Amigo1 Cas9-KO *Strategy*

Designer: Daohua Xu
Reviewer： Huimin Su

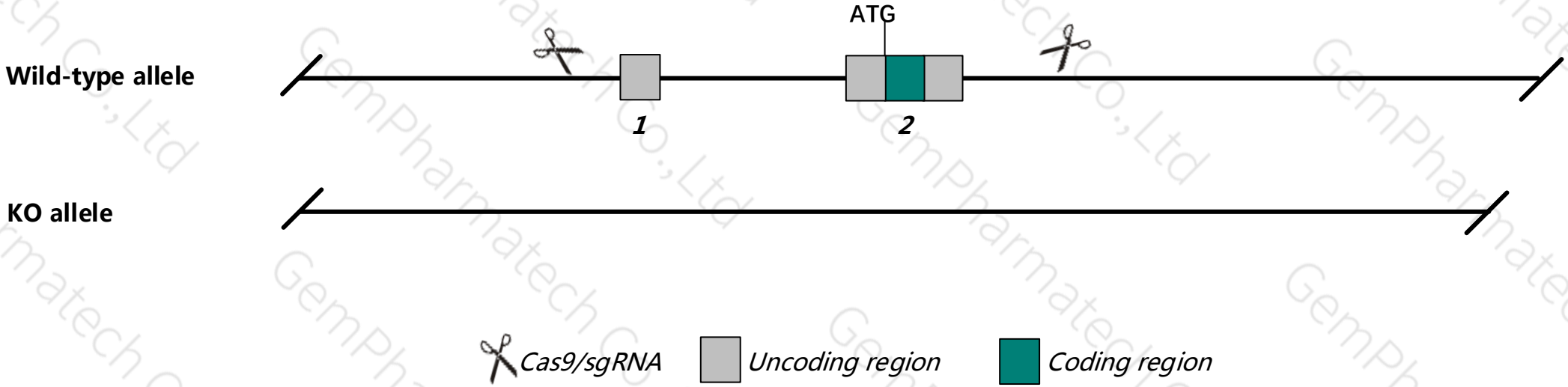
Design Date: 2019-10-25

Project Overview

Project Name	***Amigo1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Amigo1* gene. The schematic diagram is as follows:



Technical routes

- The *Amigo1* gene has 5 transcripts.According to the structure of *Amigo1* gene, exon1-exon2 of *Amigo1*-202 (ENSMUST00000106656.1) 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 *Amigo1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9, sgRNA 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.

Notice

- The KO region contains a partial of the *Gm12524* gene.Knockout the region may affect the function of the *Gm12524* gene.
- The *Amigo1* gene is located on the Chr3. 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 knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

Amigo1 adhesion molecule with Ig like domain 1 [*Mus musculus* (house mouse)]

Gene ID: 229715, updated on 12-Aug-2019

Summary

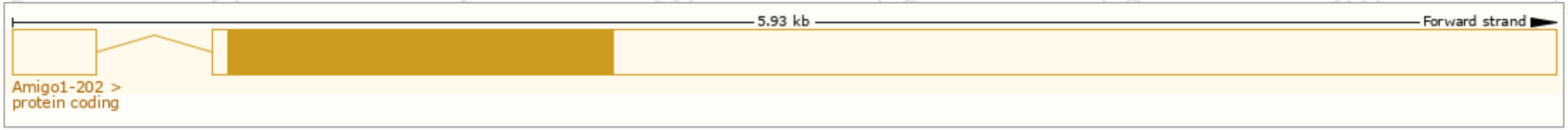
Official Symbol	Amigo1 provided by MGI
Official Full Name	adhesion molecule with Ig like domain 1 provided by MGI
Primary source	MGI:MGI:2653612
See related	Ensembl:ENSMUSG00000050947
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ali2; Amigo
Expression	Ubiquitous expression in frontal lobe adult (RPKM 13.9), cerebellum adult (RPKM 10.9) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

