Slc4a10 Cas9-KO Strategy

Designer: Daohua Xu

Reviewer: Huimin Su

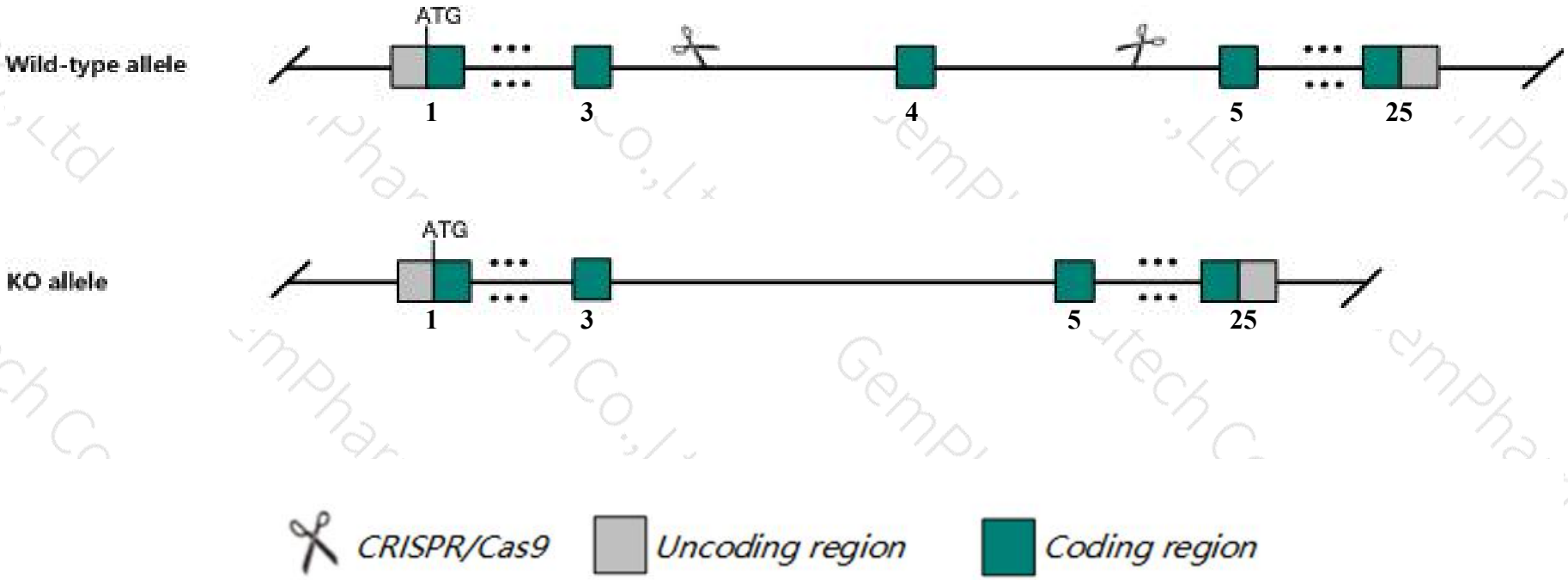
Design Date: 2020-2-12

Project Overview

Project Name	***Slc4a10***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc4a10* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc4a10* gene has 7 transcripts. According to the structure of *Slc4a10* gene, exon4 of *Slc4a10-202* (ENSMUST00000102735.9) transcript is recommended as the knockout region.The region contains 139bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc4a10* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Mice with homozygous disruption of this gene exhibit reduced brain ventricle volume, reduced neuronal excitability, impaired pH regulation of neurons, and increased threshold to induced seizures.

