Map2k5 Cas9-KO Strategy

Designer: Huan Wang

Reviewer: Huan Fan

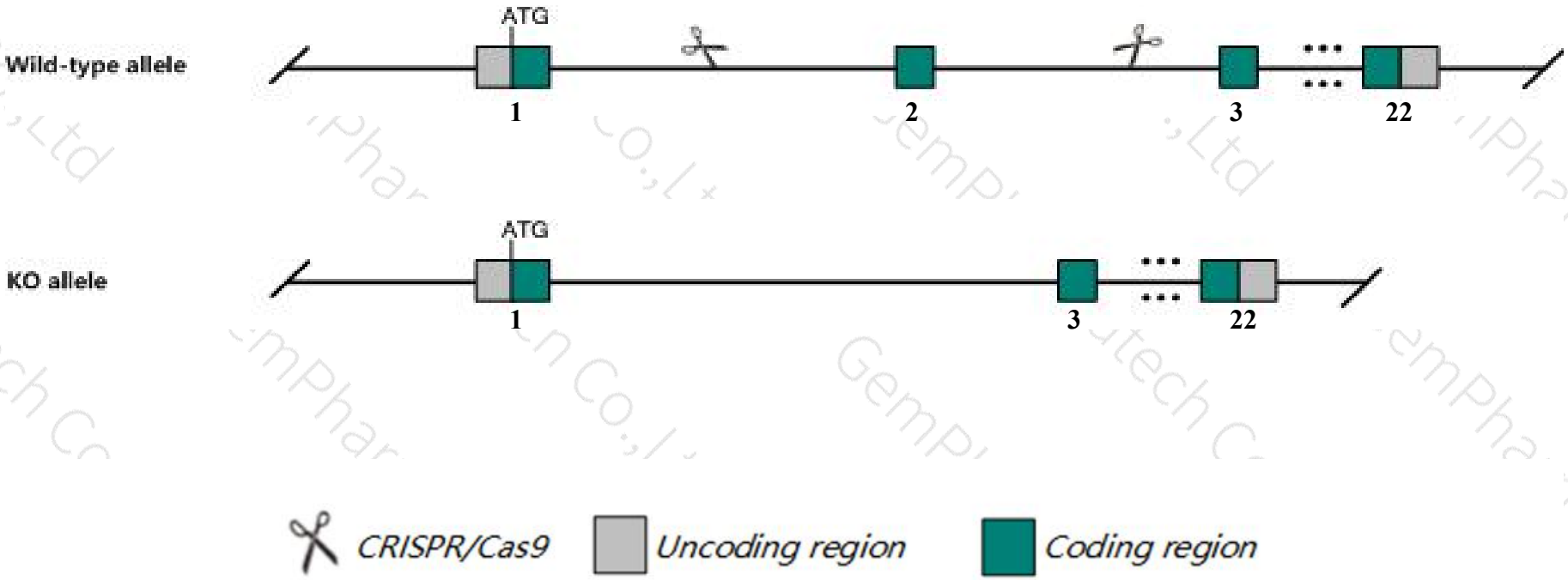
Design Date: 2019-12-17

Project Overview

Project Name	***Map2k5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Map2k5* gene. The schematic diagram is as follows:



Technical routes

➢ The *Map2k5* gene has 3 transcripts. According to the structure of *Map2k5* gene, exon2 of *Map2k5-201* (ENSMUST00000034920.10) transcript is recommended as the knockout region.The region contains 49bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Map2k5* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Homozygous mutants die at E10.5 and exhibit abnormal cardiac development and a decrease in proliferation and an increase in apoptosis in the heart, head, and dorsal regions of the embryo.

- The *Map2k5* gene is located on the Chr9. 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）

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Map2k5 mitogen-activated protein kinase kinase 5 [Mus musculus (house mouse)]

Gene ID: 23938, updated on 31-Jan-2019

Summary

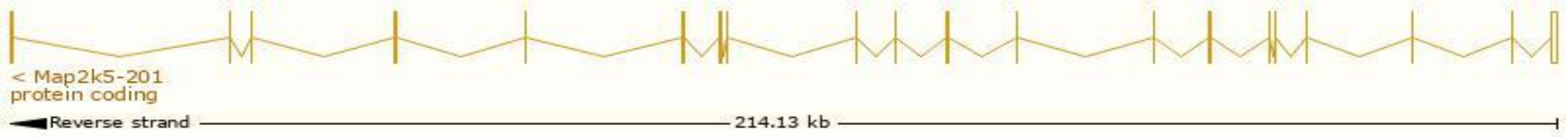
Official Symbol	Map2k5 provided by MGI
Official Full Name	mitogen-activated protein kinase kinase 5 provided by MGI
Primary source	MGI:MGI:1346345
See related	Ensembl:ENSMUSG00000058444
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI324775, AI428457, MEK5, Mapkk5, Prkmk5
Expression	Ubiquitous expression in adrenal adult (RPKM 10.5), thymus adult (RPKM 8.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

