Stag2 Cas9-CKO Strategy

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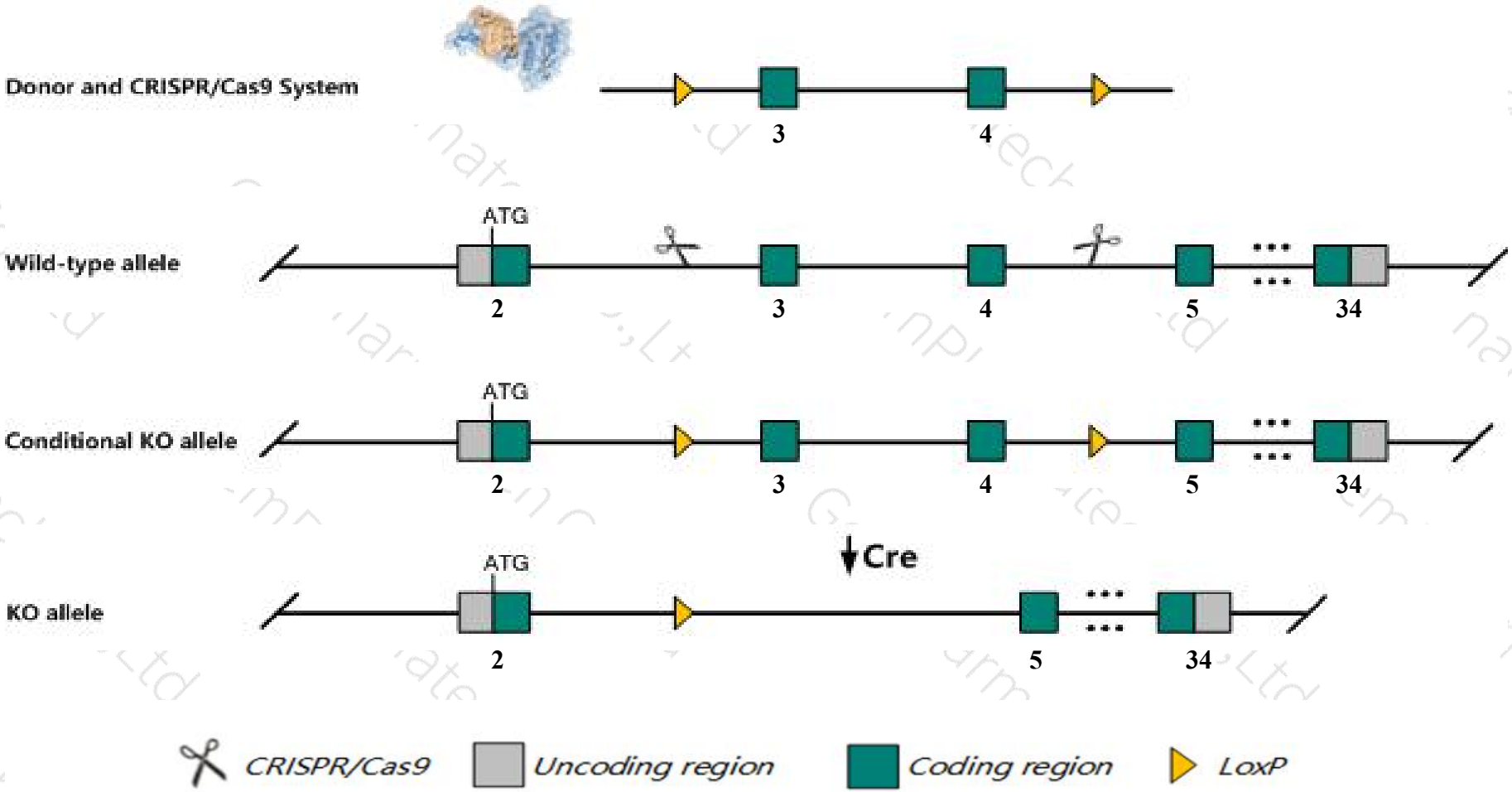
Design Date: 2020-2-18

Project Overview

Project Name	***Stag2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Stag2* gene. The schematic diagram is as follows:



Technical routes

- The *Stag2* gene has 8 transcripts. According to the structure of *Stag2* gene, exon3-exon4 of *Stag2-203* (ENSMUST00000115073.8) transcript is recommended as the knockout region.The region contains 244bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Stag2* 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,Knockdown of expression of this gene results in lineage skewing of hematopoietic stem cells and myeloproliferative disorders in aged mice.