- The *Slc4a10* 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 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

Slc4a10 solute carrier family 4, sodium bicarbonate cotransporter-like, member 10 [Mus musculus (house mouse)]

Gene ID: 94229, updated on 19-Mar-2019

Summary

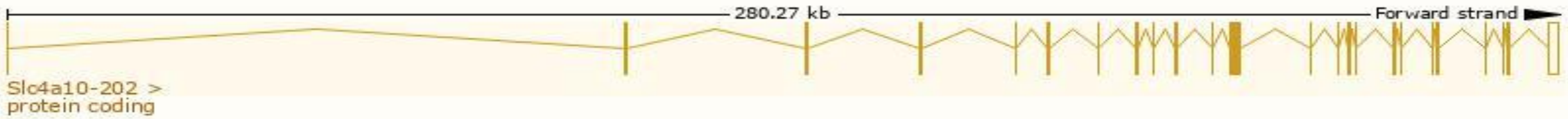
Official Symbol	Slc4a10 provided by MGI
Official Full Name	solute carrier family 4, sodium bicarbonate cotransporter-like, member 10 provided by MGI
Primary source	MGI:MGI:2150150
See related	Ensembl:ENSMUSG00000026904
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NCBE, mKIAA4136
Expression	Biased expression in frontal lobe adult (RPKM 22.9), cortex adult (RPKM 20.5) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

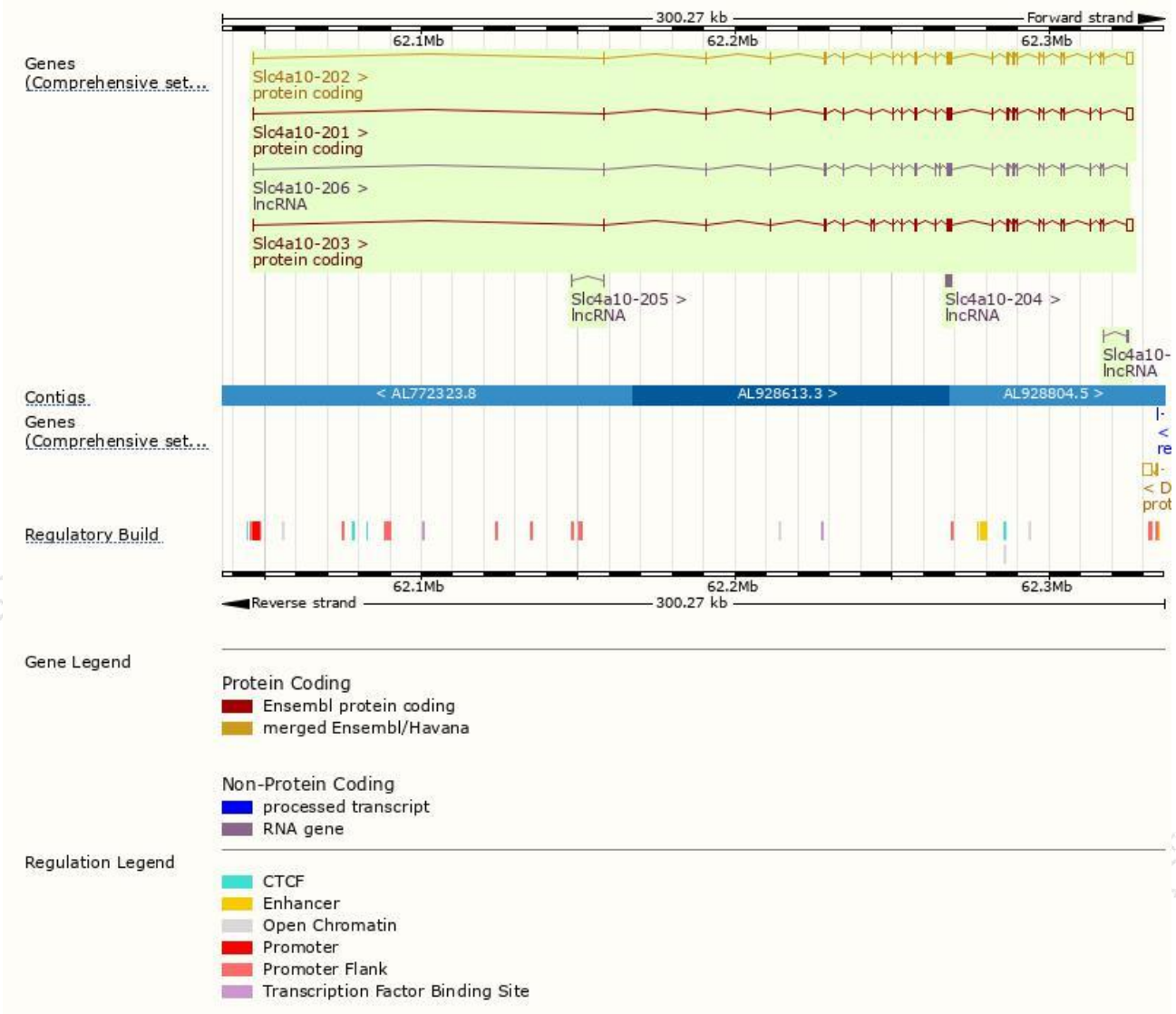
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc4a10-202	ENSMUST00000102735.9	5482	1088aa	Protein coding	CCDS16064	Q5DTL9	TSL:1 GENCODE basic APPRIS P3
Slc4a10-203	ENSMUST00000112480.2	5389	1118aa	Protein coding	CCDS57172	Q5DTL9	TSL:1 APPRIS ALT2
Slc4a10-201	ENSMUST00000054484.14	5320	1106aa	Protein coding	CCDS57173	B1AWV9 Q5DTL9	TSL:1 GENCODE basic APPRIS ALT2
Slc4a10-206	ENSMUST00000155219.7	3590	No protein	Processed transcript	-	-	TSL:5
Slc4a10-204	ENSMUST00000147917.1	785	No protein	Processed transcript	-	-	TSL:3
Slc4a10-207	ENSMUST00000156534.1	778	No protein	Processed transcript	-	-	TSL:3
Slc4a10-205	ENSMUST00000149527.1	348	No protein	Processed transcript	-	-	TSL:2

