Il23a Cas9-CKO Strategy

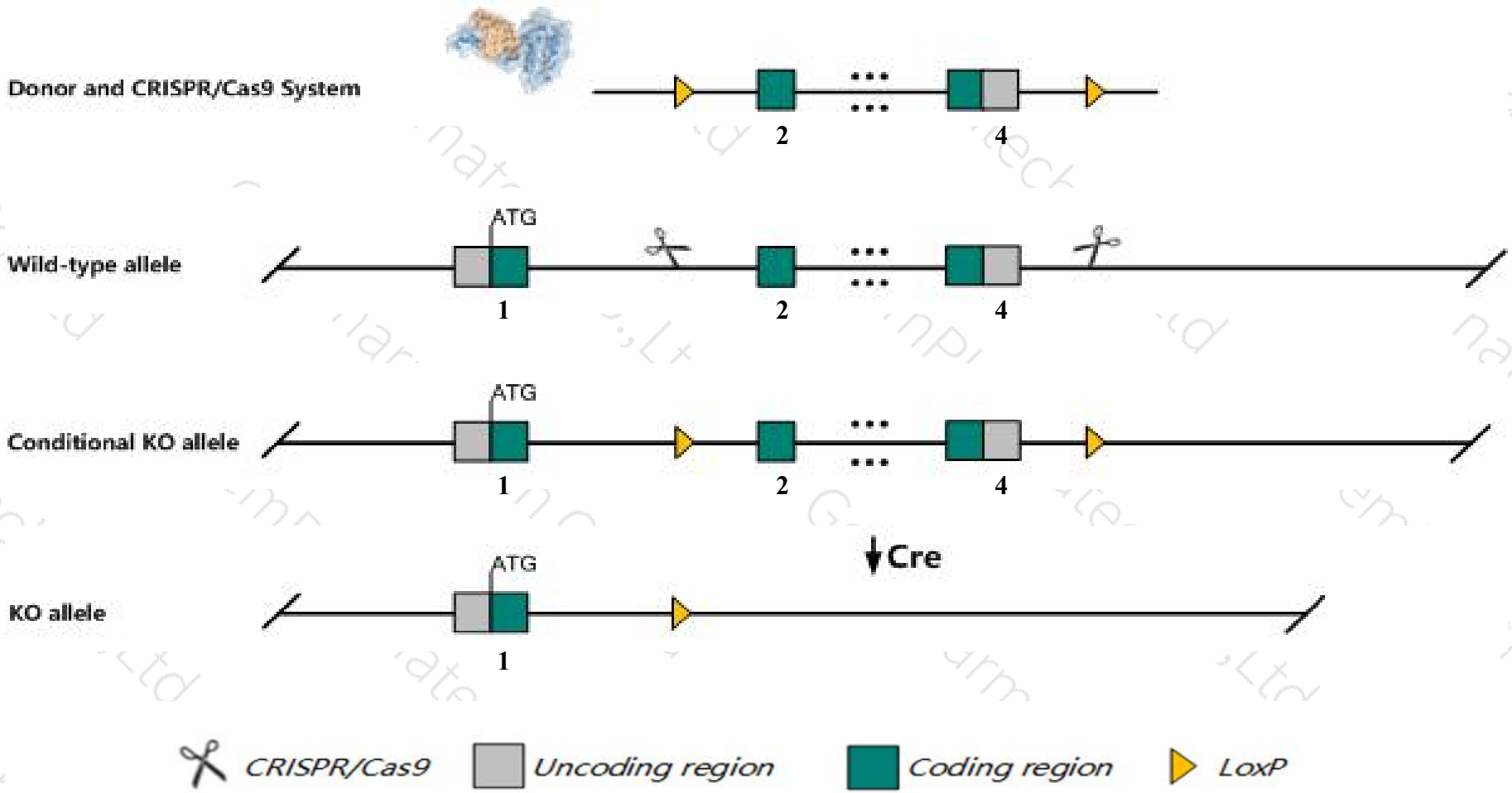
Designer: Xueting Zhang
Design Date: 2019-8-3

Project Overview

Project Name	***Il23a***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il23a* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Il23a* gene has 2 transcripts. According to the structure of *Il23a* gene, exon2-exon4 of *Il23a-201* (ENSMUST00000026449.2) transcript is recommended as the knockout region.The region contains most 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 *Il23a* 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 null mice are resistant to experimental autoimmune encephalomyelitis and have inefficient responses by CD4+ T cells.
- The floxed region is near to the C-terminal of *Gm23241* gene,this strategy may influence the regulatory function of the N-terminal of *Gm23241* gene.
- The *Il23a* gene is located on the Chr10. 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）

集萃药康 GemPharmatech

Il23a interleukin 23, alpha subunit p19 [Mus musculus (house mouse)]

