

# *Lyn* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview



**Project Name**

*Lyn*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Lyn* gene has 4 transcripts. According to the structure of *Lyn* gene, exon3-exon4 of *Lyn-201* (ENSMUST00000041377.12) transcript is recommended as the knockout region. The region contains 152bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lyn* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygotes for targeted null mutations exhibit splenomegaly, reduced numbers of peripheral B cells, impaired immune responses, IgM hyperglobulinemia, autoimmunity with glomerulonephritis, and monocyte/macrophage tumors.
- The *Lyn* gene is located on the Chr4. 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information (NCBI)

## Lyn LYN proto-oncogene, Src family tyrosine kinase [Mus musculus (house mouse)]

Gene ID: 17096, updated on 2-Apr-2019

### Summary



<b>Official Symbol</b>	Lyn provided by <a href="#">MGI</a>
<b>Official Full Name</b>	LYN proto-oncogene, Src family tyrosine kinase provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:96892</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000042228</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	AA407514, Hck-2, p53Lyn, p56Lyn
<b>Expression</b>	Broad expression in spleen adult (RPKM 46.2), lung adult (RPKM 24.2) and 23 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

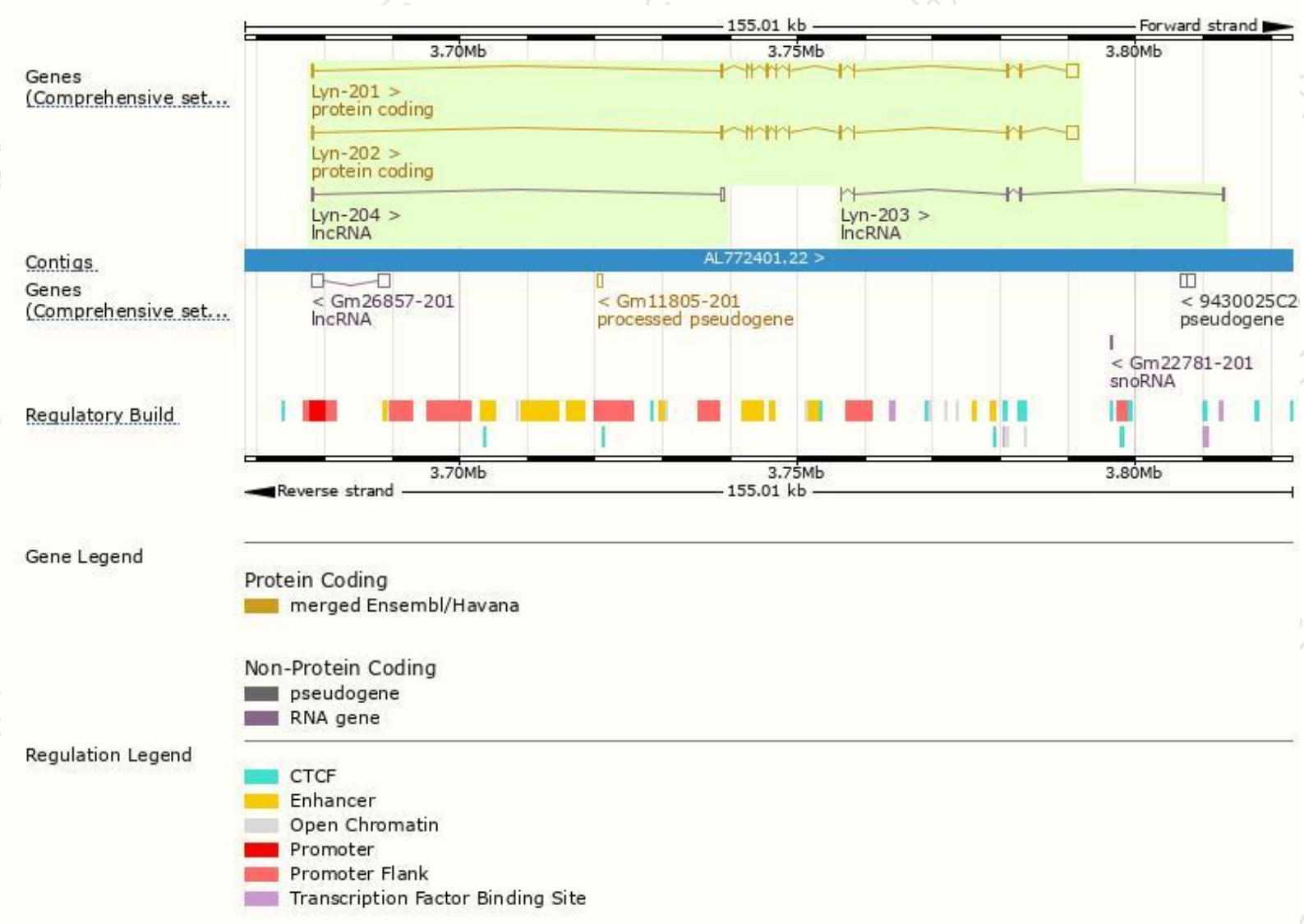
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lyn-201	<a href="#">ENSMUST00000041377.12</a>	3463	<a href="#">512aa</a>	Protein coding	<a href="#">CCDS51109</a>	<a href="#">P25911 Q3TCS3</a>	TSL:1 GENCODE basic APPRIS ALT 1
Lyn-202	<a href="#">ENSMUST00000103010.3</a>	3387	<a href="#">491aa</a>	Protein coding	<a href="#">CCDS17939</a>	<a href="#">P25911 Q3U6Q5</a>	TSL:1 GENCODE basic APPRIS P3
Lyn-204	<a href="#">ENSMUST00000145083.1</a>	687	No protein	lncRNA	-	-	TSL:1
Lyn-203	<a href="#">ENSMUST00000137943.1</a>	685	No protein	lncRNA	-	-	TSL:5

