

Gipr Cas9-CKO Strategy

Designer: Yanhua Shen

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Project Overview

Project Name

Gipr

Project type

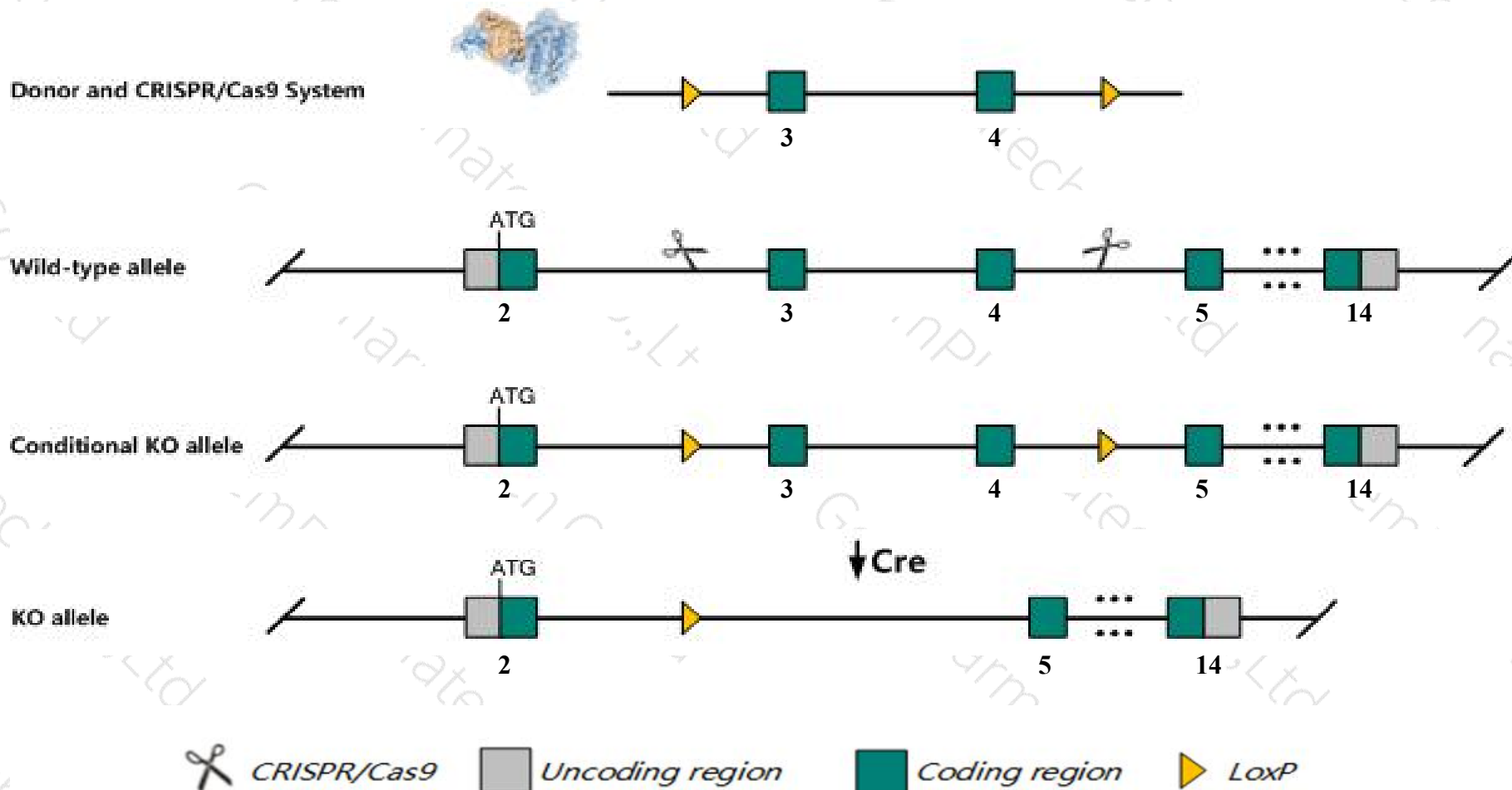
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Gipr* gene has 4 transcripts. According to the structure of *Gipr* gene, exon3-exon4 of *Gipr-201* (ENSMUST00000094790.4) transcript is recommended as the knockout region. The region contains 211bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gipr* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Homozygous inactivation of this gene results in mild glucose intolerance due to impaired glucose-stimulated insulin secretion.
- The *Gipr* gene is located on the Chr7. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Gipr gastric inhibitory polypeptide receptor [Mus musculus (house mouse)]

