

Nanos1 Cas9-CKO Strategy

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Date: 2019/4/1

Project Overview

Project Name

Nanos1

Project type

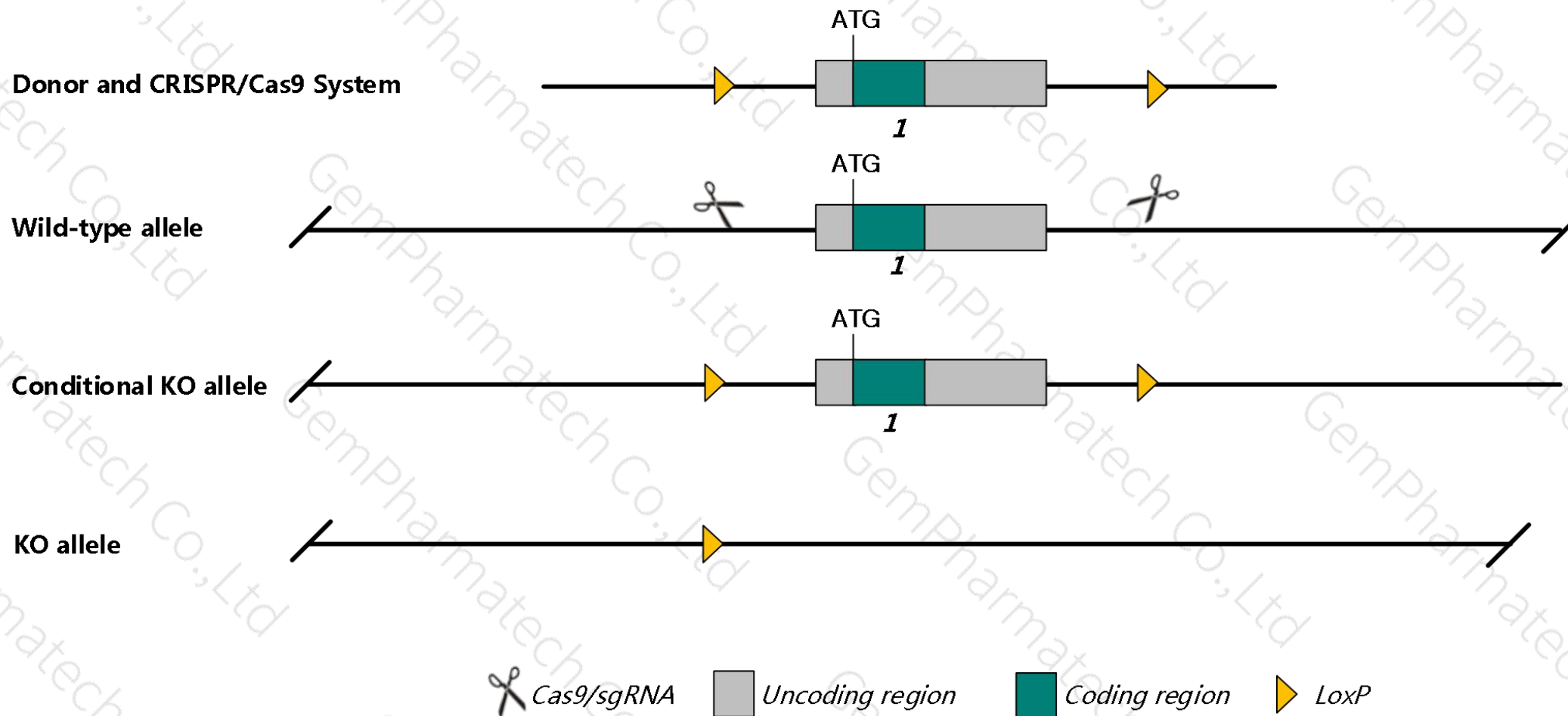
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nanos1* gene. The schematic diagram is as follows:



- The *Nanos1* gene has 1 transcript. According to the structure of *Nanos1* gene, exon1 of *Nanos1*-201 (ENSMUST00000088237.5) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nanos1* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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 or cell types.

- The *Nanos1* gene is located on the Chr19. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Nanos1 nanos C2HC-type zinc finger 1 [*Mus musculus* (house mouse)]

Gene ID: 332397, updated on 12-Aug-2019

Summary

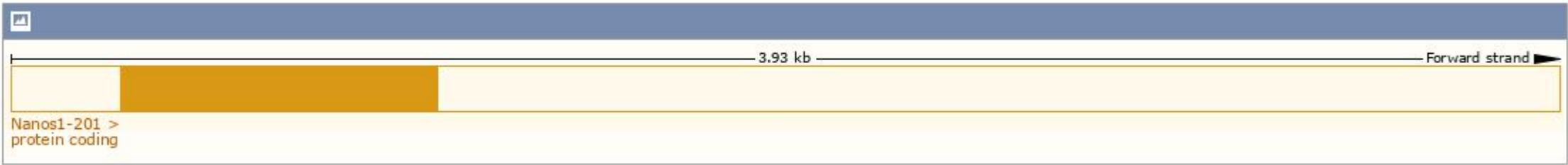
Official Symbol	Nanos1 provided by MGI
Official Full Name	nanos C2HC-type zinc finger 1 provided by MGI
Primary source	MGI:MGI:2669254
See related	Ensembl:ENSMUSG00000072437
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NOS-1
Summary	This gene encodes a CCHC-type zinc finger protein that is a member of the nanos family. This protein co-localizes with the RNA-binding protein pumilio RNA-binding family member 2 and may be involved in regulating translation as a post-transcriptional repressor. Mutations in a similar protein in human are associated with spermatogenic impairment. [provided by RefSeq, Sep 2015]
Orthologs	human all

