

Nfyc Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Nfyc

Project type

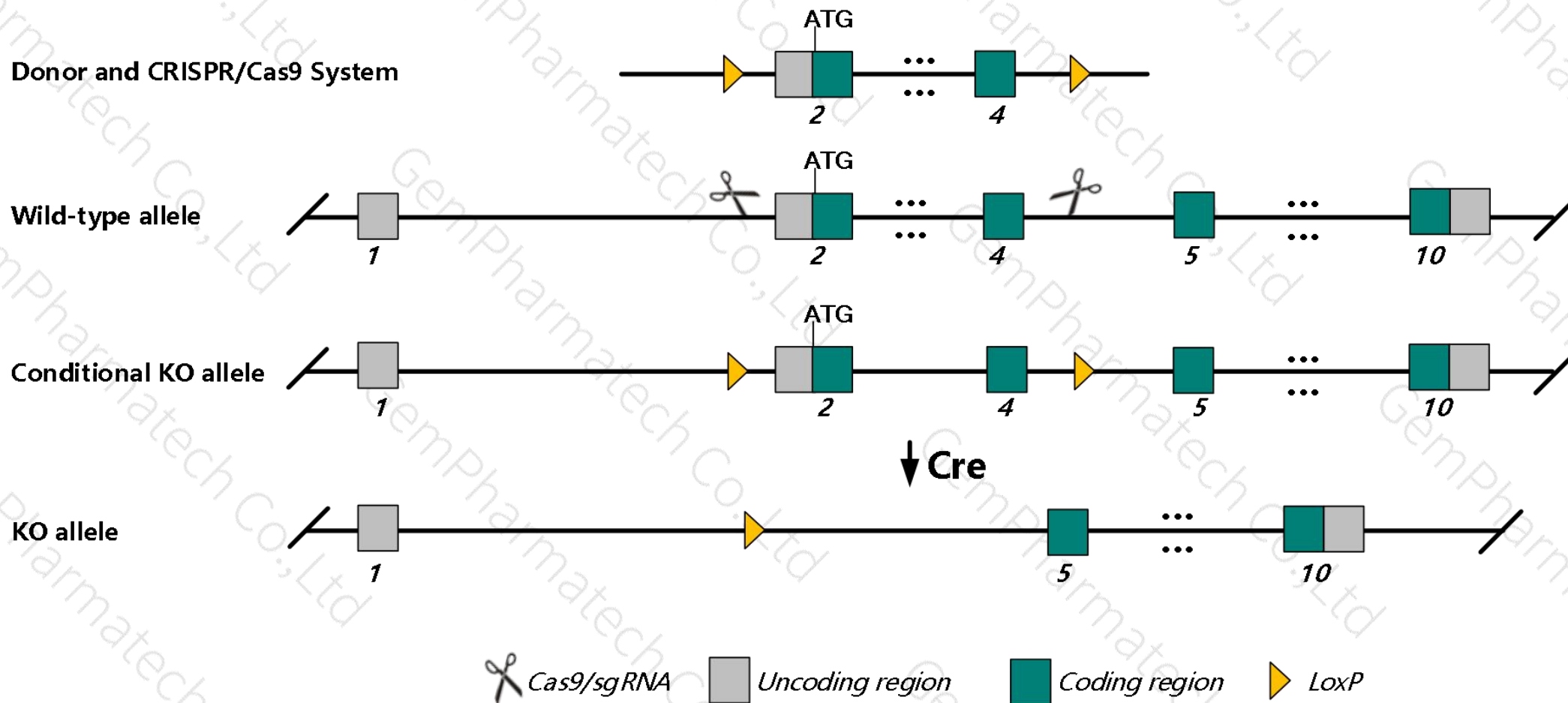
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Nfyc* gene has 10 transcripts. According to the structure of *Nfyc* gene, exon2-exon4 of *Nfyc-204* (ENSMUST00000120779.7) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nfyc* 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- 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.

- The *Nfyc* gene is located on the Chr4. 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)

Nfyc nuclear transcription factor-Y gamma [*Mus musculus* (house mouse)]

Gene ID: 18046, updated on 24-Oct-2019

Summary

Official Symbol Nfyc provided by [MGI](#)

Official Full Name nuclear transcription factor-Y gamma provided by [MGI](#)

Primary source [MGI:MGI:107901](#)

See related [Ensembl:ENSMUSG00000032897](#)

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

Expression Ubiquitous expression in ovary adult (RPKM 46.0), thymus adult (RPKM 39.2) and 28 other tissues [See more](#)

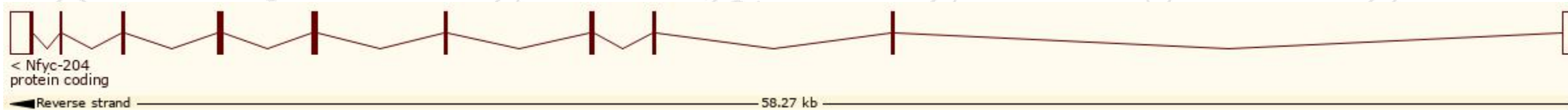
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

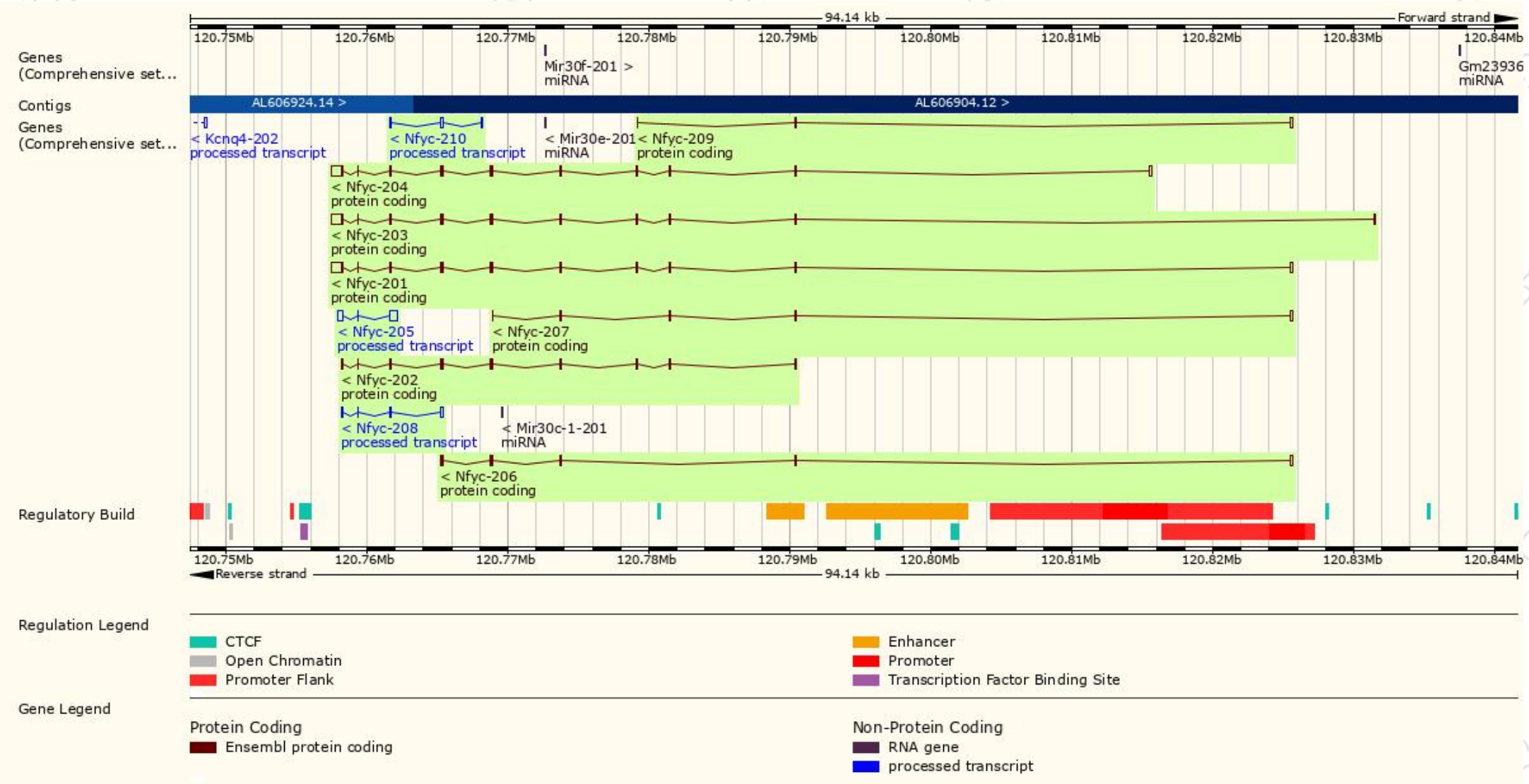
The gene has 10 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nfyc-204	ENSMUST00000120779.7	2006	335aa	Protein coding	CCDS18594	P70353	TSL:5 GENCODE basic APPRIS P1
Nfyc-201	ENSMUST00000043429.11	1932	335aa	Protein coding	CCDS18594	P70353	TSL:1 GENCODE basic APPRIS P1
Nfyc-203	ENSMUST00000118902.7	1887	335aa	Protein coding	CCDS18594	P70353	TSL:1 GENCODE basic APPRIS P1
Nfyc-202	ENSMUST00000097906.11	1008	335aa	Protein coding	CCDS18594	P70353	TSL:1 GENCODE basic APPRIS P1
Nfyc-206	ENSMUST00000134979.7	654	163aa	Protein coding	-	A2A762	CDS 3' incomplete TSL:5
Nfyc-207	ENSMUST00000136236.7	469	98aa	Protein coding	-	A2A763	CDS 3' incomplete TSL:5
Nfyc-209	ENSMUST00000145658.1	346	53aa	Protein coding	-	A2A764	CDS 3' incomplete TSL:3
Nfyc-205	ENSMUST00000127030.7	951	No protein	Processed transcript	-	-	TSL:1
Nfyc-208	ENSMUST00000145029.1	488	No protein	Processed transcript	-	-	TSL:2
Nfyc-210	ENSMUST00000148081.1	355	No protein	Processed transcript	-	-	TSL:3

