Tas1r2 Cas9-KO Strategy

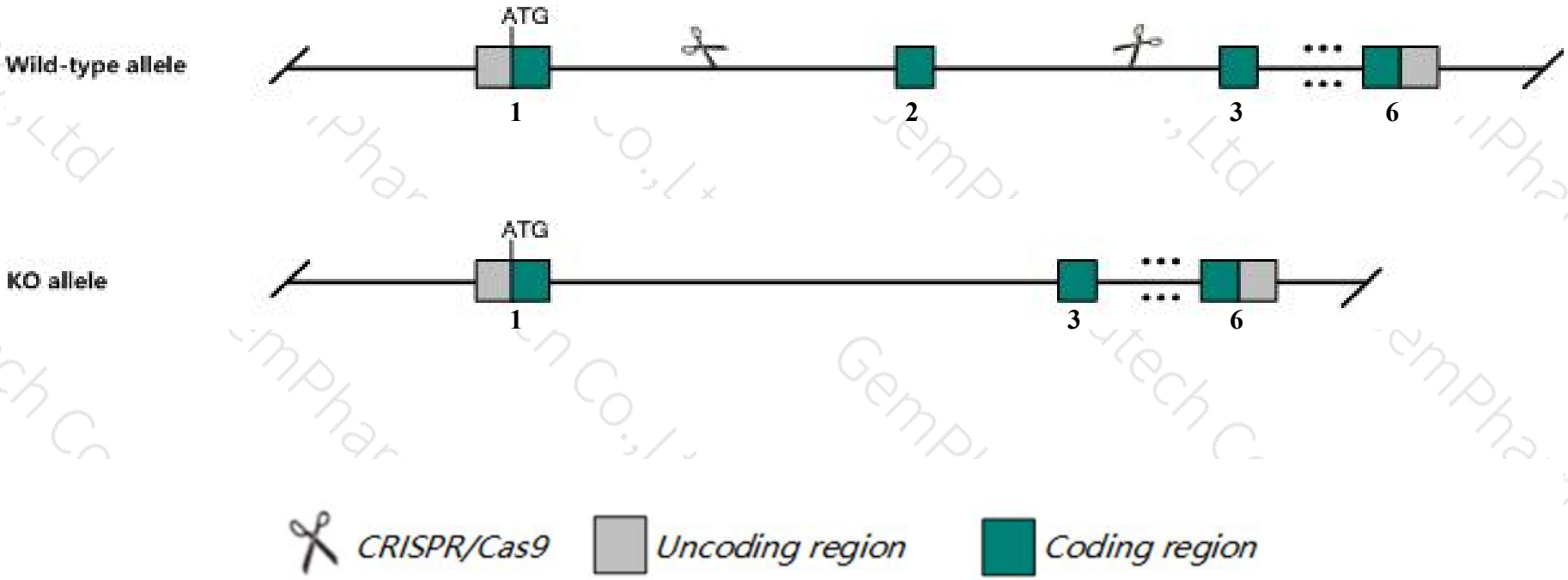
Designer: Yanhua Shen
Design Date: 2019-08-06

Project Overview

Project Name	***Tas1r2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tas1r2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Tas1r2* gene has 2 transcripts. According to the structure of *Tas1r2* gene, exon2 of *Tas1r2-201* (ENSMUST00000030510.13) transcript is recommended as the knockout region.The region contains 301bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Tas1r2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygous mutant mice show diminished behavioral and nervous responses to sweet tastants. Response to umami tastants is unimpaired.

- The *Tas1r2* 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）

集萃药康 GemPharmatech

Tas1r2 taste receptor, type 1, member 2 [Mus musculus (house mouse)]

Gene ID: 83770, updated on 31-Jan-2019

Summary

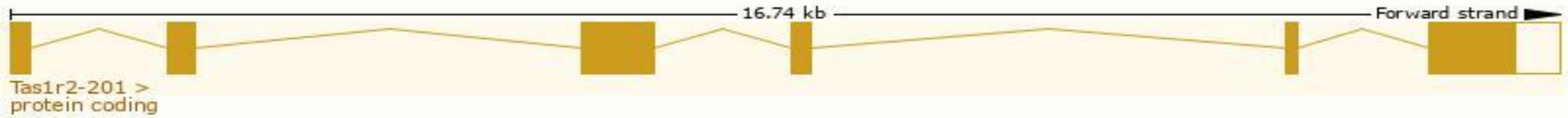
Official Symbol	Tas1r2 provided by MGI
Official Full Name	taste receptor, type 1, member 2 provided by MGI
Primary source	MGI:MGI:1933546
See related	Ensembl:ENSMUSG00000028738
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gpr71, T1r2, TR2
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information（Ensembl）