Gene ID: 381853, updated on 23-Feb-2019

Summary



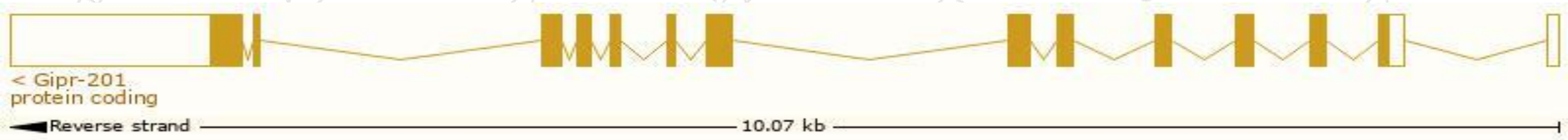
Official Symbol	Gipr provided by MGI
Official Full Name	gastric inhibitory polypeptide receptor provided by MGI
Primary source	MGI:MGI:1352753
See related	Ensembl:ENSMUSG00000030406
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GIP-R, Gm1081, Gm160
Expression	Biased expression in CNS E18 (RPKM 9.0), testis adult (RPKM 4.8) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

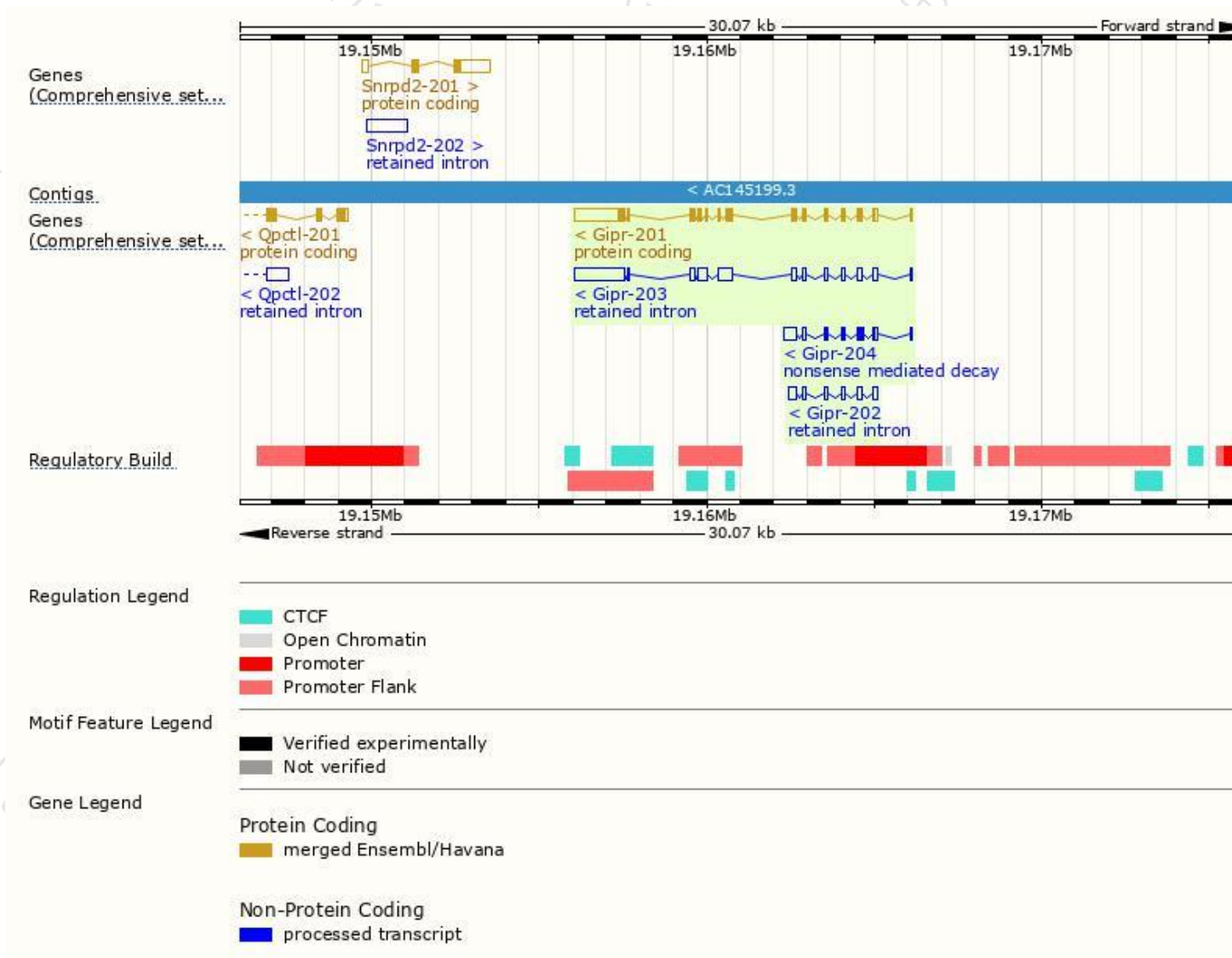
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gipr-201	ENSMUST00000094790.4	2856	460aa	Protein coding	CCDS39795	Q0P543	TSL:5 GENCODE basic APPRIS P1
Gipr-204	ENSMUST00000206971.1	1084	140aa	Nonsense mediated decay	-	A0A0U1RP73	TSL:1
Gipr-203	ENSMUST00000206857.1	3182	No protein	Retained intron	-	-	TSL:5
Gipr-202	ENSMUST00000206137.1	783	No protein	Retained intron	-	-	TSL:1

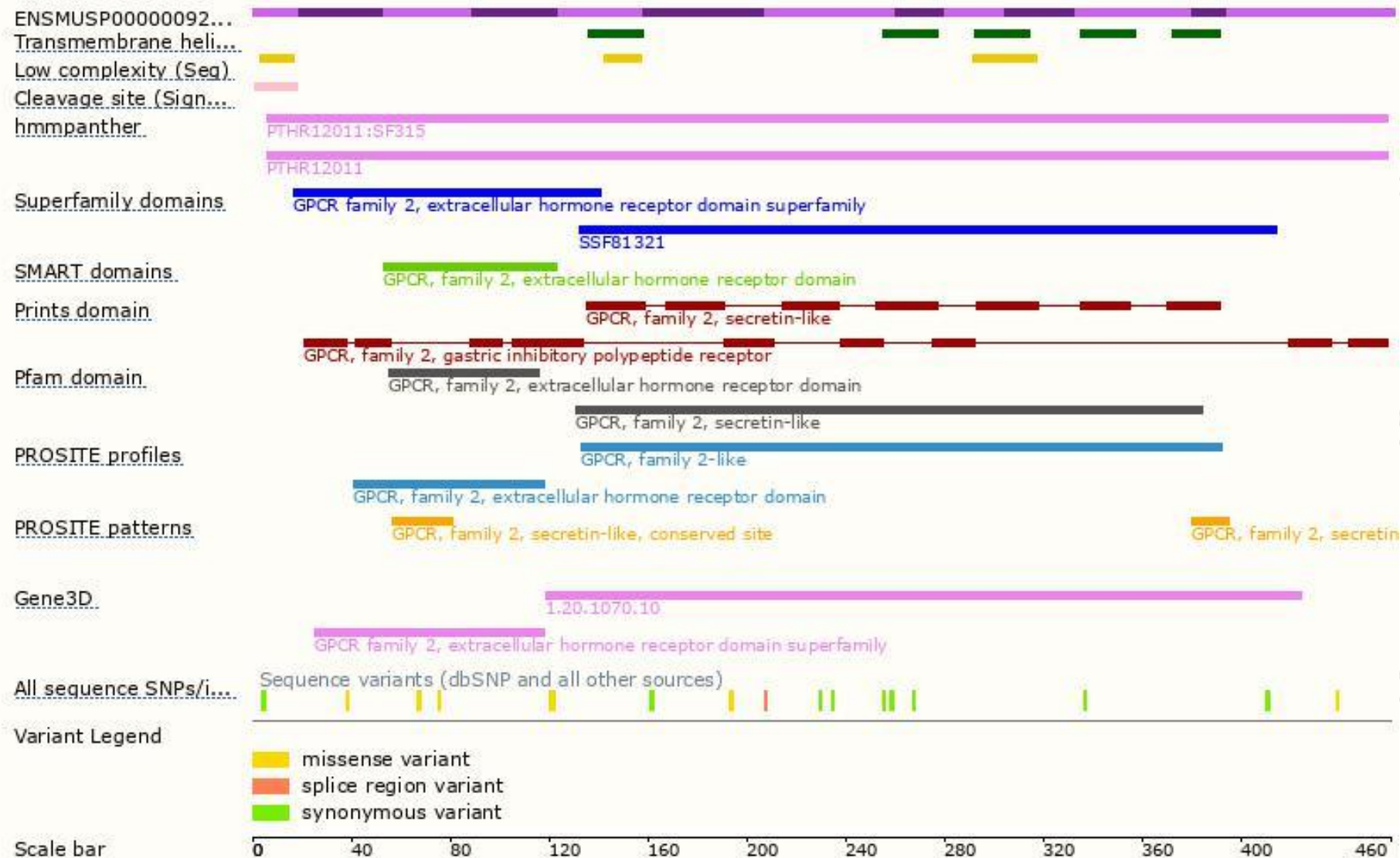
The strategy is based on the design of *Gipr-201* transcript,The transcription is shown below



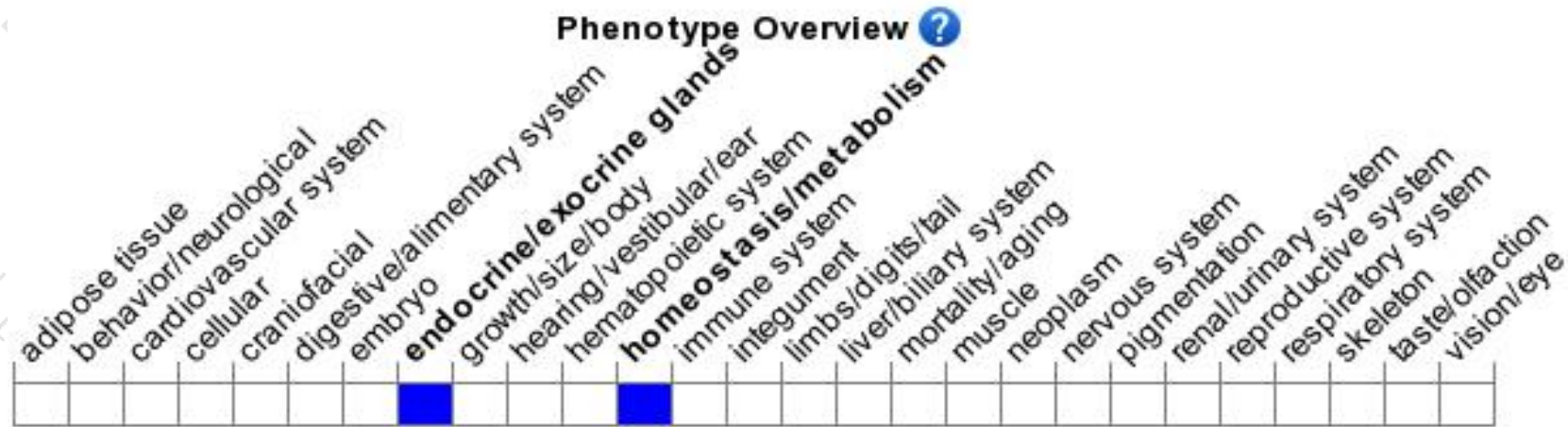
Genomic location distribution



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 inactivation of this gene results in mild glucose intolerance due to impaired glucose-stimulated insulin secretion.

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

Tel: 400-9660890