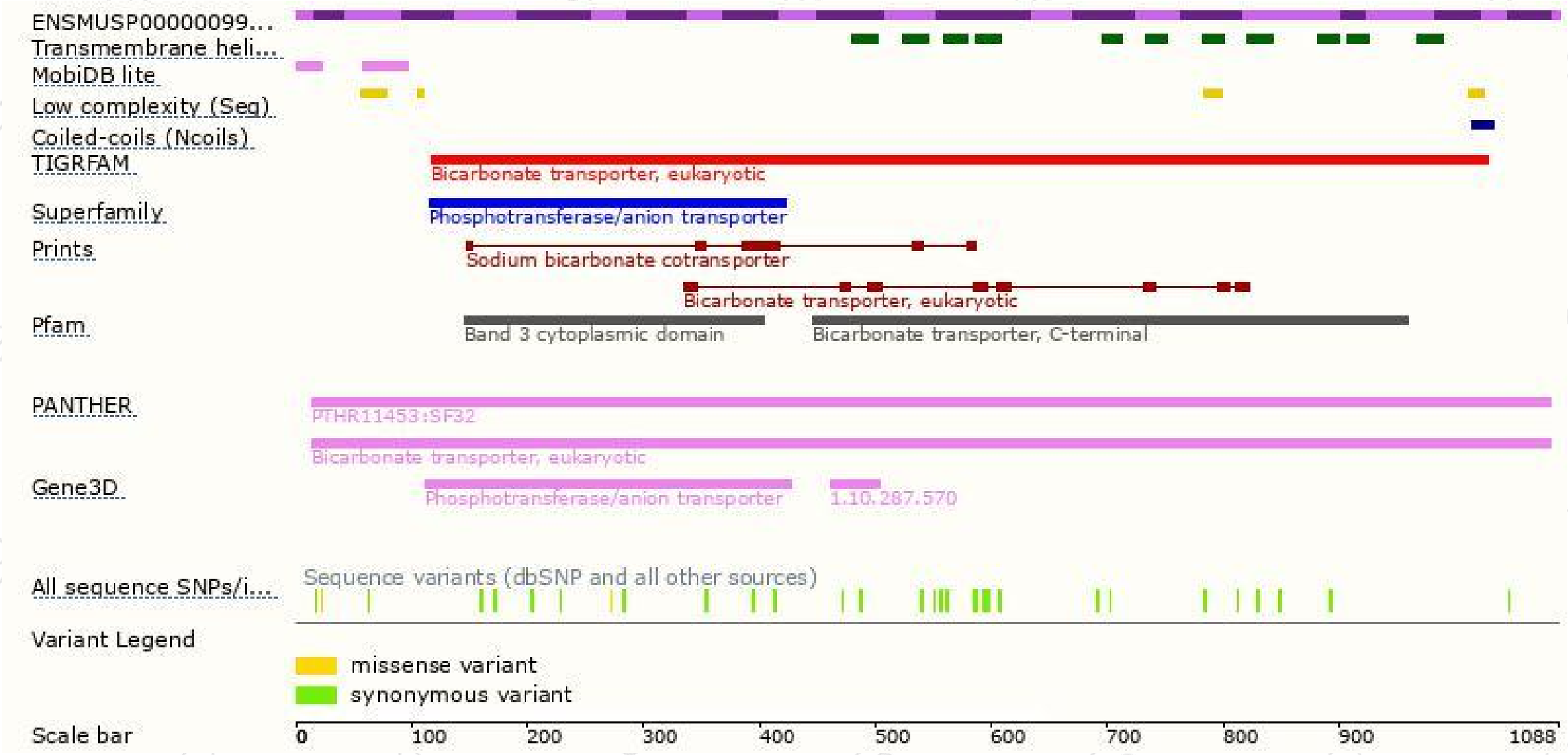
The strategy is based on the design of *Slc4a10-202* transcript,The transcription is shown below