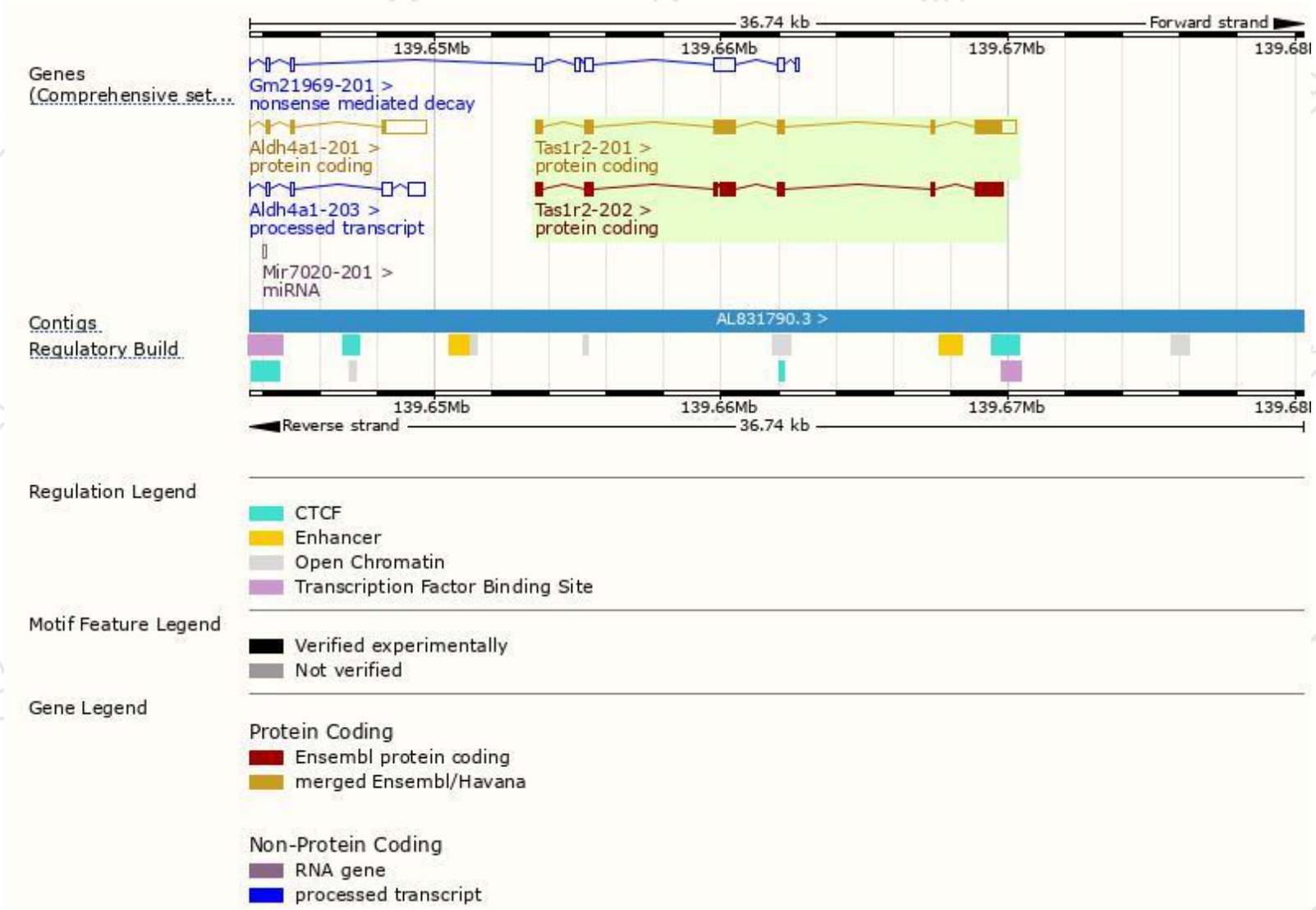
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tas1r2-201	ENSMUST00000030510.13	3047	843aa	Protein coding	CCDS18849	Q925I4	TSL:1 GENCODE basic APPRIS P1
Tas1r2-202	ENSMUST00000166773.1	2524	814aa	Protein coding	-	E9Q0R6	TSL:1 GENCODE basic

