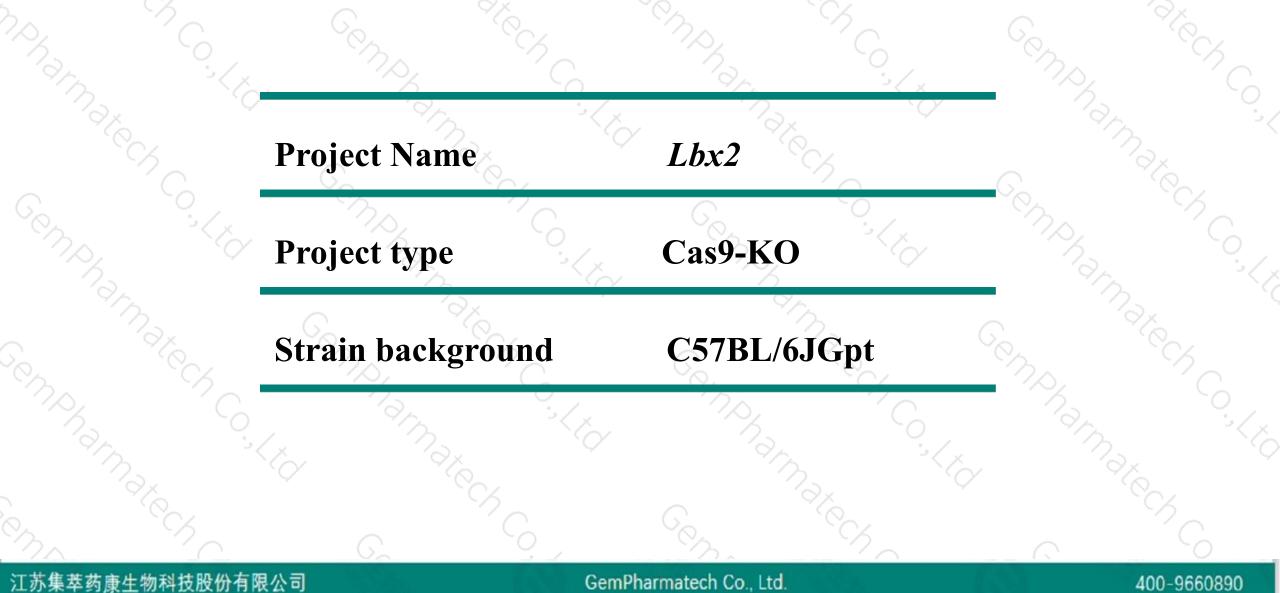


# Lbx2 Cas9-KO Strategy

Designer: Reviewer: Design Date: JiaYu Xiaojing Li 2020-2-24

### **Project Overview**

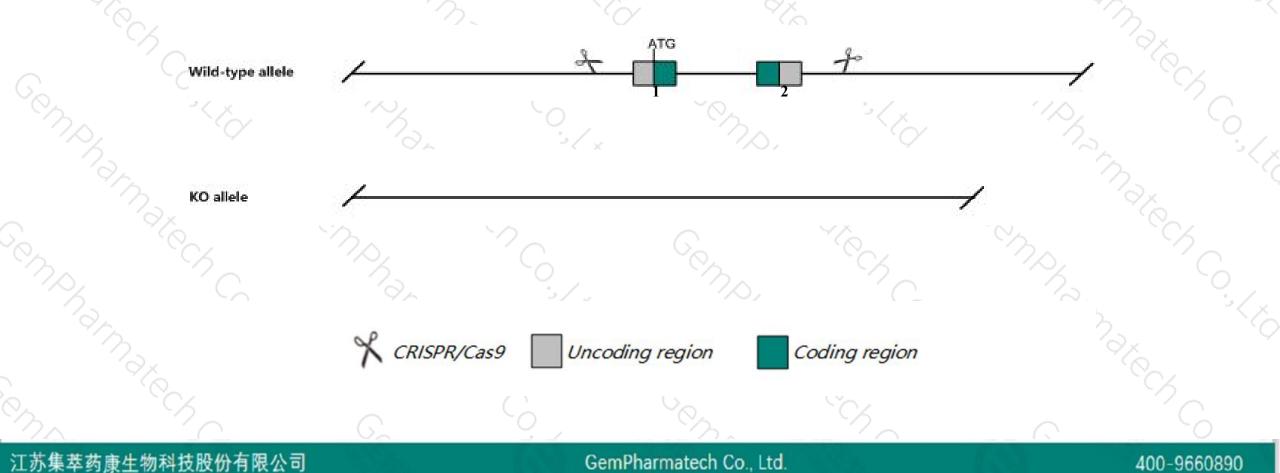




## **Knockout strategy**



This model will use CRISPR/Cas9 technology to edit the *Lbx2* gene. The schematic diagram is as follows:





The Lbx2 gene has 2 transcripts. According to the structure of Lbx2 gene, exon1-exon2 of Lbx2-201 (ENSMUST00000041265.3) transcript is recommended as the knockout region. The region contains all 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 Lbx2 gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a knock-out allele are viable, fertile and healthy with no gross developmental defects.
- The Lbx2 gene is located on the Chr6. 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.

Notice

## **Gene information (NCBI)**



\$ ?

#### Lbx2 ladybird homeobox 2 [Mus musculus (house mouse)]

Gene ID: 16815, updated on 31-Jan-2019

#### Summary

Official Symbol	Lbx2 provided by MGI
Official Full Name	ladybird homeobox 2 provided by MGI
Primary source	MGI:MGI:1342288
See related	Ensembl:ENSMUSG00000034968
Gene type	protein coding
<b>RefSeq status</b>	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	
Expression	Biased expression in adrenal adult (RPKM 19.6), ovary adult (RPKM 6.5) and 1 other tissueSee more
Orthologs	human all

#### 江苏集萃药康生物科技股份有限公司

#### GemPharmatech Co., Ltd.

#### 400-9660890

### **Transcript information (Ensembl)**



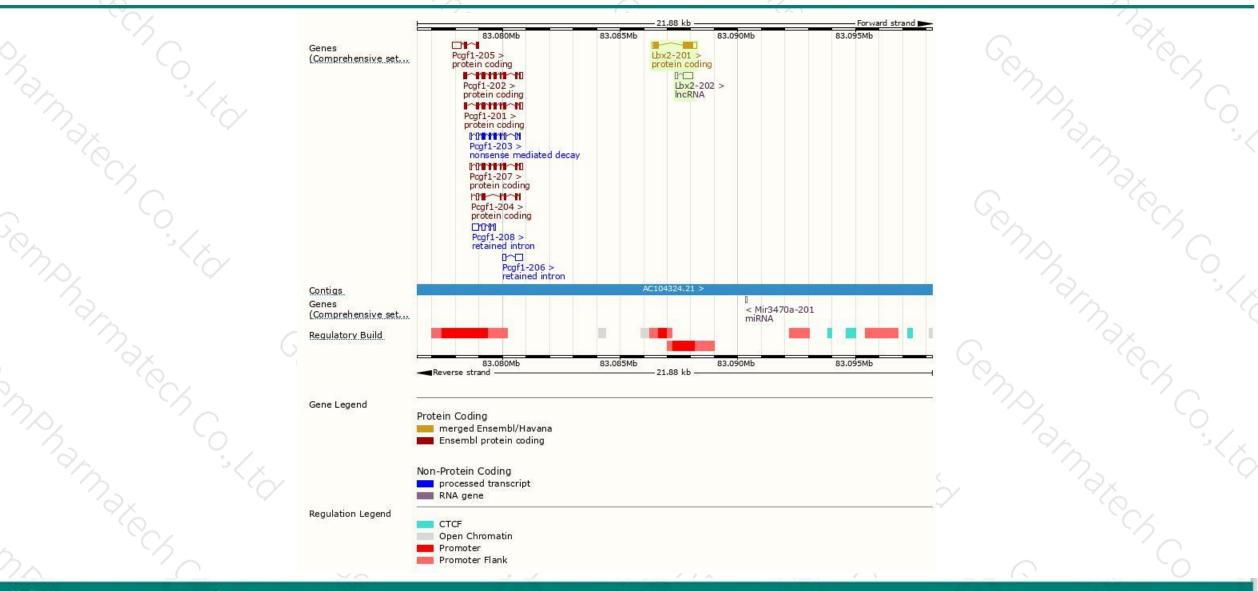
#### The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Lbx2-201	ENSMUST00000041265.3	817	<u>195aa</u>	Protein coding	CCDS20271	Q9WUN8	TSL:1 GENCODE basic APPRIS P1	
Lbx2-202	ENSMUST00000151508.1	531	No protein	IncRNA	( <del>.</del> .)	-8	TSL:3	