- The *Stag2* gene is located on the ChrX. 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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Stag2 stromal antigen 2 [Mus musculus (house mouse)]

Gene ID: 20843, updated on 31-Jan-2019

Summary

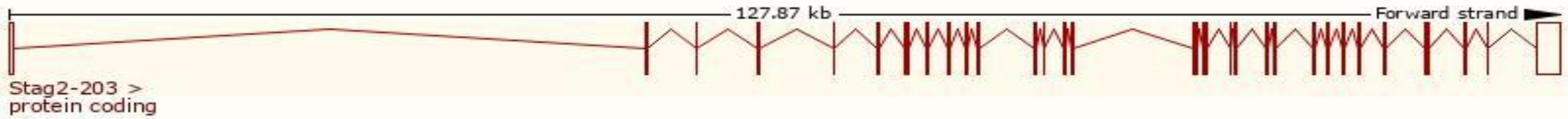
Official Symbol	Stag2 provided by MGI
Official Full Name	stromal antigen 2 provided by MGI
Primary source	MGI:MGI:1098583
See related	Ensembl:ENSMUSG00000025862
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9230105L23Rik, B230112I07Rik, SA-2, SAP2
Expression	Ubiquitous expression in CNS E11.5 (RPKM 11.4), liver E14 (RPKM 10.4) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

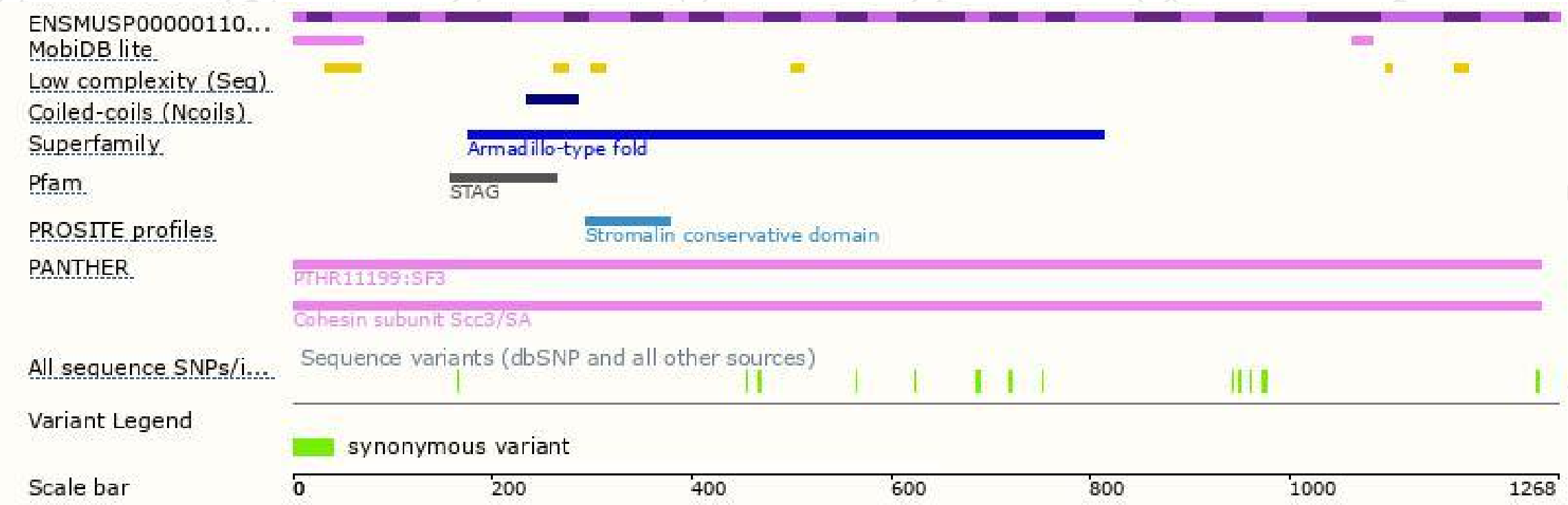
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Stag2-203	ENSMUST00000115073.8	6171	1268aa	Protein coding	CCDS72371	A2AFF6	TSL:5 GENCODE basic APPRIS ALT1
Stag2-202	ENSMUST00000115072.7	5955	1231aa	Protein coding	CCDS40952	O35638	TSL:5 GENCODE basic APPRIS P3
Stag2-201	ENSMUST00000069619.13	5825	1231aa	Protein coding	CCDS40952	O35638	TSL:5 GENCODE basic APPRIS P3
Stag2-206	ENSMUST00000128799.2	774	145aa	Protein coding	-	A0A1B0GXA7	CDS 3' incomplete TSL:1
Stag2-205	ENSMUST00000127618.7	295	40aa	Protein coding	-	A2AFF3	CDS 3' incomplete TSL:1
Stag2-204	ENSMUST00000123245.7	294	41aa	Protein coding	-	B7ZCD2	CDS 3' incomplete TSL:5
Stag2-207	ENSMUST00000136323.7	1967	No protein	Retained intron	-	-	TSL:1
Stag2-208	ENSMUST00000141414.1	699	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Stag2-203* transcript,The transcription is shown below



Genomic location distribution

Protein domain



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

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