

Nrg3 Cas9-KO Strategy

Designer:

Huimin Su

Reviewer:

Ruirui Zhang

Design Date:

2019/9/16

Project Overview

Project Name

Nrg3

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nrg3* gene. The schematic diagram is as follows:



- The *Nrg3* gene has 4 transcripts. According to the structure of *Nrg3* gene, exon2 of *Nrg3-201* (ENSMUST00000166968.8) transcript is recommended as the knockout region. The region contains 130bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nrg3* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mutations in this gene result in abnormal, genetic background specific, mammary gland development.
- The *Nrg3* gene is located on the Chr14. 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)

Nrg3 neuregulin 3 [*Mus musculus* (house mouse)]

Gene ID: 18183, updated on 12-Aug-2019

Summary

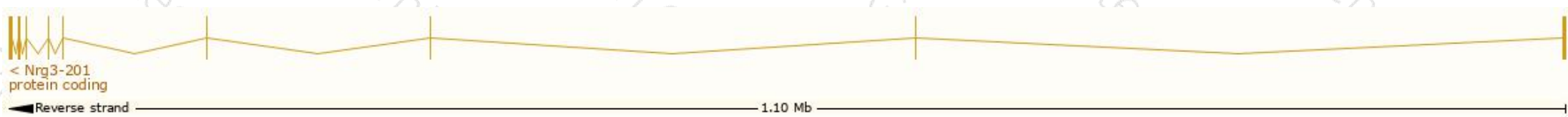
Official Symbol	Nrg3 provided by MGI
Official Full Name	neuregulin 3 provided by MGI
Primary source	MGI:MGI:1097165
See related	Ensembl:ENSMUSG00000041014
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ska
Expression	Biased expression in cortex adult (RPKM 4.1), frontal lobe adult (RPKM 3.3) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

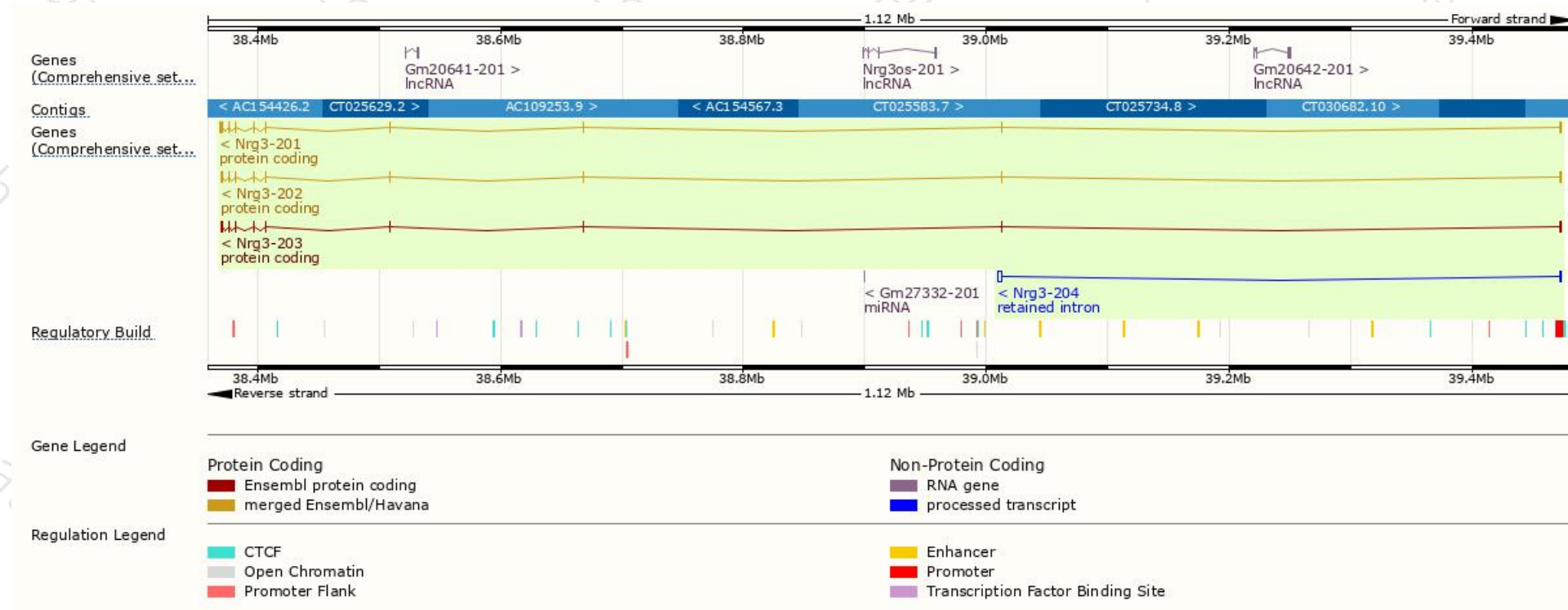
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nrg3-201	ENSMUST00000166968.8	4011	713aa	Protein coding	CCDS26954	O35181	TSL:1 GENCODE basic APPRIS P3
Nrg3-202	ENSMUST00000168810.8	2175	697aa	Protein coding	CCDS49450	E9Q396	TSL:1 GENCODE basic APPRIS ALT2
Nrg3-203	ENSMUST00000173780.1	2137	689aa	Protein coding	-	G3V023	TSL:5 GENCODE basic APPRIS ALT2
Nrg3-204	ENSMUST00000176122.1	3607	No protein	Retained intron	-	-	TSL:2