The strategy is based on the design of *Lbx2-201* transcript, The transcription is shown below



### **Genomic location distribution**



江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.

400-9660890

集举药康 GemPharmatech

### **Protein domain**

江苏



	12								
ow complexity (Seg)									20
			E	iomeobax-like	domain sup	erfamily	<u> </u>		0
				Homeo	box domain				24
						and the second second second second	ix motif		
				Home	obox domair	N.			
				Homeob	ox domain		10		
PANTHER	PTHR24336 (	5F10							0
	PTHR24336			122					
Gene3D				1,10,10.6	D				
CDD				Home	obiox domain	5)			
All sequence SNPs/i	Sequence v	ariants (dbSNP	and all other sour	ces)		1		1.1.1	6
Variant Legend	📒 misser	nse variant							
Scale bar	0	20 40	60	80	100	120	140	160	195
	Superfamily SMART Prints Pfam PROSITE profiles PANTHER Gene3D CDD All sequence SNPs/i	MobiDB lite       Image: Sequence of the sequence of t	MobiDB lite   Low complexity (Seg)   Superfamily   SMART   Prints   Prints   Prints   ProSITE profiles   PANTHER   PTHR24336 (SF10   PTHR24336   Gene3D   CDD   All sequence SNPs/i   Variant Legend   inframe deletion   missense variant   synonymous variant	MobiDB lite	MobiDB lite Low complexity (Seg) Superfamily SMART. Prints Prints ProSITE profiles PANTHER PTHR24336 :SF10 PTHR24336 Sene3D. CDD. All sequence SNPs/i Sequence variants (dbSNP and all other sources) Variant Legend inframe deletion missense variant synonymous variant	MobiDB lite Low complexity (Seg) Superfamily SMART. Prints Pfam. PROSITE profiles PANTHER. PANTHER. COD. All sequence SNPs/i Variant Legend inframe deletion inframe deletion	MobiDB lite Low complexity (Seg) Superfamily Prints Prints Prints Prints Prints PROSITE profiles PANTHER PANTHER PANTHER PIHR24336 (SF10 PTHR24336 (SF10 PTHR24336 CDD. All sequence SNPs/i Sequence variants (dbSNP and all other sources) All sequence SNPs/i Variant Legend inframe deletion missense variant synonymous variant	MobiDB lite Law complexity. (Seq) Superfamily. SMART. Prints. Prints. Prints. ProSITE profiles. PANTHER. PTHR24336 (SF10 PTHR24336 (SF10 PTHR243 (SF10 PTHR24336 (SF10 PTHR243 (SF10 PTHR2	MobiDB lite   Low, complexity, (Sed).   Superfamily,   SMART.   Prints   Prints   Prints   PROSITE profiles   PANTHER.   PRINTHER.   PRINTHER.   PTHR24336:SF10   PTHR24336:SF10   PTHR24336:SF10   PTHR24336:SF10   PTHR24336:SF10   PANTHER.   Sequence SNPs/i   Variant Legend   inframe deletion   missense variant   synonymous variant



If you have any questions, you are welcome to inquire. Tel: 400-9660890