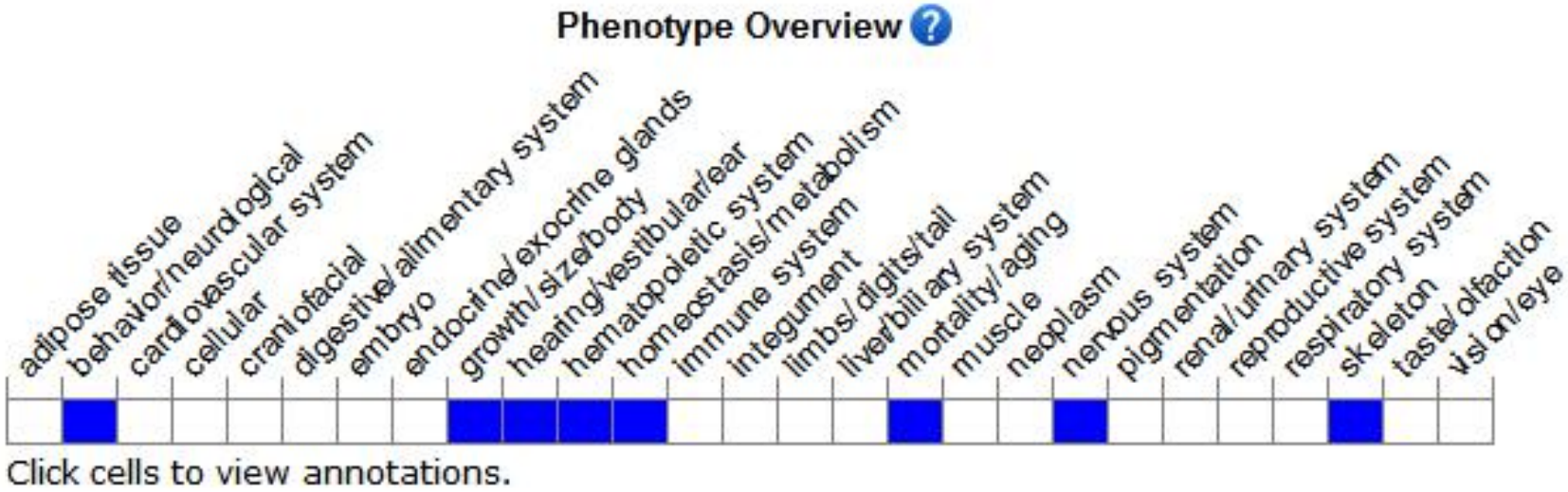
Genomic location distribution



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/).

According to the existing MGI data,Mice with homozygous disruption of this gene exhibit reduced brain ventricle volume, reduced neuronal excitability, impaired pH regulation of neurons, and increased threshold to induced seizures.

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