# *Xpr1* Cas9-KO Strategy

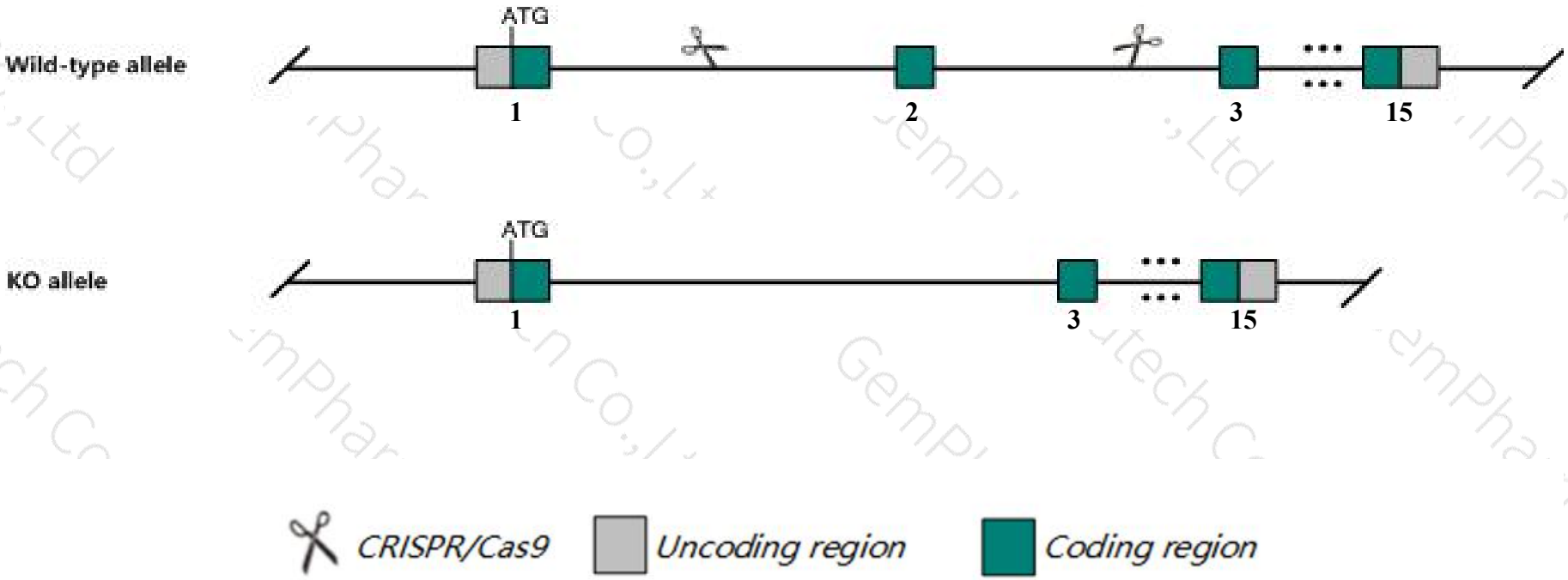
**Designer:** Daohua Xu
**Reviewer:** Huimin Su
**Design Date:** 2020-2-14

# Project Overview

| | |
|---|---|
| **Project Name** | ***Xpr1*** |
| **Project type** | **Cas9-KO** |
| **Strain background** | **C57BL/6JGpt** |

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Xpr1* gene. The schematic diagram is as follows:



# Technical routes

➢ The *Xpr1* gene has 7 transcripts. According to the structure of *Xpr1* gene, exon2 of *Xpr1-201* (ENSMUST00000027741.11) transcript is recommended as the knockout region.The region contains 52bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Xpr1* gene. The brief process is as follows: CRISPR/Cas9 system v

# Notice

- According to the existing MGI data,Homozygotes and heterozygotes for a variant from some wild Mus stocks, including M. spretus, support replication of xenotropic murine leukemia viruses and mink cell focus-forming murine leukemia viruses that are not replicated in most laboratory strains.