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



# Genomic location distribution

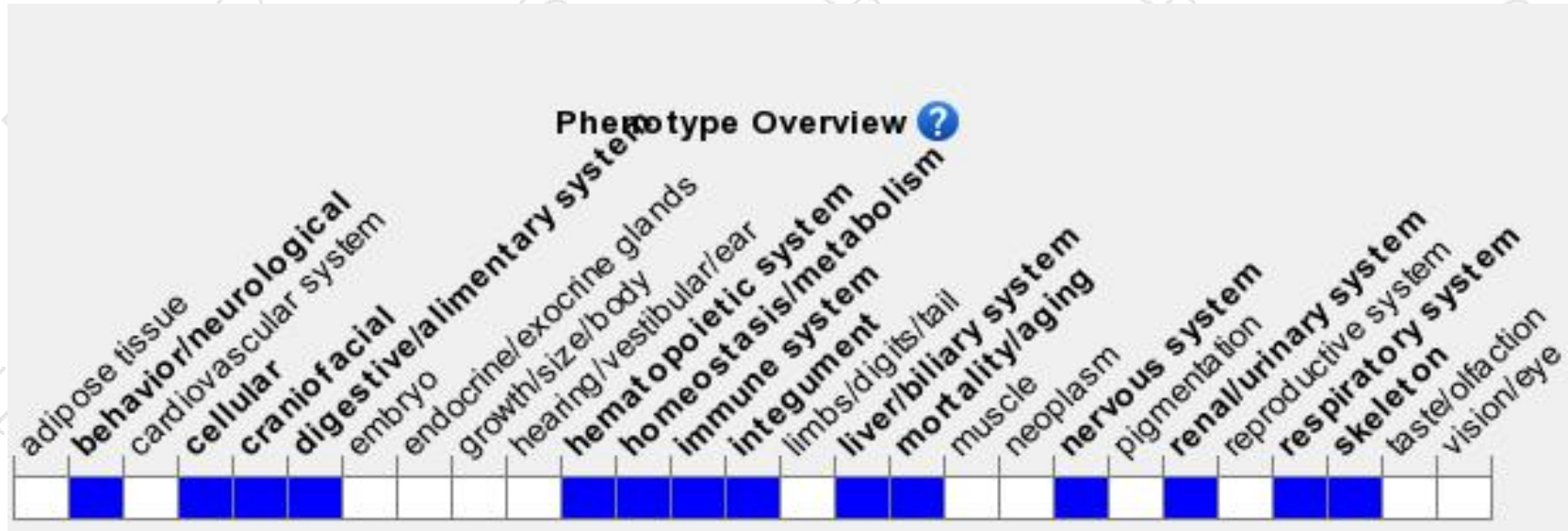




# Protein domain



# 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, Homozygotes for targeted null mutations exhibit splenomegaly, reduced numbers of peripheral B cells, impaired immune responses, IgM hyperglobulinemia, autoimmunity with glomerulonephritis, and monocyte/macrophage tumors.

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

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