Transcript information (Ensembl)

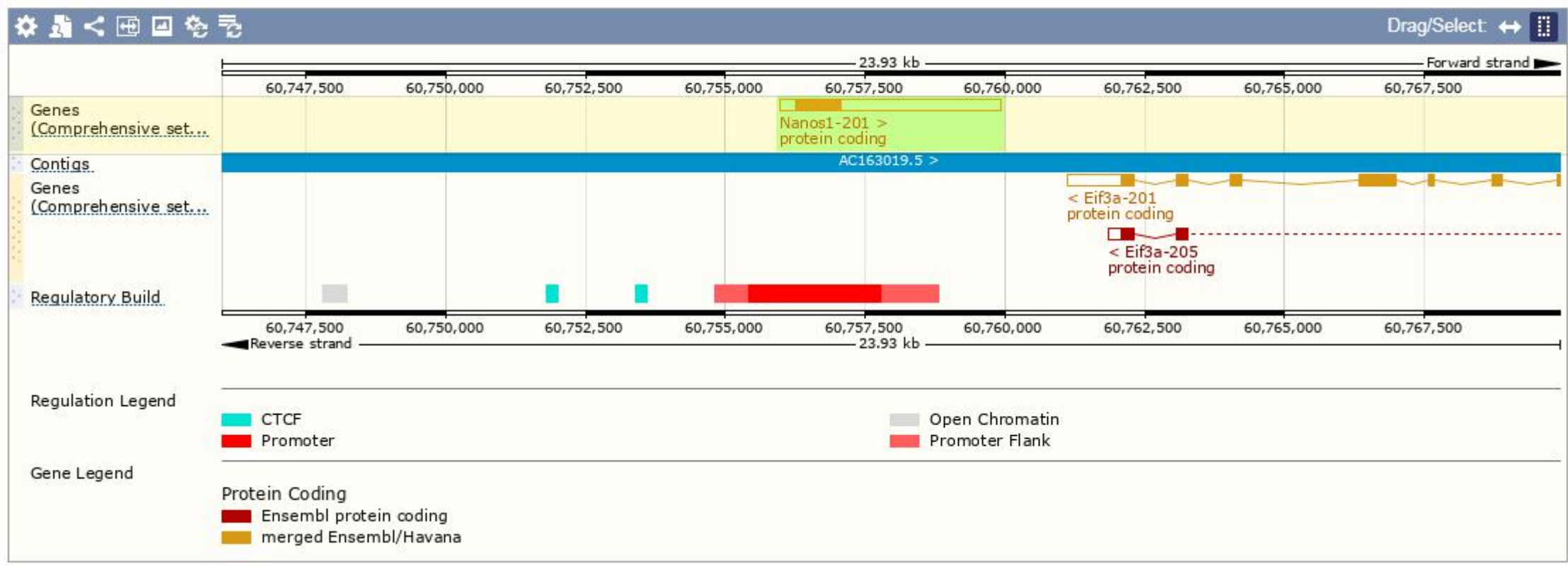
The gene has 1 transcript, and the transcript is shown below:

Show/hide columns (1 hidden) Filter							
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nanos1-201	ENSMUST00000088237.5	3928	267aa	Protein coding	CCDS29941	Q80WY3	TSL:NA Gencode basic APPRIS P1

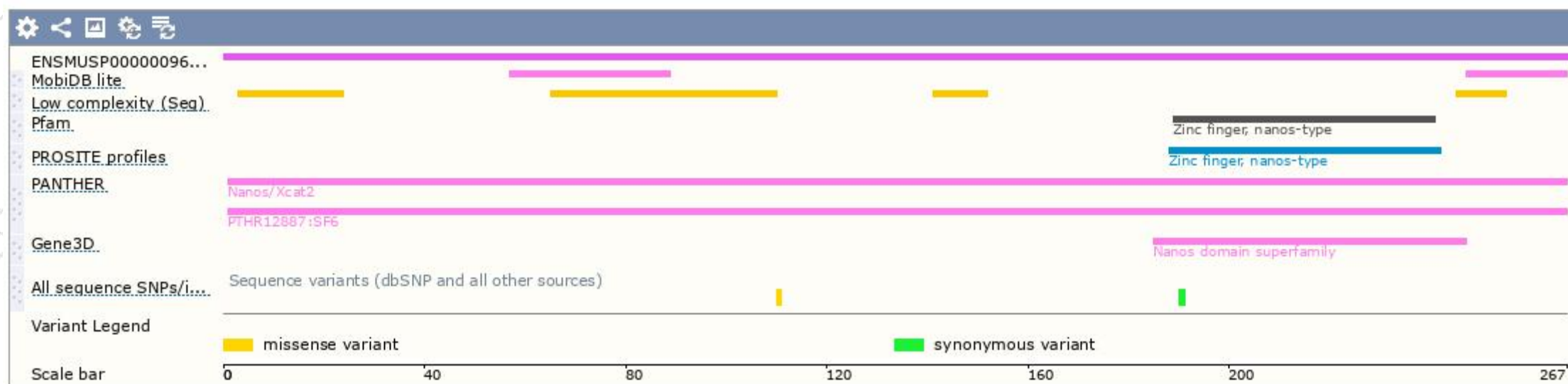
The strategy is based on the design of *Nanos1*-201 transcript, The transcription is shown below



Genomic location distribution



Protein domain



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