Bcl2l11 Cas9-CKO *Strategy*

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Project Overview

Project Name	***Bcl2l11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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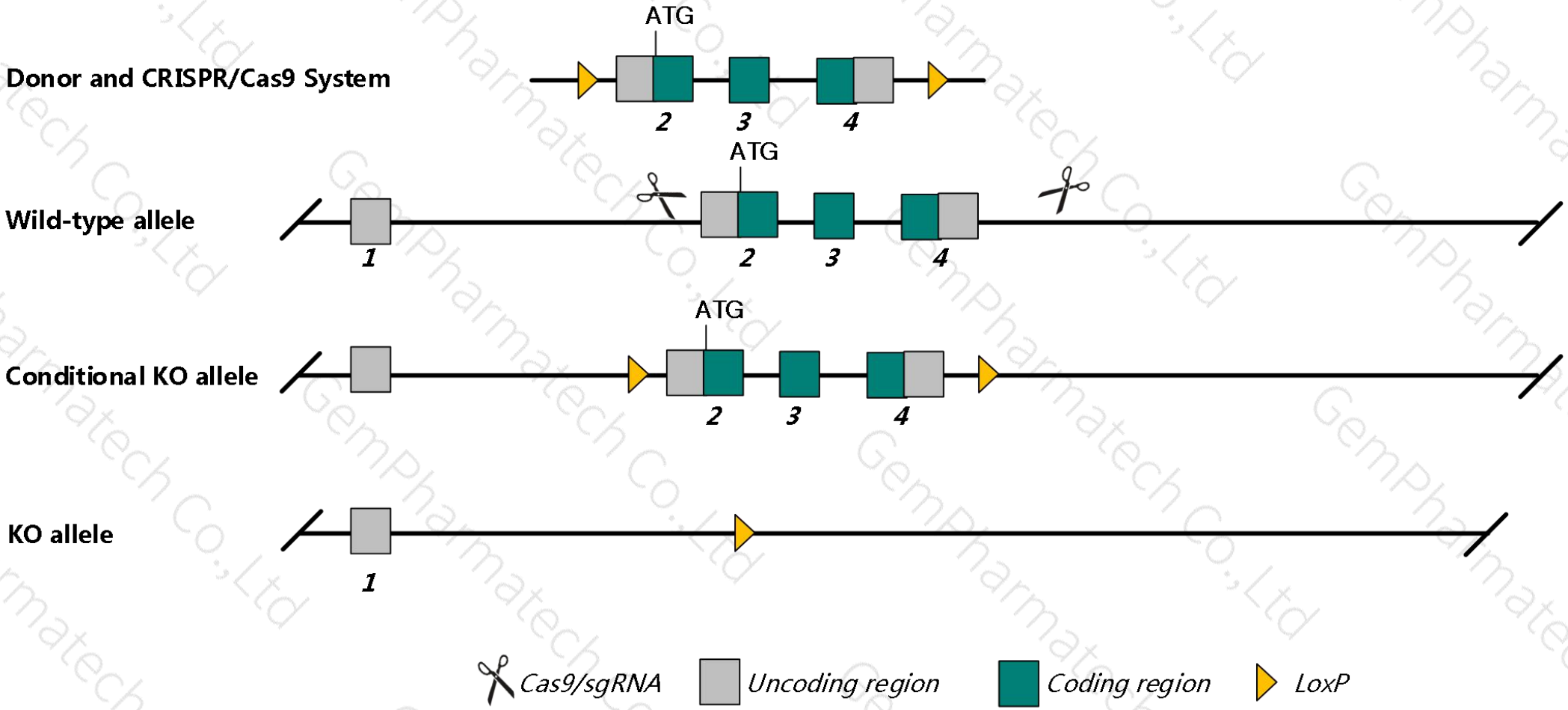
This model will use CRISPR/Cas9 technology to edit the *Bcl2l11* gene. The schematic diagram is as follows:



Technical routes

- The *Bcl2l11* gene has 8 transcripts. According to the structure of *Bcl2l11* gene, exon2-4 of *Bcl2l11*-205 (ENSMUST00000110341.8) transcript is recommended as the knockout region.The region contains the all coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Bcl2l11* 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.