- The *Xpr1* gene is located on the Chr1. 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）

集萃药康 GemPharmatech

## Xpr1 xenotropic and polytropic retrovirus receptor 1 [Mus musculus (house mouse)]

Gene ID: 19775, updated on 19-Mar-2019

### Summary

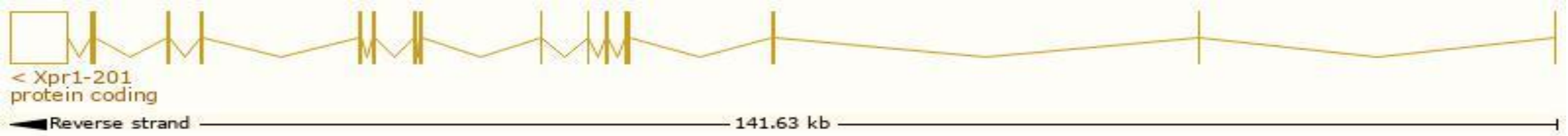
| | |
|---|---|
| **Official Symbol** | Xpr1 provided by MGI |
| **Official Full Name** | xenotropic and polytropic retrovirus receptor 1 provided by MGI |
| **Primary source** | MGI:MGI:97932 |
| **See related** | Ensembl:ENSMUSG00000026469 |
| **Gene type** | protein coding |
| **RefSeq status** | 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** | Rmc-1, Rmc1, Sxv, Syg1, XR |
| **Expression** | Broad expression in whole brain E14.5 (RPKM 29.3), CNS E18 (RPKM 27.0) and 26 other tissues See more |
| **Orthologs** | human all |

# Transcript information（Ensembl）

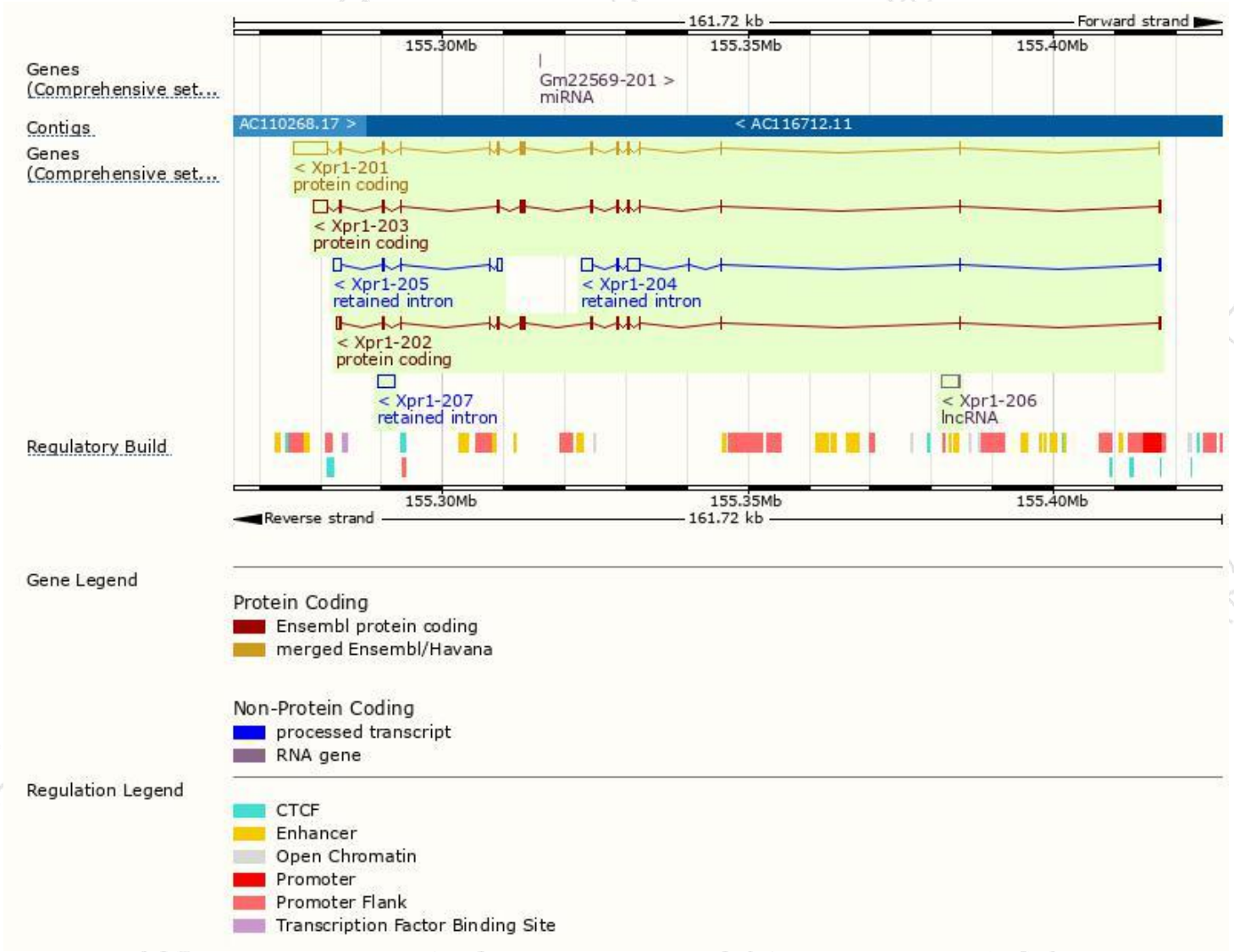
The gene has 7 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|---|---|---|---|---|---|---|---|
| Xpr1-201 | ENSMUST00000027741.11 | 7492 | 695aa | Protein coding | CCDS15384 | Q9Z0U0 | TSL:1 GENCODE basic APPRIS P1 |
| Xpr1-203 | ENSMUST00000111775.7 | 4094 | 630aa | Protein coding | - | D3Z2B4 | TSL:5 GENCODE basic |
| Xpr1-202 | ENSMUST00000111774.1 | 2753 | 679aa | Protein coding | - | Q9Z0U0 | TSL:1 GENCODE basic |
| Xpr1-204 | ENSMUST00000129271.7 | 4246 | No protein | Retained intron | - | - | TSL:1 |
| Xpr1-207 | ENSMUST00000192359.1 | 2738 | No protein | Retained intron | - | - | TSL:NA |
| Xpr1-205 | ENSMUST00000139925.1 | 2443 | No protein | Retained intron | - | - | TSL:1 |
| Xpr1-206 | ENSMUST00000143529.2 | 2881 | No protein | lncRNA | - | - | TSL:2 |

