

Ncoa3 Cas9-KO Strategy

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Project Overview



Project Name

Ncoa3

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ncoa3* gene. The schematic diagram is as follows:



- The *Ncoa3* gene has 5 transcripts. According to the structure of *Ncoa3* gene, exon7-exon17 of *Ncoa3-201* (ENSMUST00000088095.5) transcript is recommended as the knockout region. The region contains 2750bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ncoa3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Nullizygous mice exhibit growth defects and reduced serum IGF-1 levels and may show impaired proliferative responses to various factors, delayed mammary gland growth and puberty, reproductive dysfunction, susceptibility to endotoxin shock, altered lymphopoiesis, and protection against obesity.
- The *Ncoa3* 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)

Ncoa3 nuclear receptor coactivator 3 [Mus musculus (house mouse)]

Gene ID: 17979, updated on 5-Mar-2019

Summary



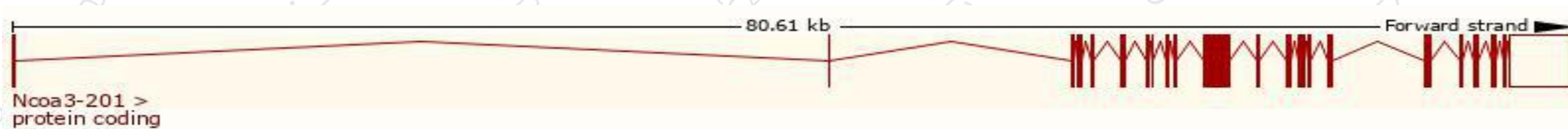
Official Symbol	Ncoa3 provided by MGI
Official Full Name	nuclear receptor coactivator 3 provided by MGI
Primary source	MGI:MGI:1276535
See related	Ensembl:ENSMUSG00000027678
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2010305B15Rik, AW321064, Actr, Aib1, KAT13B, Rac3, Src3, Tram-1, Tram1, bHLHe42, p/Cip, pCip
Expression	Ubiquitous expression in spleen adult (RPKM 20.4), thymus adult (RPKM 16.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

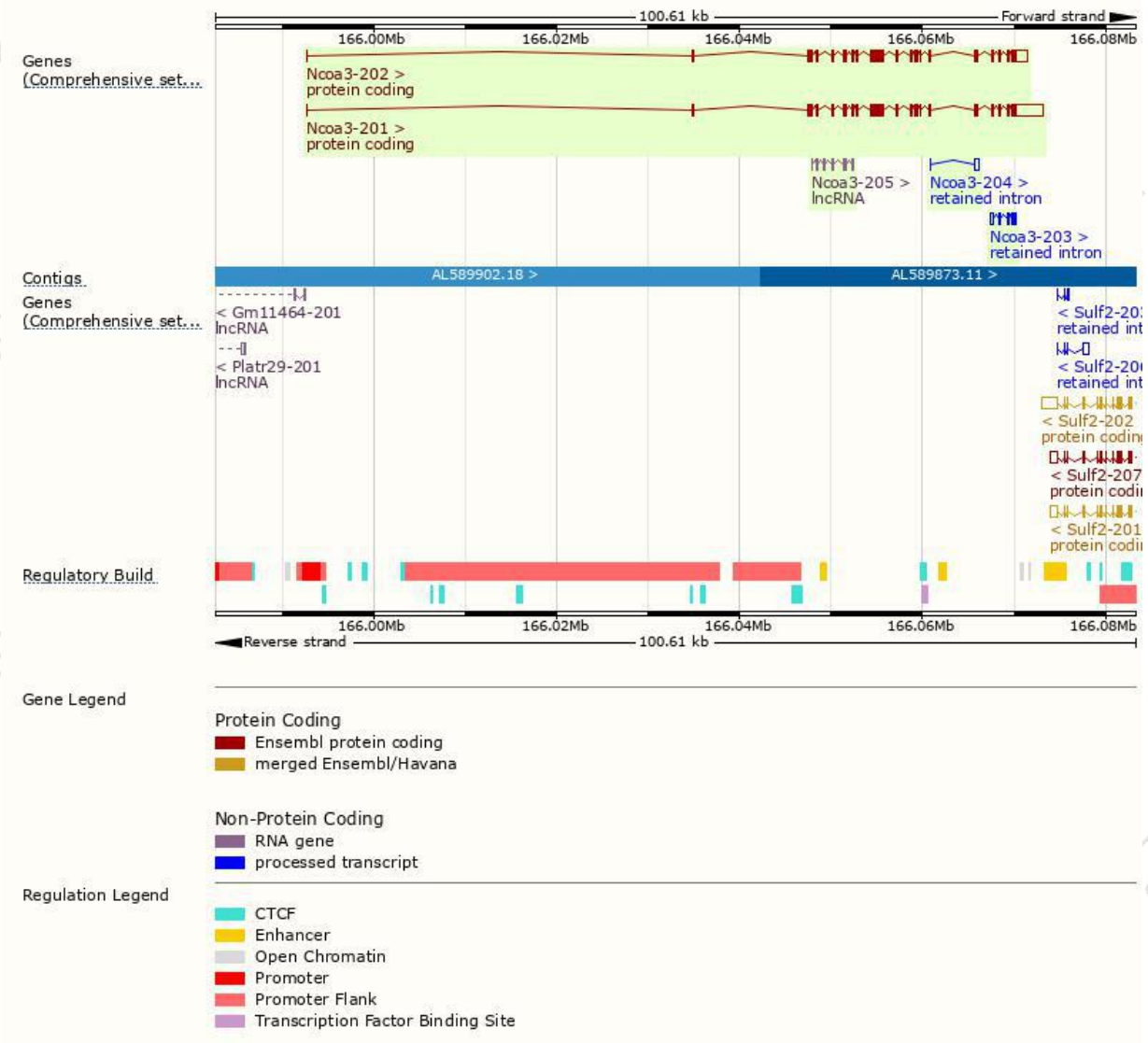
The gene has 5 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ncoa3-201	ENSMUST00000088095.5	7531	1403aa	Protein coding	CCDS38333	Q05BA5	TSL:1 GENCODE basic APPRIS P2
Ncoa3-202	ENSMUST00000109252.7	5757	1402aa	Protein coding	-	A2A468	TSL:5 GENCODE basic APPRIS ALT2
Ncoa3-203	ENSMUST00000139394.1	822	No protein	Retained intron	-	-	TSL:2
Ncoa3-204	ENSMUST00000139658.1	554	No protein	Retained intron	-	-	TSL:3
Ncoa3-205	ENSMUST00000153507.1	717	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Ncoa3-201* transcript, The transcription is shown below



