Neurod1 Cas9-KO Strategy

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Project Overview

Project Name	***Neurod1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Neurod1* gene. The schematic diagram is as follows:

Technical routes

➢ The *Neurod1* gene has 1 transcript. According to the structure of *Neurod1* gene, exon2 of *Neurod1-201* (ENSMUST00000041099.4) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Neurod1* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations exhibit neonatal diabetes, pancreatic enteroendocrine cell deficits, impaired hearing and balance, retinal degeneration, and seizures. Survival past birth is dependent on genetic background.

- The knockout region overlaps with Cerkl-210 lncrna gene, which may affect cerkl-210 lncrna after knockout.

- The *Neurod1* gene is located on the Chr2. 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）

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Neurod1 neurogenic differentiation 1 [*Mus musculus* (house mouse)]

Gene ID: 18012, updated on 26-Nov-2019

Summary

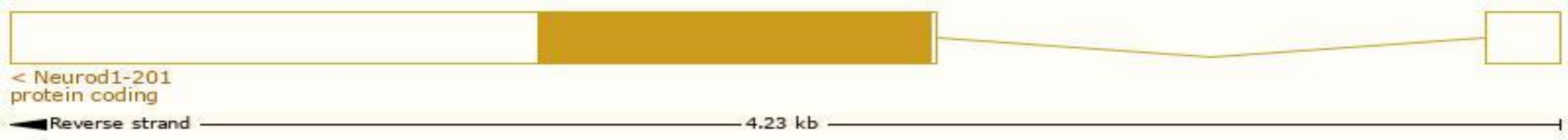
Official Symbol	Neurod1 provided by MGI
Official Full Name	neurogenic differentiation 1 provided by MGI
Primary source	MGI:MGI:1339708
See related	Ensembl:ENSMUSG00000034701
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Nd1; BETA2; BHF-1; Neurod; bHLHa3
Expression	Biased expression in cerebellum adult (RPKM 75.5), whole brain E14.5 (RPKM 12.5) and 3 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

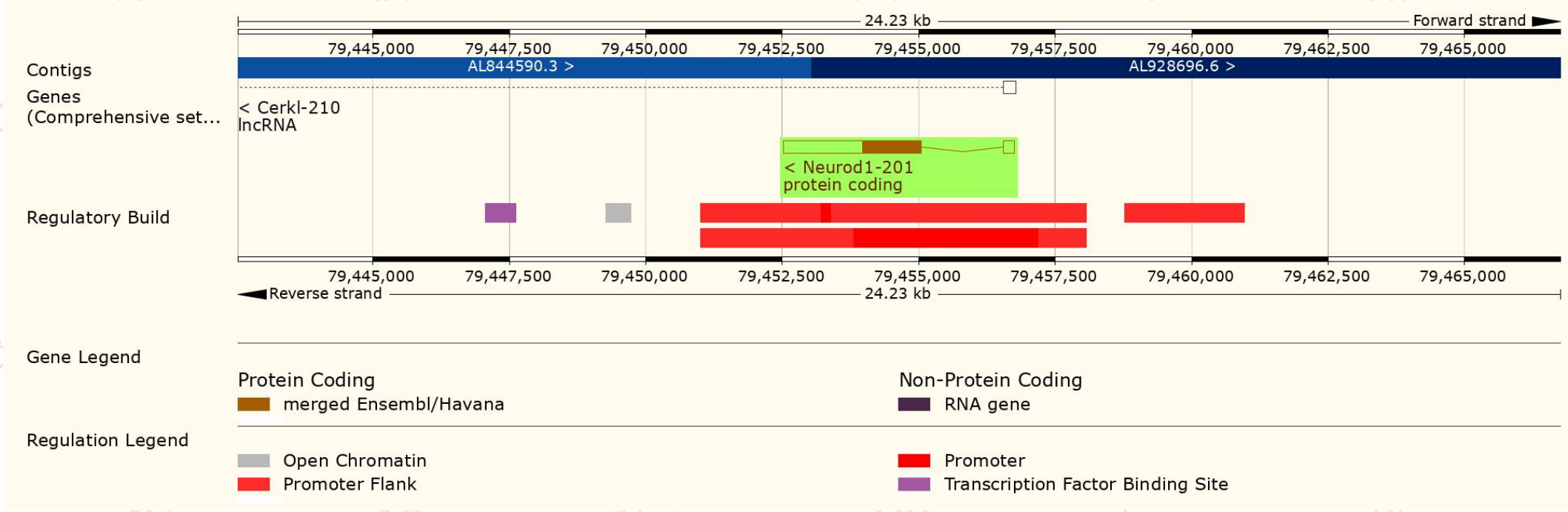
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Neurod1-201	ENSMUST00000041099.4	2729	357aa	Protein coding	CCDS16169	Q60867	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Neurod1-201* transcript,The transcription is shown below

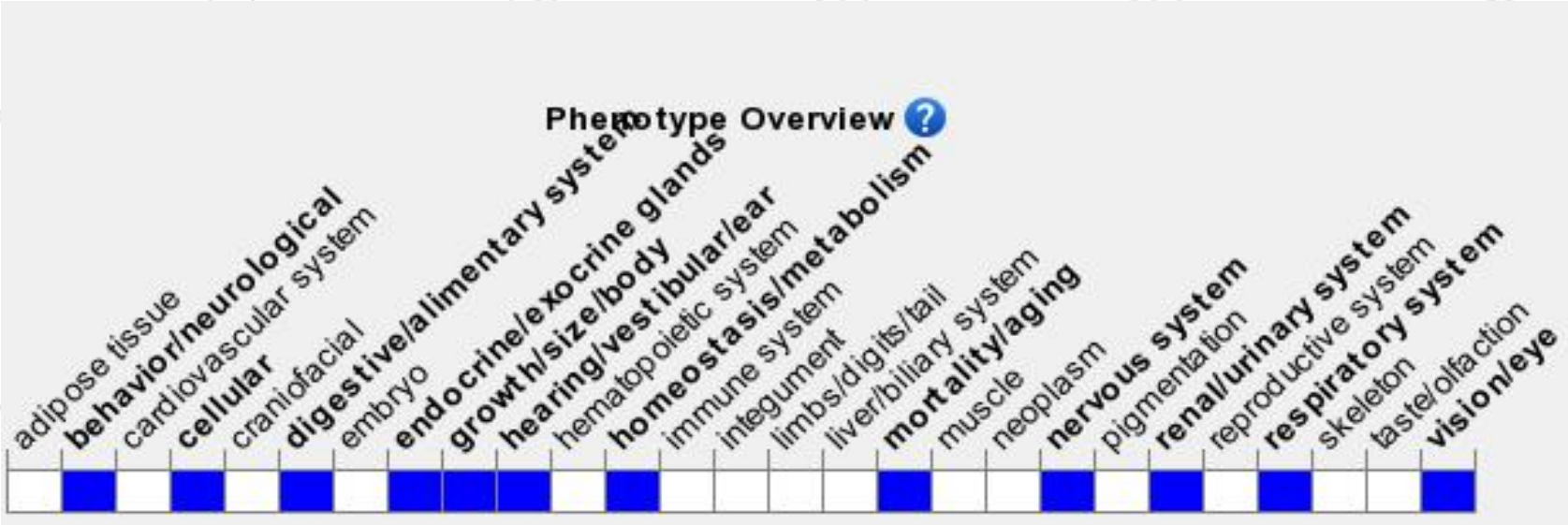


Genomic location distribution



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/).

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

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