

Mllt10 Cas9-CKO Strategy

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Project Overview

Project Name

Mllt10

Project type

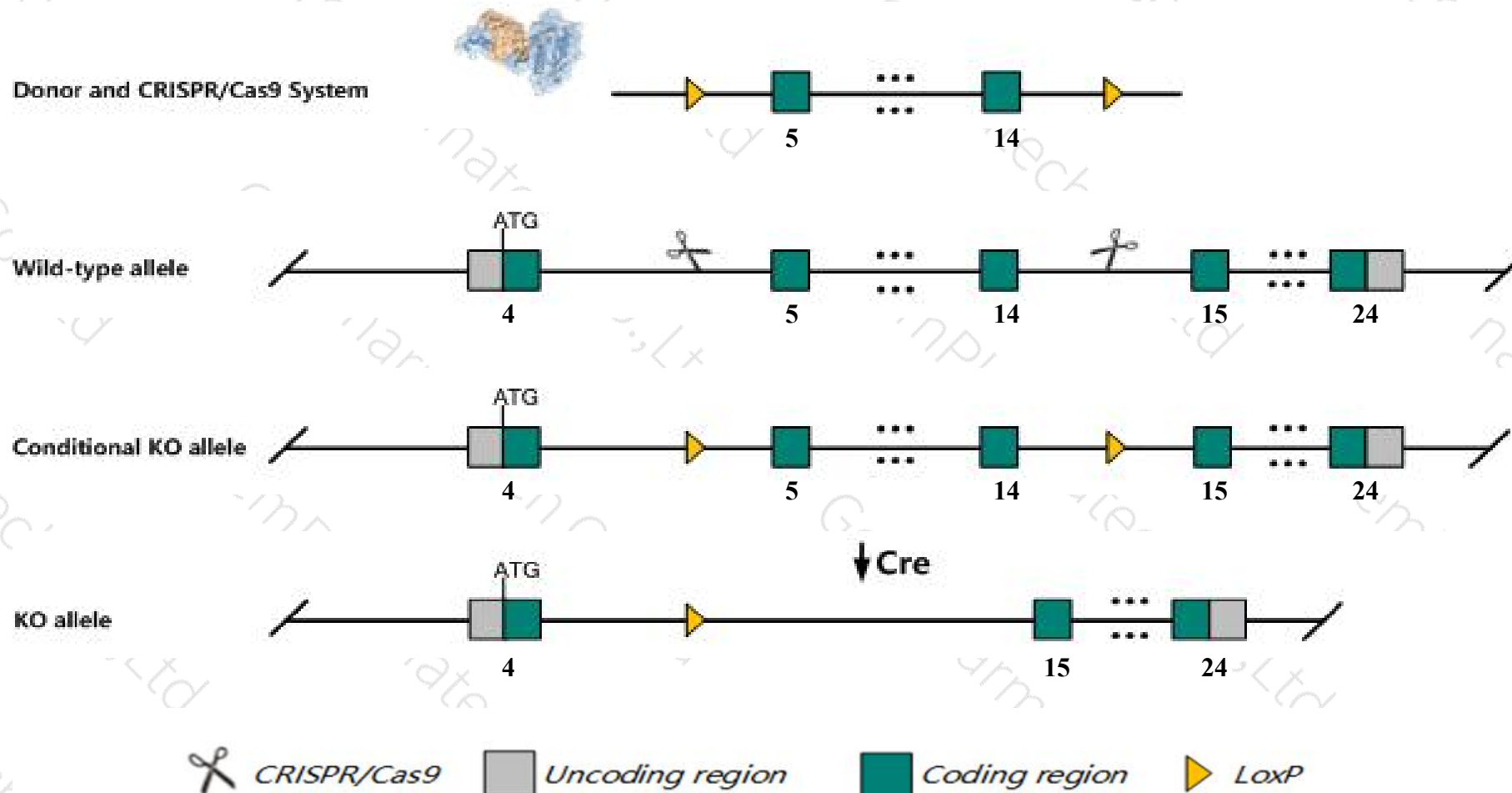
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mllt10* gene. The schematic diagram is as follows:



- The *Mllt10* gene has 11 transcripts. According to the structure of *Mllt10* gene, exon5-exon14 of *Mllt10*-203 (ENSMUST00000114671.7) transcript is recommended as the knockout region. The region contains 1459bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mllt10* 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

- The *Mllt10* 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.
- The knockout region contains *Gm23638* and *Gm25147*, which will be deleted together.
- 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)