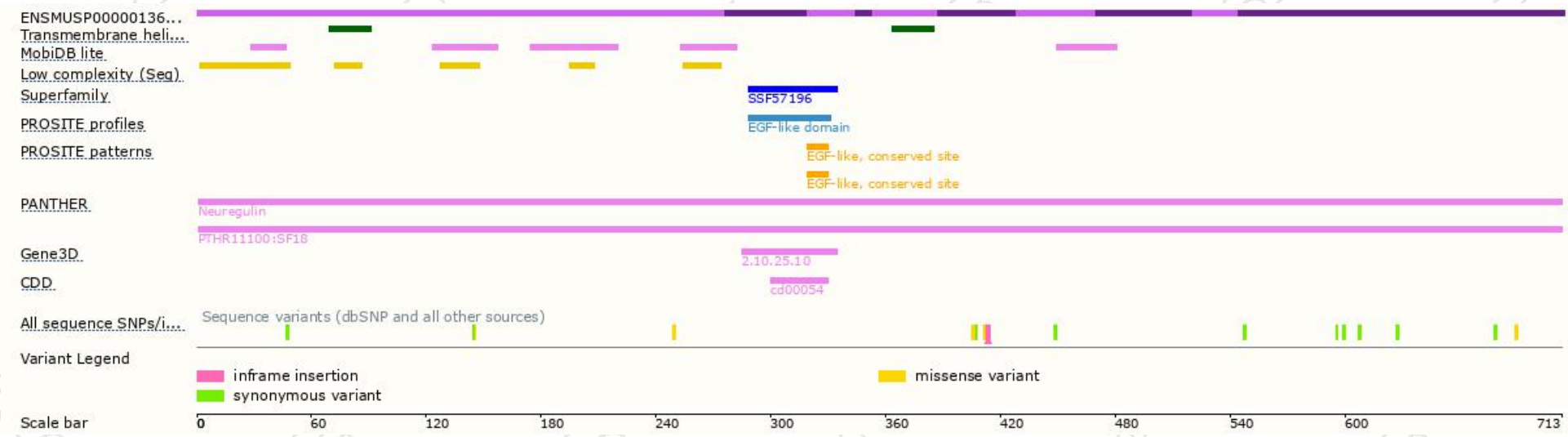
The strategy is based on the design of *Nrg3-201* transcript,The transcription is shown below



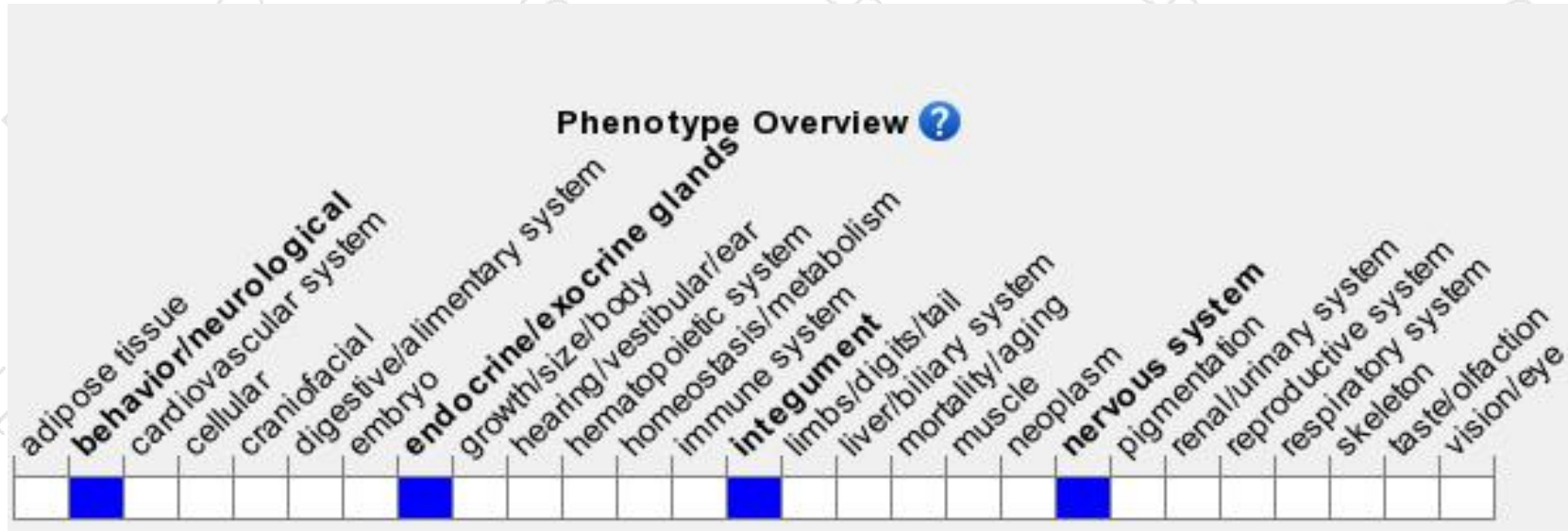
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

According to the existing MGI data, Mutations in this gene result in abnormal, genetic background specific, mammary gland development.

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

Tel: 400-9660890