Gene ID: 83430, updated on 9-Apr-2019

Summary

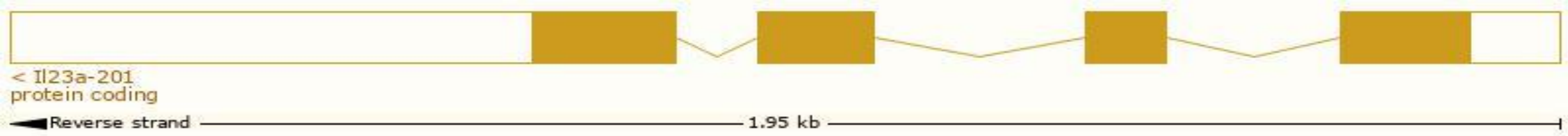
Official Symbol	Il23a provided by MGI
Official Full Name	interleukin 23, alpha subunit p19 provided by MGI
Primary source	MGI:MGI:1932410
See related	Ensembl:ENSMUSG00000025383
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	IL-23, p19
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information（Ensembl）

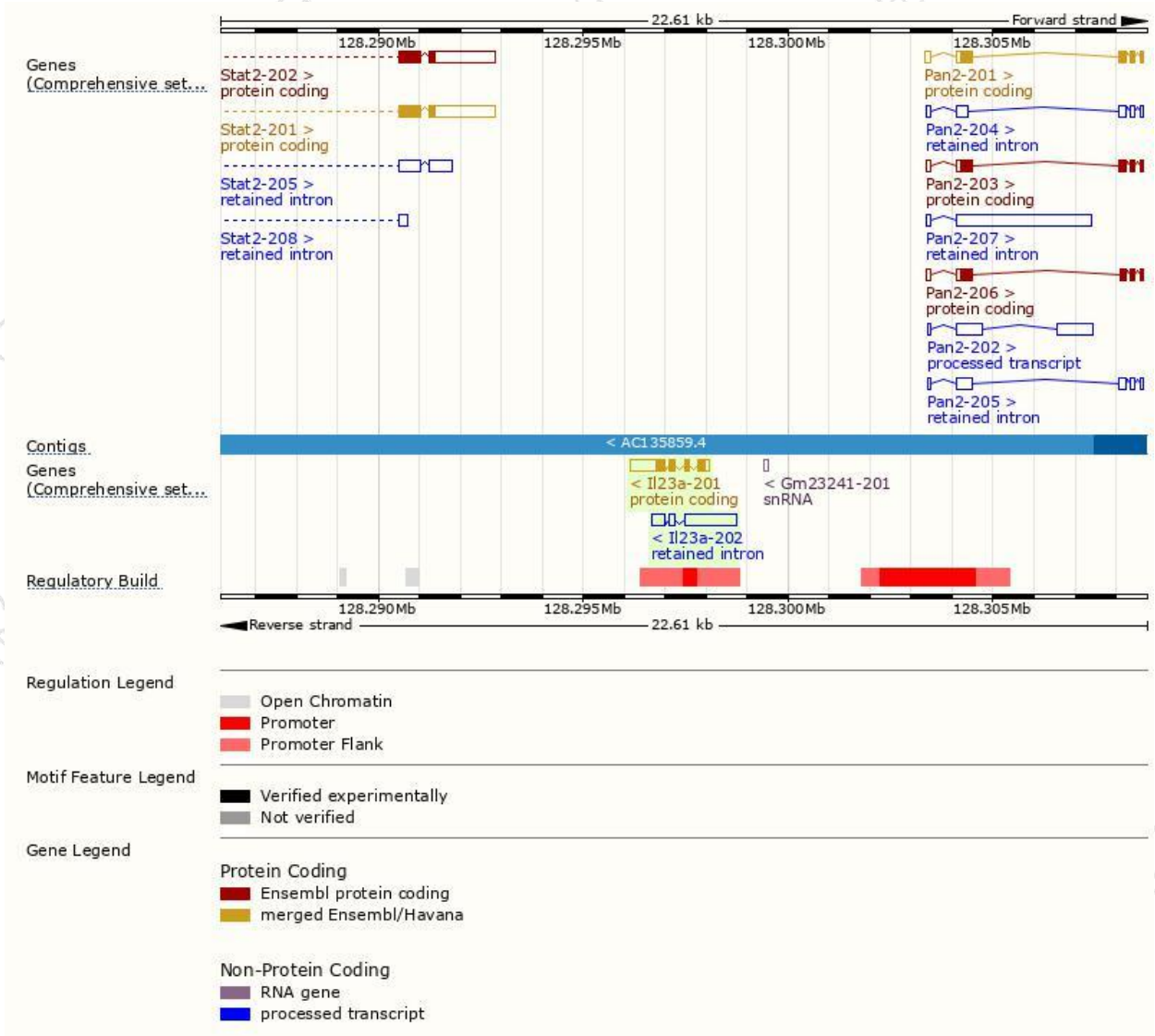
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Il23a-201	ENSMUST00000026449.2	1360	196aa	Protein coding	CCDS24270	Q9EQ14	TSL:1 GENCODE basic APPRIS P1
Il23a-202	ENSMUST00000218109.1	1724	No protein	Retained intron	-	-	TSL:1