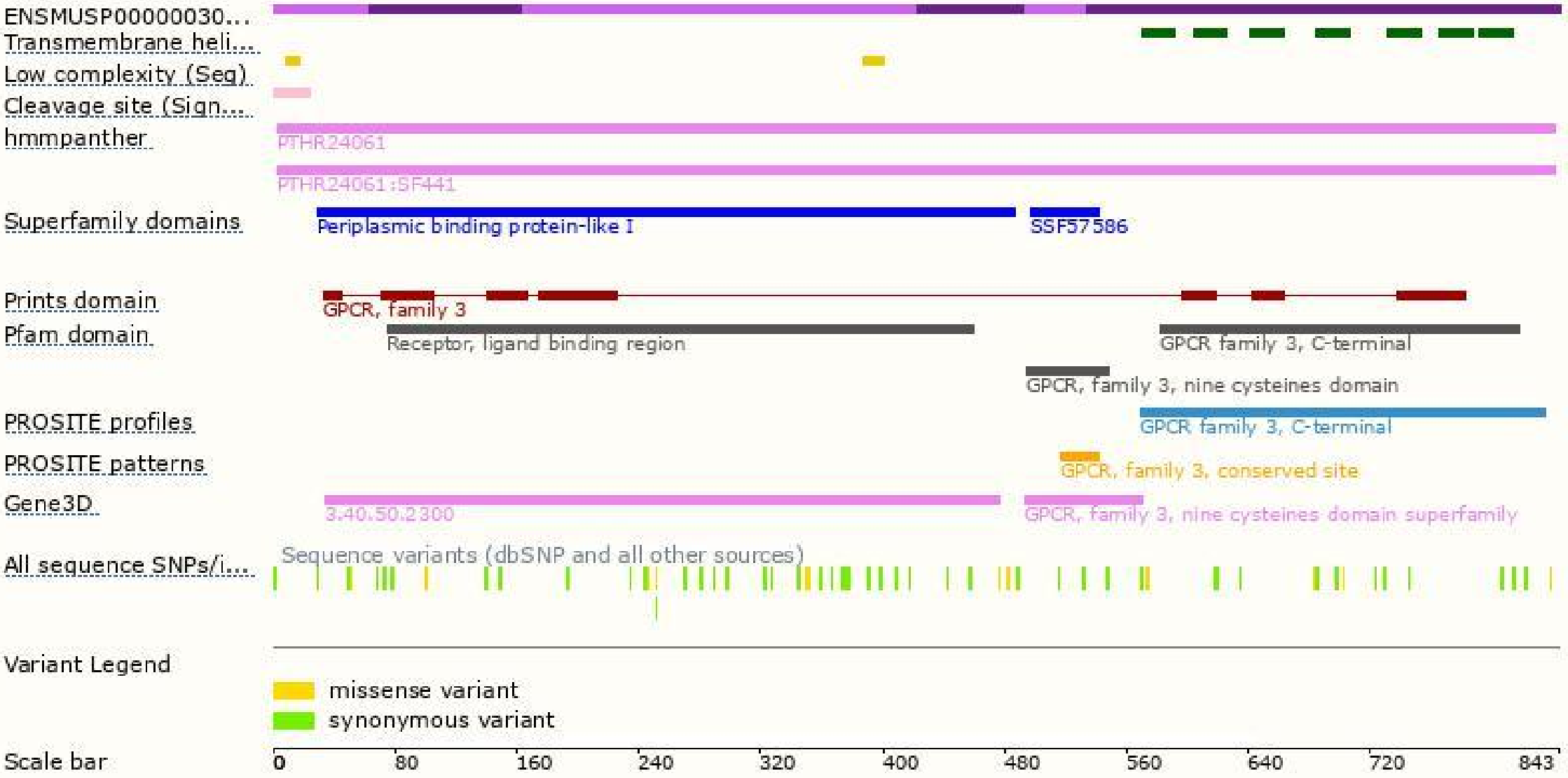
The strategy is based on the design of *Tas1r2-201* transcript,The transcription is shown below



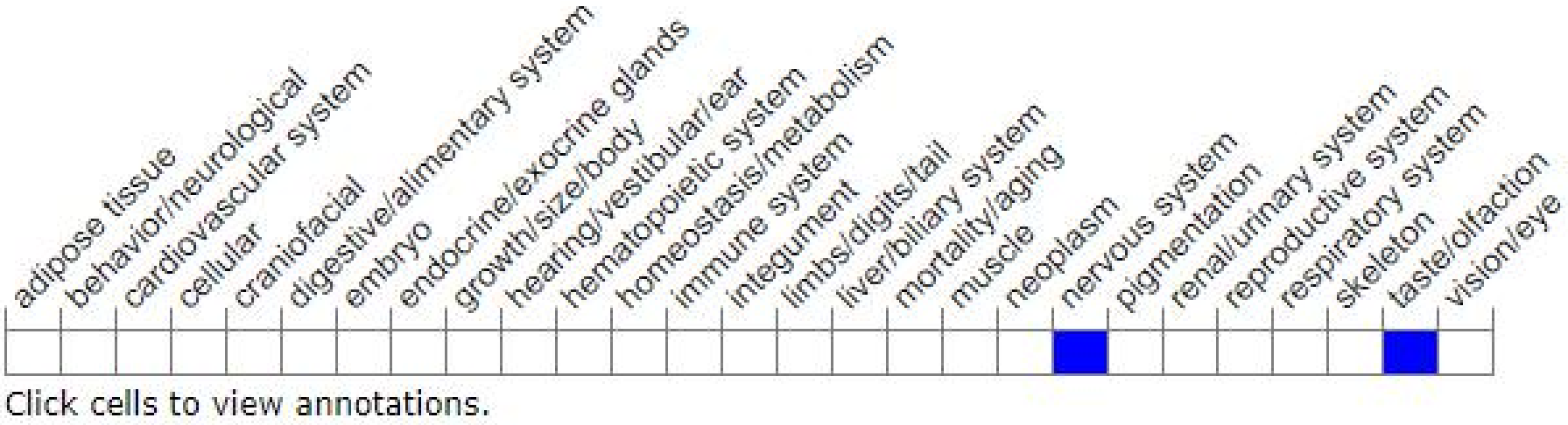
Genomic location distribution



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,Homozygous mutant mice show diminished behavioral and nervous responses to sweet tastants. Response to umami tastants is unimpaired.

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