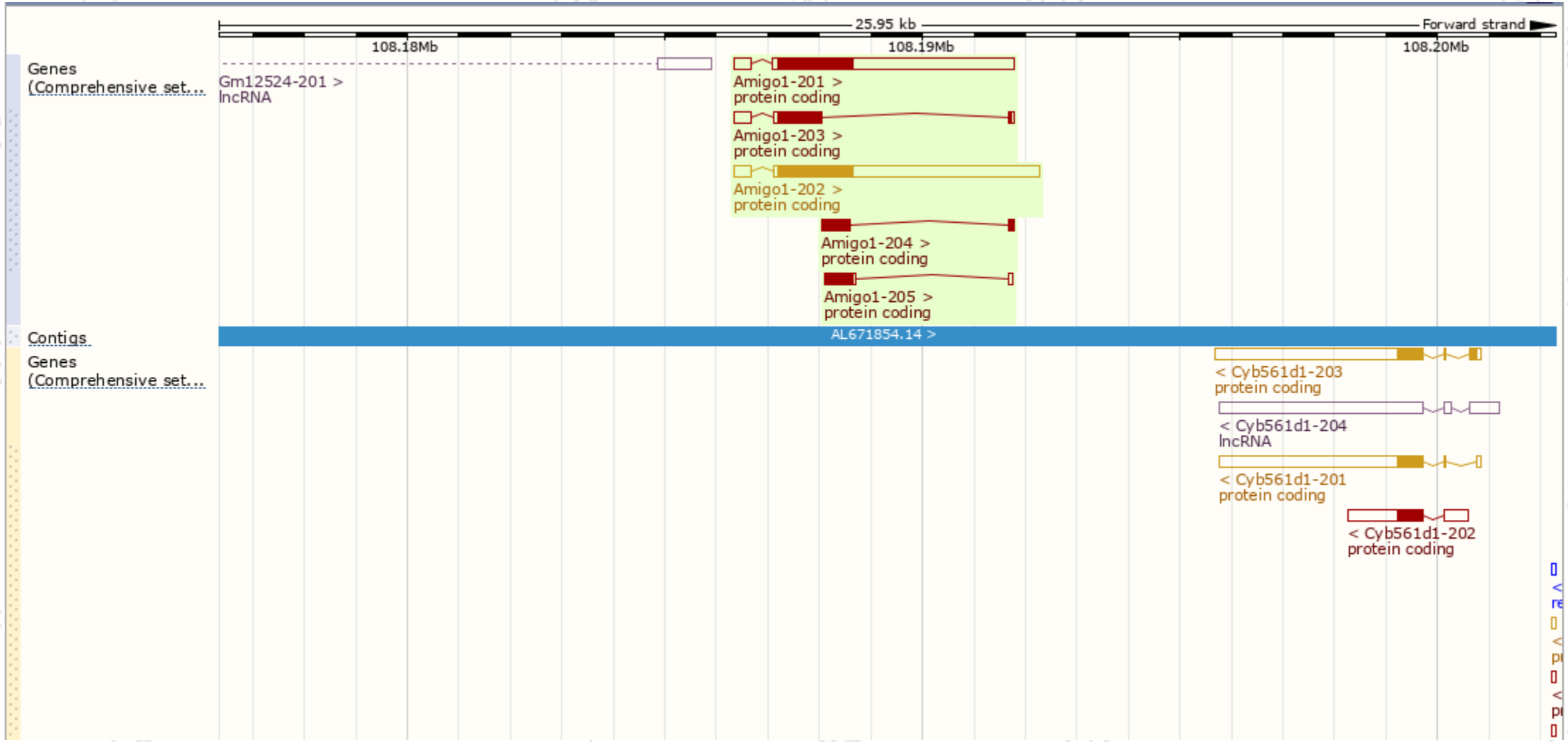
The gene has 5 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Amigo1-202	ENSMUST00000106656.1	5482	492aa	Protein coding	CCDS17753	Q80ZD8	TSL:1 GENCODE basic APPRIS P1
Amigo1-201	ENSMUST00000050909.6	5030	492aa	Protein coding	CCDS17753	Q80ZD8	TSL:1 GENCODE basic APPRIS P1
Amigo1-203	ENSMUST00000106659.2	1360	309aa	Protein coding	CCDS71305	Q80ZD8	TSL:1 GENCODE basic
Amigo1-205	ENSMUST00000155782.1	697	188aa	Protein coding	-	A0A0G2JEP5	CDS 5' incomplete TSL:3
Amigo1-204	ENSMUST00000106661.3	651	206aa	Protein coding	-	A2AE38	CDS 5' incomplete TSL:2