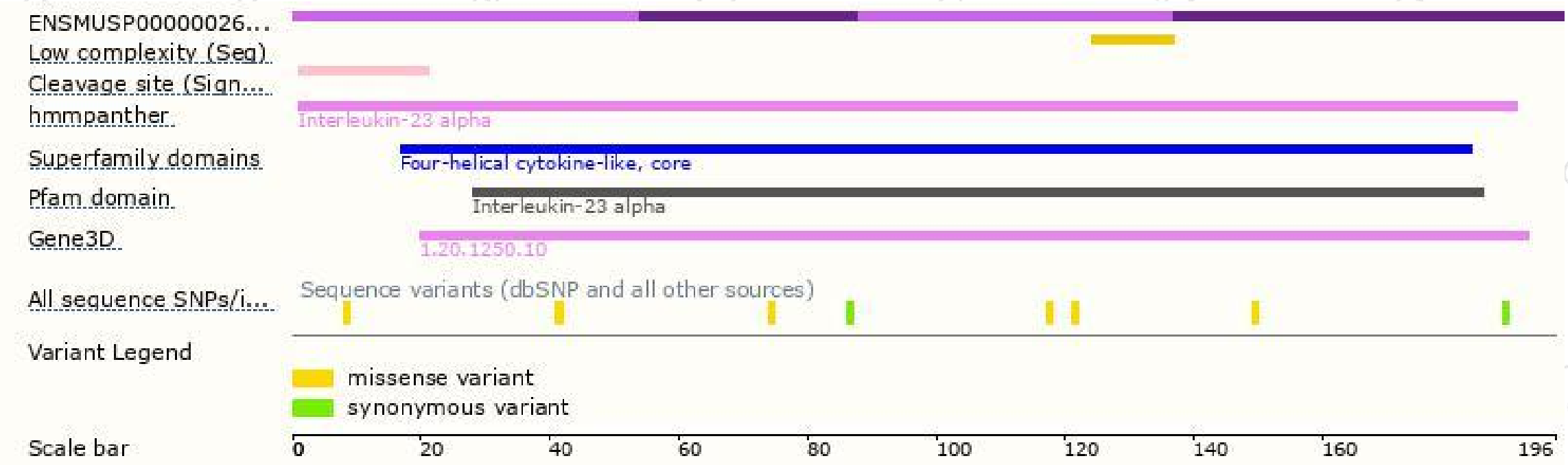
The strategy is based on the design of *Il23a-201* transcript,The transcription is shown below



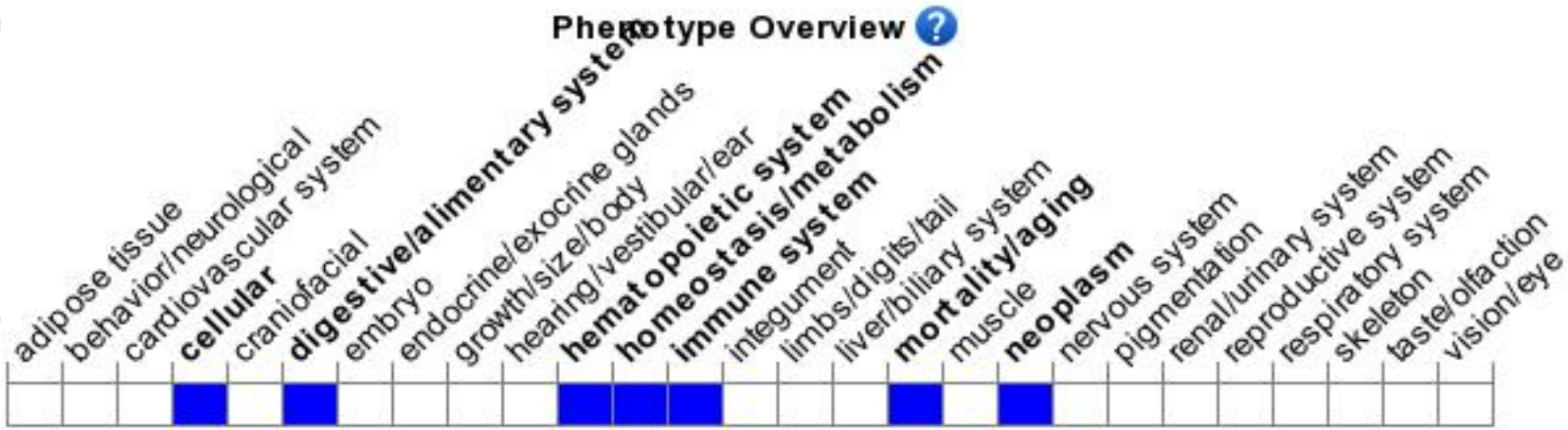
Genomic location distribution



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 null mice are resistant to experimental autoimmune encephalomyelitis and have inefficient responses by CD4+ T cells.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd