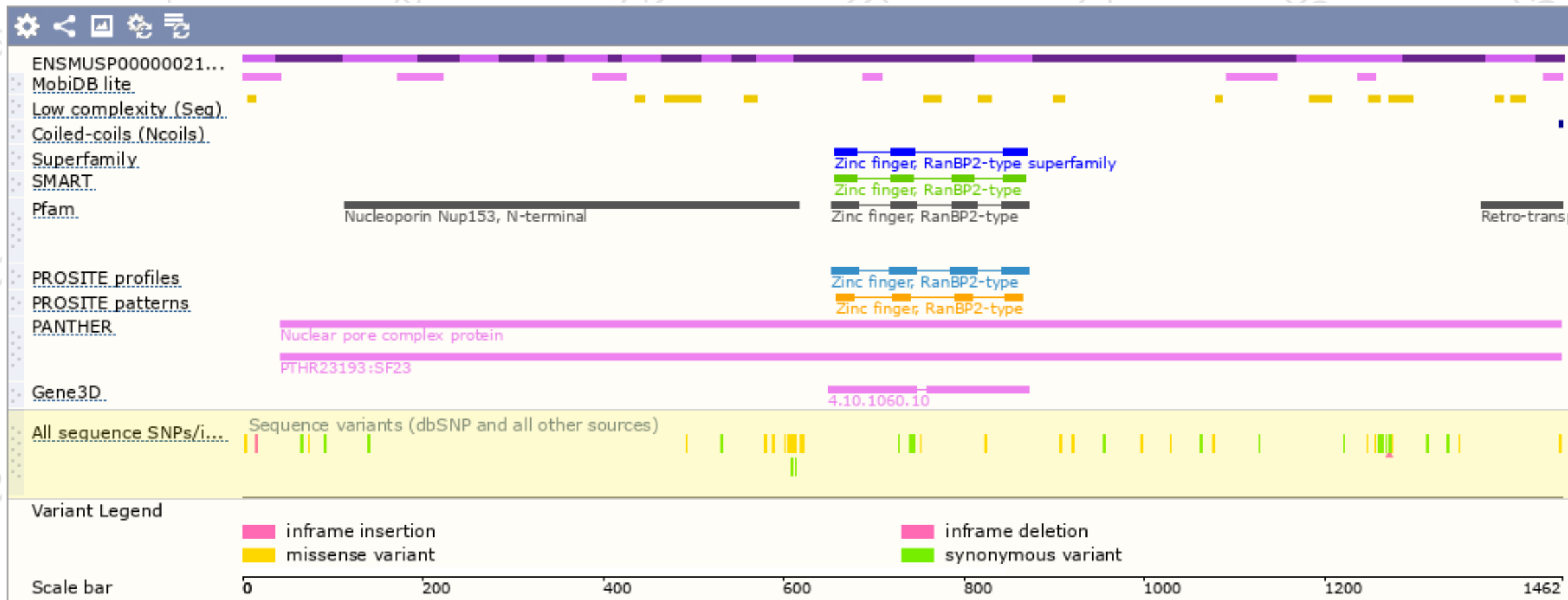
The strategy is based on the design of *Nup153-201* transcript,The transcription is shown below:



Genomic location distribution

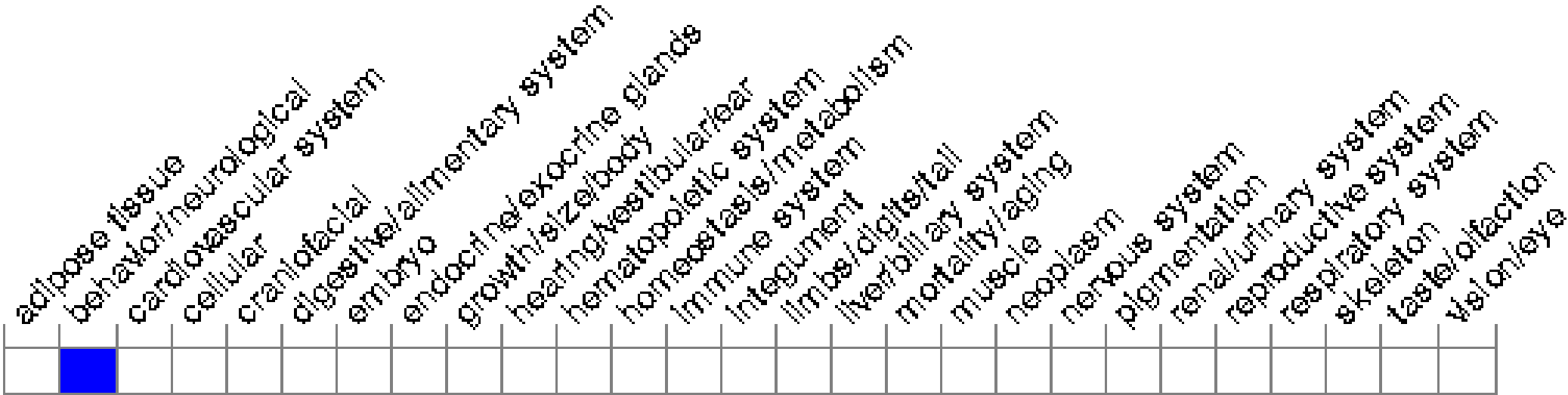


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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

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