Notice

- According to the existing MGI data: Consistent with this gene's role in hematopoietic homeostasis, homozygous null mutants accumulate lymphoid and myeloid cells and succumb to autoimmune kidney disease.
- The *Bcl2l11* 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.
- 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）

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Bcl2l11 BCL2-like 11 (apoptosis facilitator) [*Mus musculus* (house mouse)]

Gene ID: 12125, updated on 9-Oct-2018

Summary

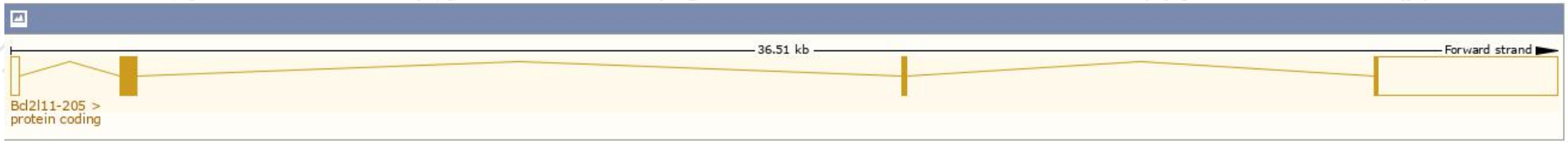
Official Symbol	Bcl2l11 provided by MGI
Official Full Name	BCL2-like 11 (apoptosis facilitator) provided by MGI
Primary source	MGI:MGI:1197519
See related	Ensembl:ENSMUSG00000027381 Vega:OTTMUSG00000015356
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Bim; Bod; bcl2-L-11; 1500006F24Rik
Expression	Ubiquitous expression in thymus adult (RPKM 7.8), lung adult (RPKM 4.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

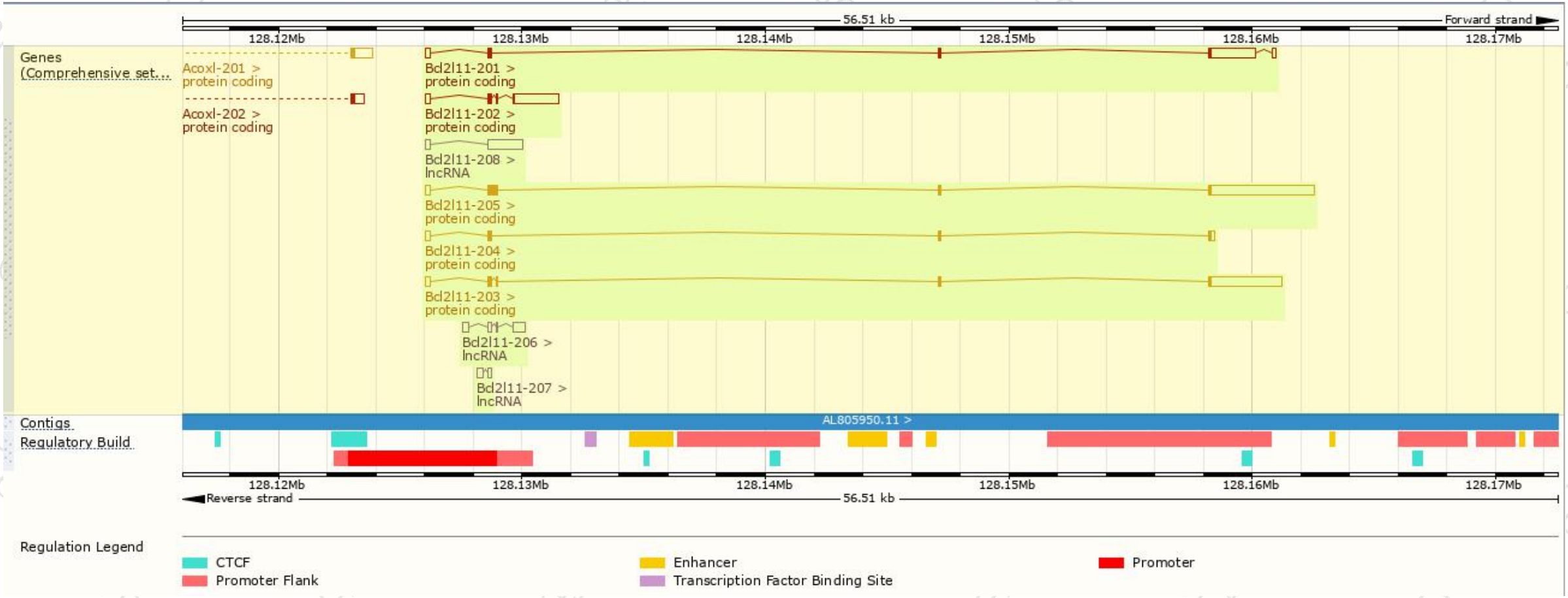
The gene has 8 transcript, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcl2l11-201	ENSMUST00000019281.13	2490	110aa	Protein coding	CCDS16712	O54918 Q3U7X3	TSL:1 GENCODE basic APPRIS ALT2
Bcl2l11-202	ENSMUST00000089634.11	2301	91aa	Protein coding	CCDS71141	Q6PEB3	TSL:1 GENCODE basic
Bcl2l11-203	ENSMUST00000103210.1	3538	140aa	Protein coding	CCDS16714	O54918	TSL:1 GENCODE basic APPRIS ALT2
Bcl2l11-204	ENSMUST00000103211.7	672	110aa	Protein coding	CCDS16712	O54918 Q3U7X3	TSL:2 GENCODE basic APPRIS ALT2
Bcl2l11-205	ENSMUST00000110341.8	5036	196aa	Protein coding	CCDS16713	O54918 Q542N5	TSL:1 GENCODE basic APPRIS P4
Bcl2l11-206	ENSMUST00000129206.1	974	No protein	lncRNA	-	-	TSL:1
Bcl2l11-207	ENSMUST00000132201.1	391	No protein	lncRNA	-	-	TSL:2
Bcl2l11-208	ENSMUST00000146023.7	1611	No protein	lncRNA	-	-	TSL:2