Mllt10 myeloid/lymphoid or mixed-lineage leukemia; translocated to, 10 [Mus musculus (house mouse)]

Gene ID: 17354, updated on 31-Jan-2019

Summary



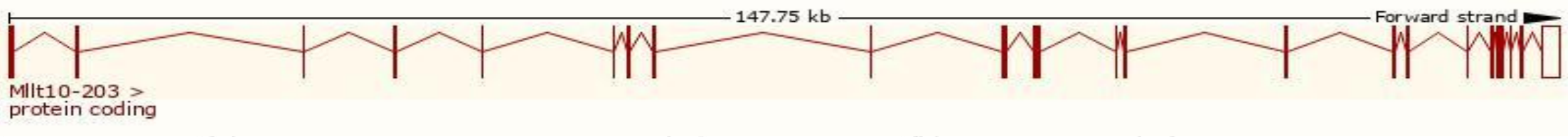
Official Symbol	Mllt10 provided by MGI
Official Full Name	myeloid/lymphoid or mixed-lineage leukemia; translocated to, 10 provided by MGI
Primary source	MGI:MGI:1329038
See related	Ensembl:ENSMUSG00000026743
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Af10, B130021D15Rik, D630001B22Rik, mKIAA4140
Expression	Ubiquitous expression in testis adult (RPKM 23.6), thymus adult (RPKM 9.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

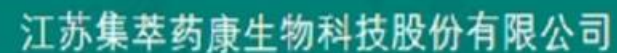
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
MIIt10-203	ENSMUST00000114671.7	5063	990aa	Protein coding	CCDS57155	A2AS70	TSL:1 GENCODE basic
MIIt10-201	ENSMUST00000028076.14	4917	1068aa	Protein coding	CCDS15708	O54826	TSL:1 GENCODE basic APPRIS P1
MIIt10-204	ENSMUST00000114680.8	3543	1068aa	Protein coding	CCDS15708	O54826	TSL:1 GENCODE basic APPRIS P1
MIIt10-202	ENSMUST00000114669.1	3865	525aa	Protein coding	-	A2AS72	TSL:5 GENCODE basic
MIIt10-210	ENSMUST00000154041.7	825	No protein	Processed transcript	-	-	TSL:1
MIIt10-209	ENSMUST00000153279.1	651	No protein	Processed transcript	-	-	TSL:5
MIIt10-205	ENSMUST00000133649.7	637	No protein	Processed transcript	-	-	TSL:5
MIIt10-208	ENSMUST00000150422.7	611	No protein	Processed transcript	-	-	TSL:3
MIIt10-207	ENSMUST00000149786.1	509	No protein	Processed transcript	-	-	TSL:3
MIIt10-206	ENSMUST00000148229.7	500	No protein	Processed transcript	-	-	TSL:3
MIIt10-211	ENSMUST00000155352.1	245	No protein	Processed transcript	-	-	TSL:2