The strategy is based on the design of *Xpr1-201* transcript,The transcription is shown below

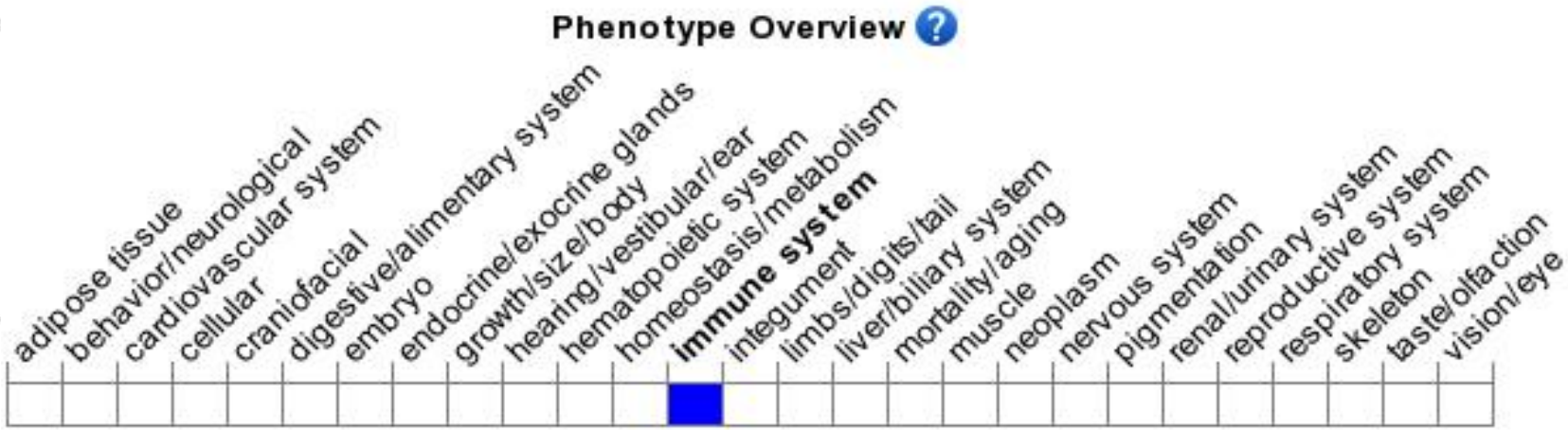


# Genomic location distribution



# 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 and heterozygotes for a variant from some wild Mus stocks, including M. spretus, support replication of xenotropic murine leukemia viruses and mink cell focus-forming murine leukemia viruses that are not replicated in most laboratory strains.

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