Ehmt2 Cas9-CKO Strategy

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Design Date: 2020-10-27

Project Overview

Project Name	***Ehmt2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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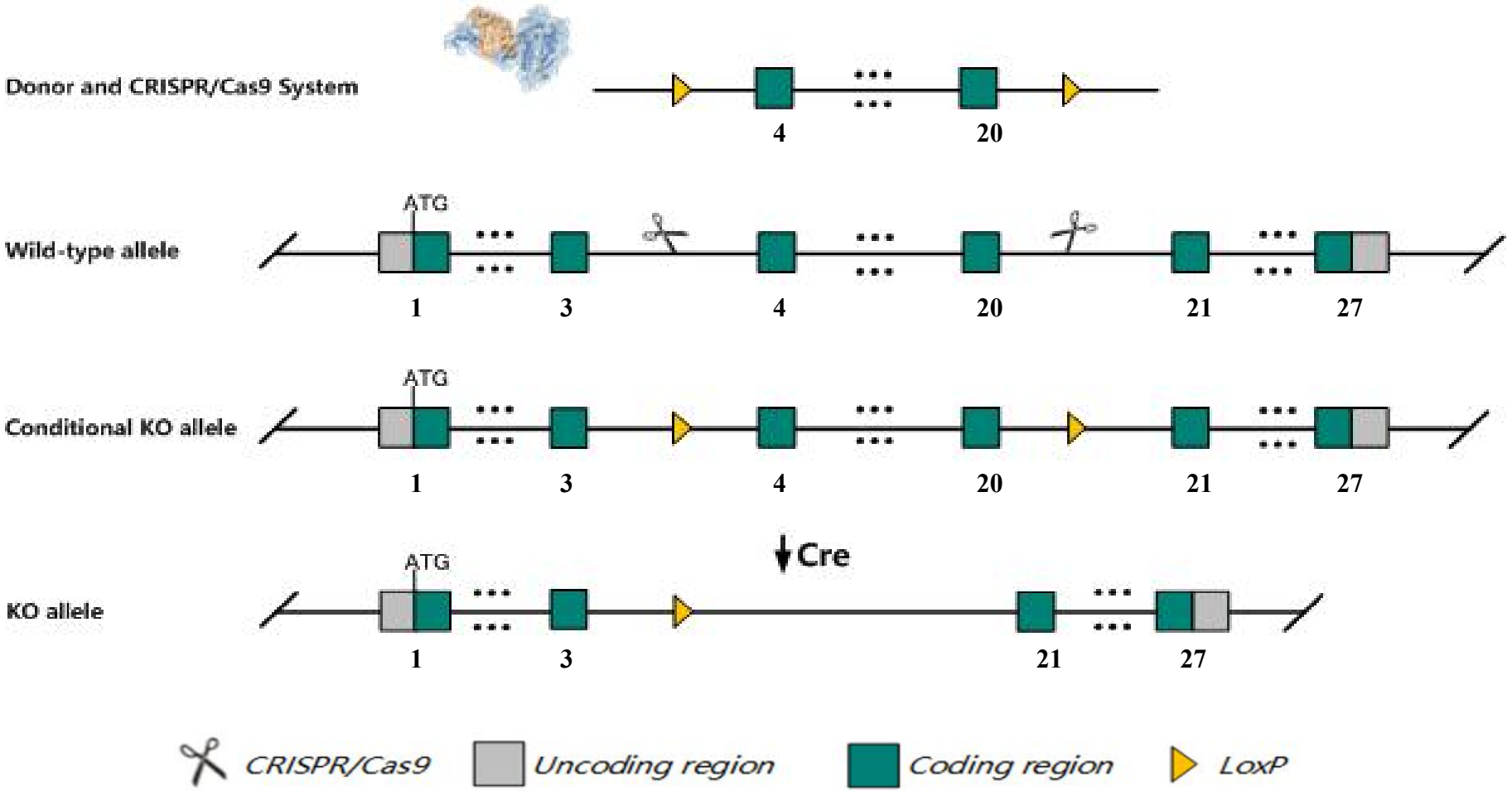
This model will use CRISPR/Cas9 technology to edit the *Ehmt2* gene. The schematic diagram is as follows:



Technical routes

The *Ehmt2* gene has 14 transcripts. According to the structure of *Ehmt2* gene, exon4-exon20 of *Ehmt2-201*(ENSMUST00000013931.11) transcript is recommended as the knockout region.The region contains 2186bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Ehmt2* 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.