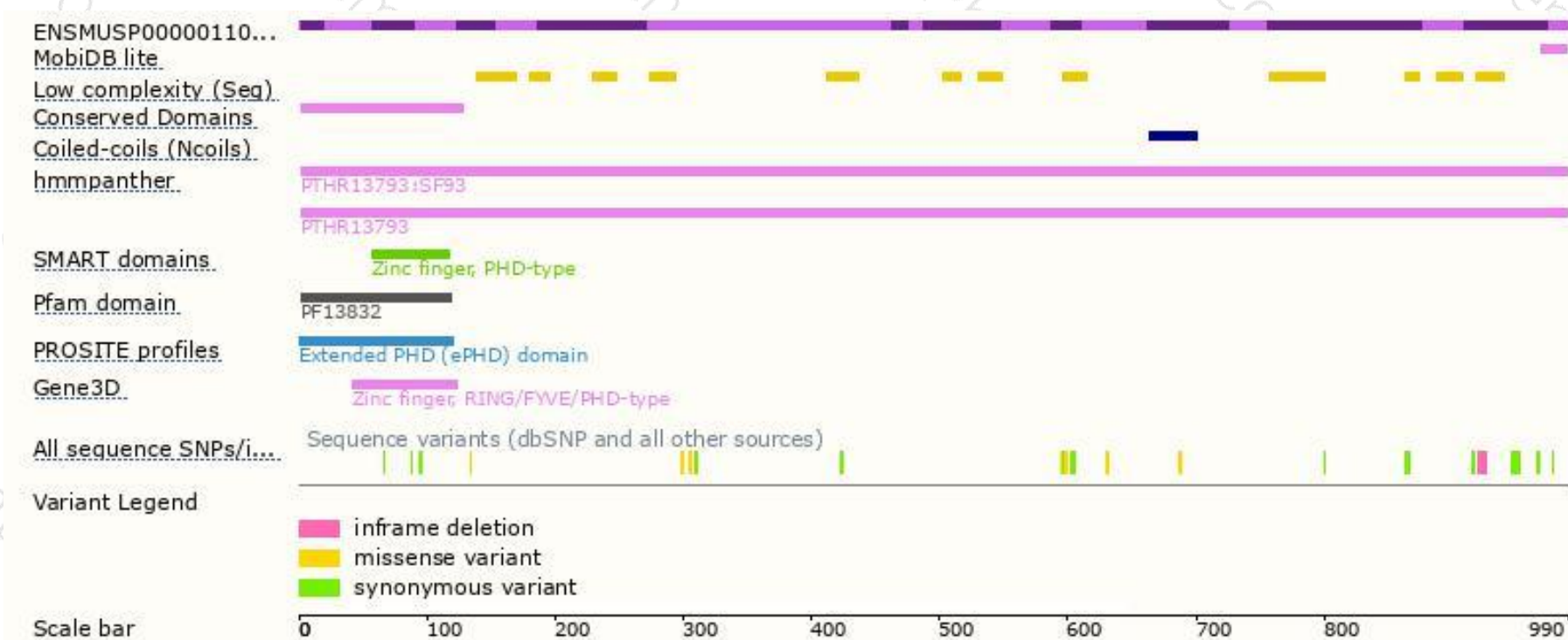
The strategy is based on the design of *MIIt10-203* transcript,The transcription is shown below



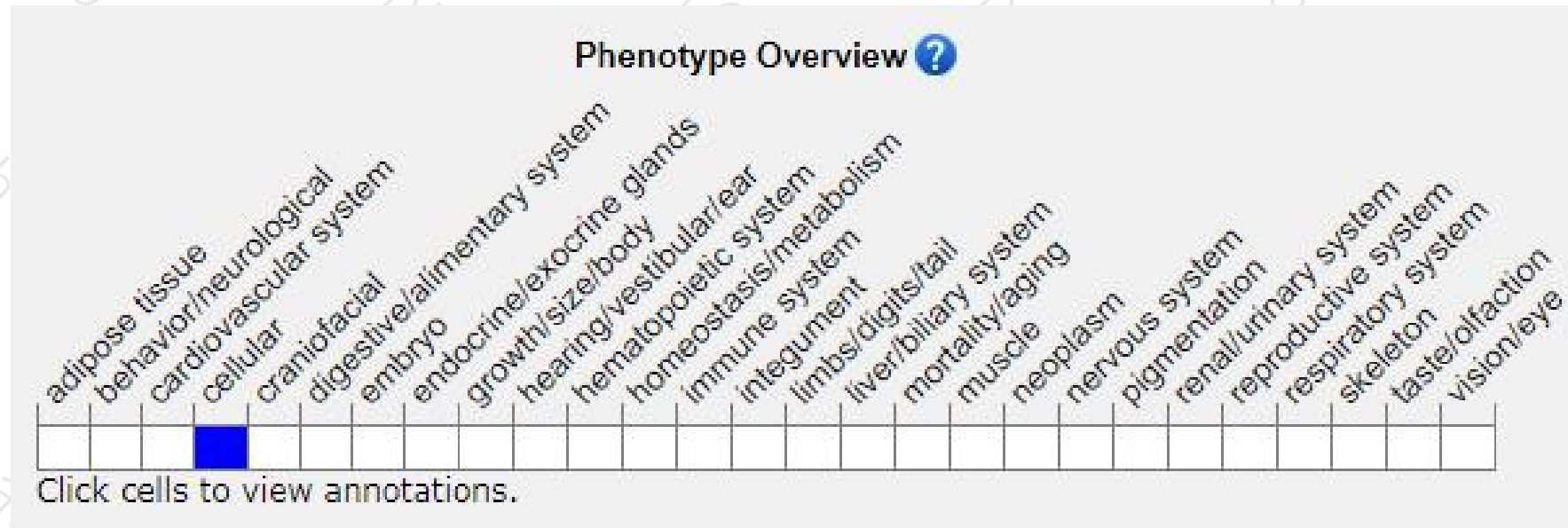
集萃药康
GemPharmatech



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/>).

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

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