The strategy is based on the design of *Amigo1*-202 transcript,The transcription is shown below

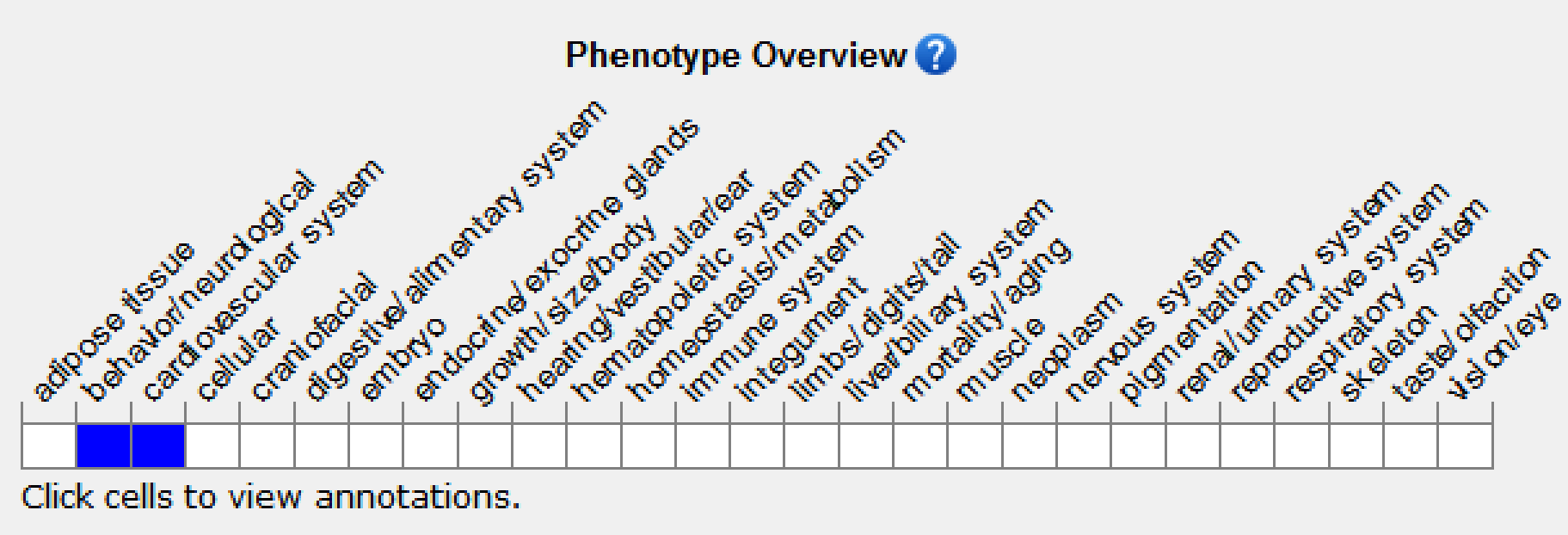


Genomic location distribution



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/) .

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

Tel: 025-5864 1534

集萃药康生物科技

GemPharmatech Co.,Ltd