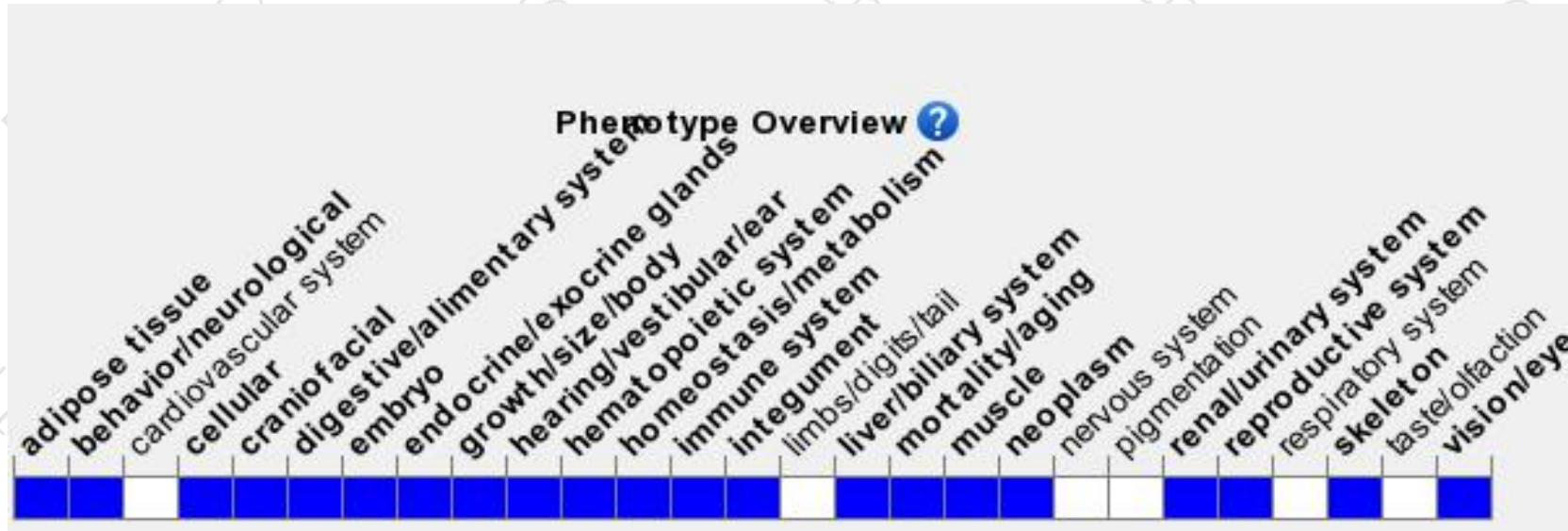
Genomic location distribution



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, Nullizygous mice exhibit growth defects and reduced serum IGF-1 levels and may show impaired proliferative responses to various factors, delayed mammary gland growth and puberty, reproductive dysfunction, susceptibility to endotoxin shock, altered lymphopoiesis, and protection against obesity.

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

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