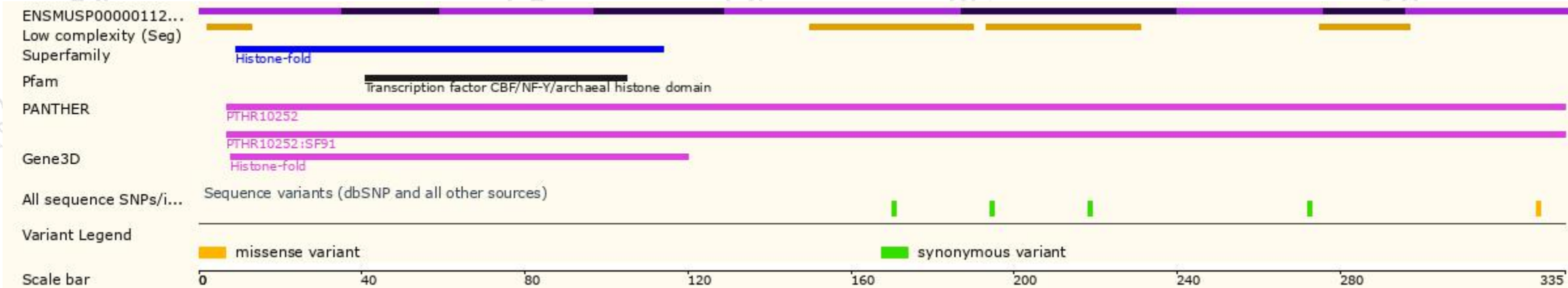
The strategy is based on the design of *Nfyc-204* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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