Notice

According to the existing MGI data,homozygous mutation of this gene results in embryonic lethality around E9.5-E12.5. Mutant embryos are developmentally delayed. Conditional deletion in germ cells results in infertility and arrest of meiosis.

The *Ehmt2* gene is located on the Chr17. 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

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Ehmt2 euchromatic histone lysine N-methyltransferase 2 [Mus musculus (house mouse)]

Gene ID: 110147, updated on 12-Feb-2019

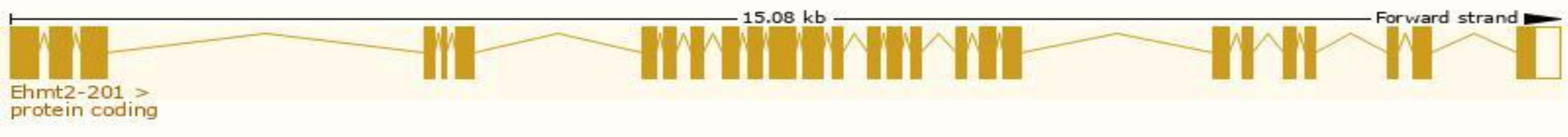
Summary

Official Symbol	Ehmt2 provided by MGI
Official Full Name	euchromatic histone lysine N-methyltransferase 2 provided by MGI
Primary source	MGI:MGI:2148922
See related	Ensembl:ENSMUSG00000013787
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	Bat8, D17Ertd710e, G9a, KMT1C, NG36
Expression	Ubiquitous expression in ovary adult (RPKM 86.7), testis adult (RPKM 83.8) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

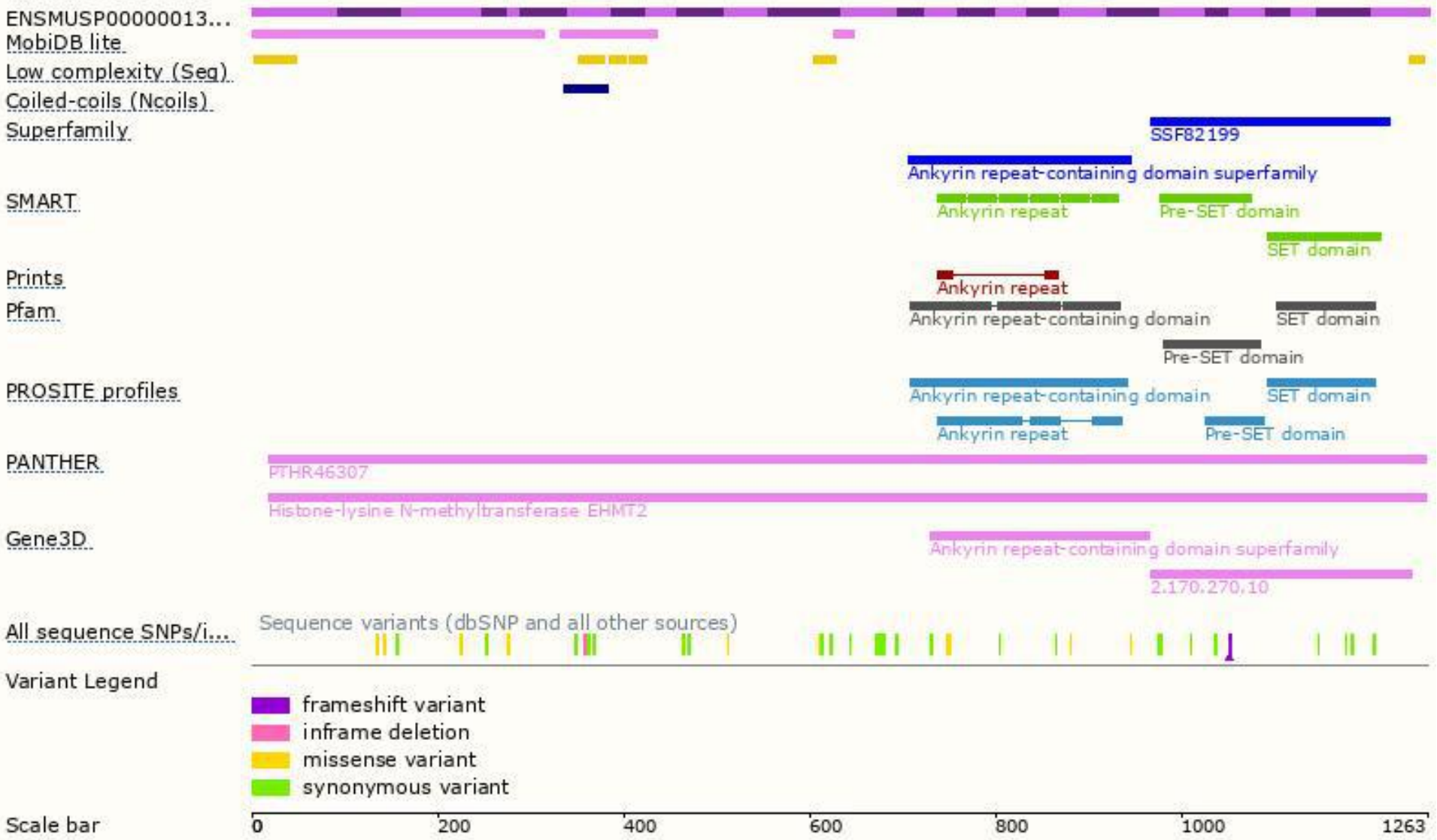
The gene has 14 transcripts,all transcripts are shown below:

The strategy is based on the design of *Ehmt2-201* transcript,the transcription is shown below:

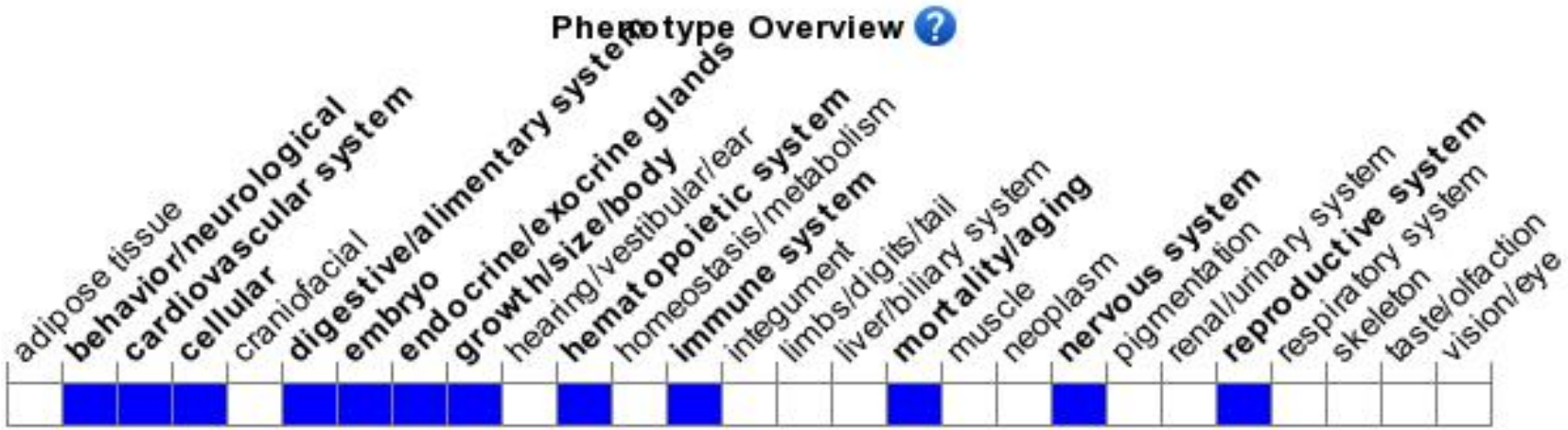


Genomic location distribution

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,homozygous mutation of this gene results in embryonic lethality around E9.5-E12.5. Mutant embryos are developmentally delayed. Conditional deletion in germ cells results in infertility and arrest of meiosis.

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