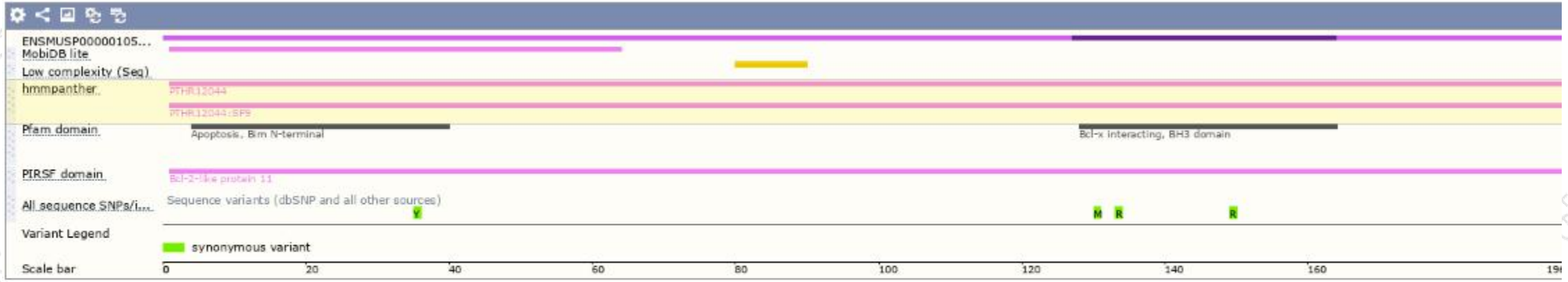
The strategy is based on the design of *Bcl2l11*-205 transcript,The transcription is shown below



Genomic location distribution



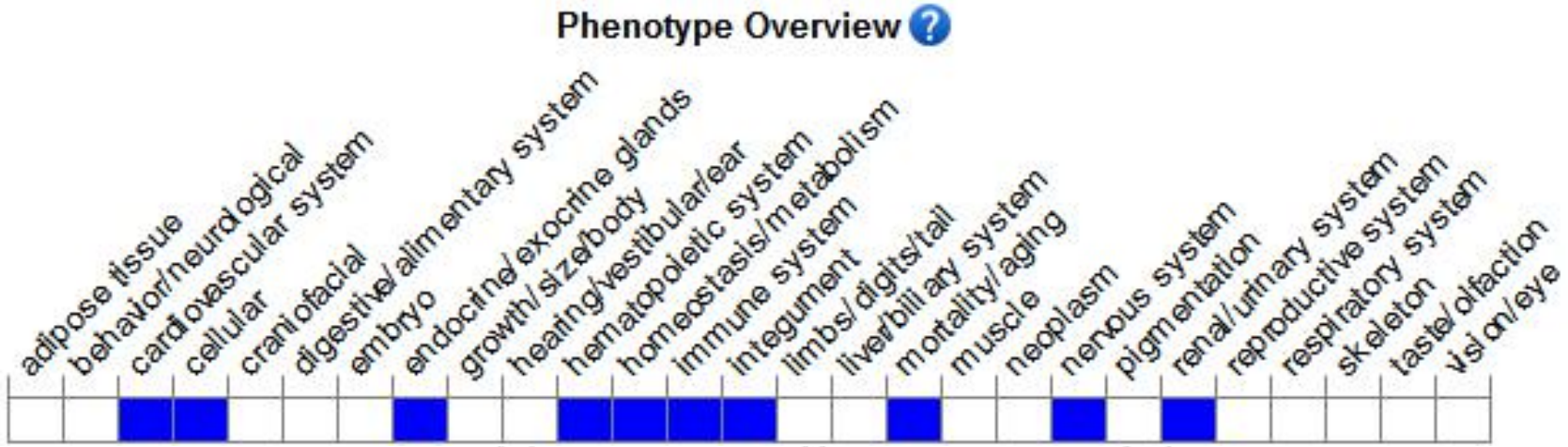
Protein domain



Statistics

Ave. residue weight: 112.585 g/mol
Charge: 0.0
Isoelectric point: 6.4829
Molecular weight: 22,066.60 g/mol
Number of residues: 196 aa

Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/) .

Consistent with this gene's role in hematopoietic homeostasis, homozygous null mutants accumulate lymphoid and myeloid cells and succumb to autoimmune kidney disease.

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