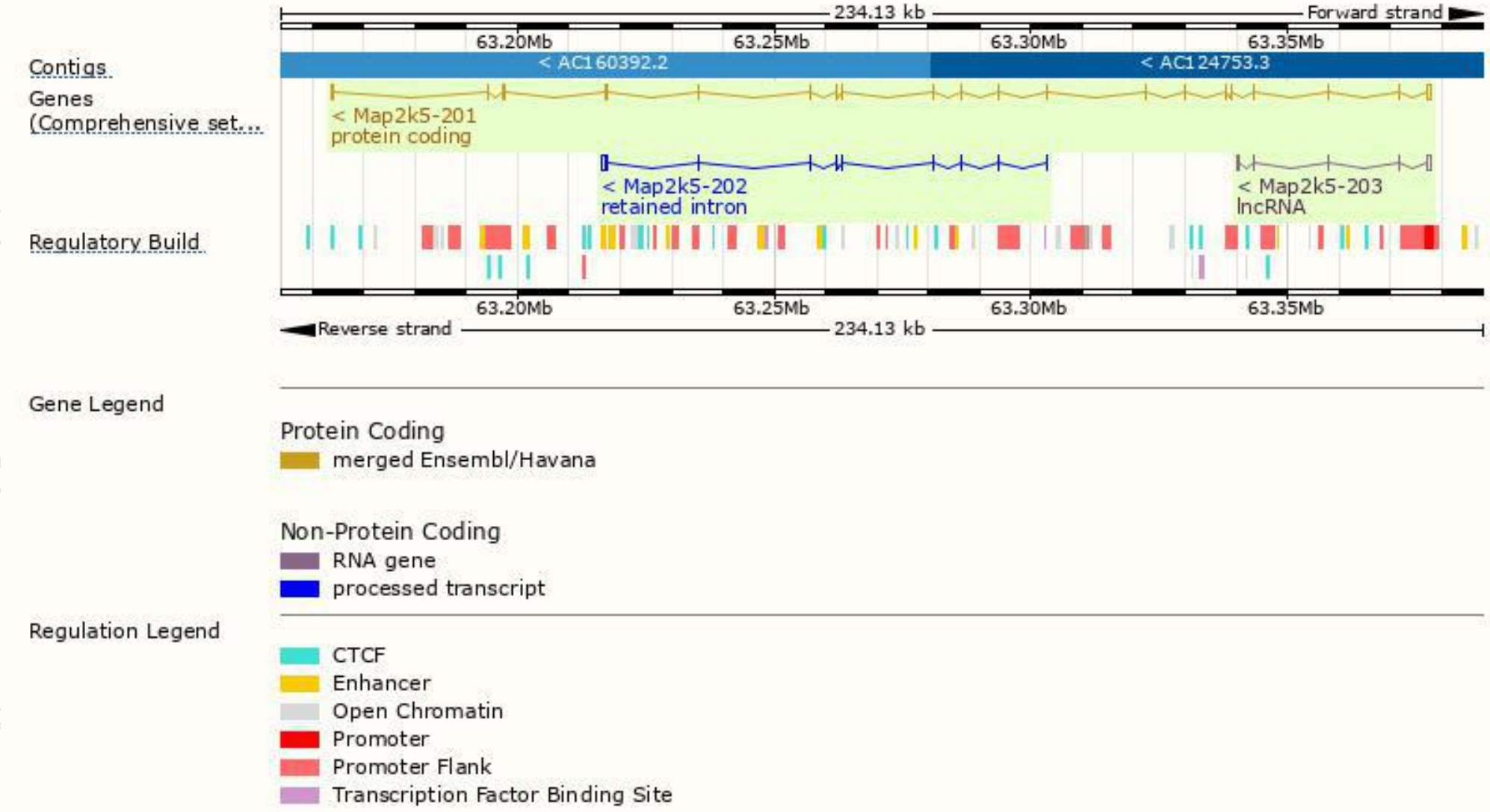
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Map2k5-201	ENSMUST00000034920.10	2310	448aa	Protein coding	CCDS23269	Q9WVS7	TSL:1 GENCODE basic APPRIS P1
Map2k5-202	ENSMUST00000213604.1	1294	No protein	Retained intron	-	-	TSL:1
Map2k5-203	ENSMUST00000216999.1	1150	No protein	lncRNA	-	-	TSL:1

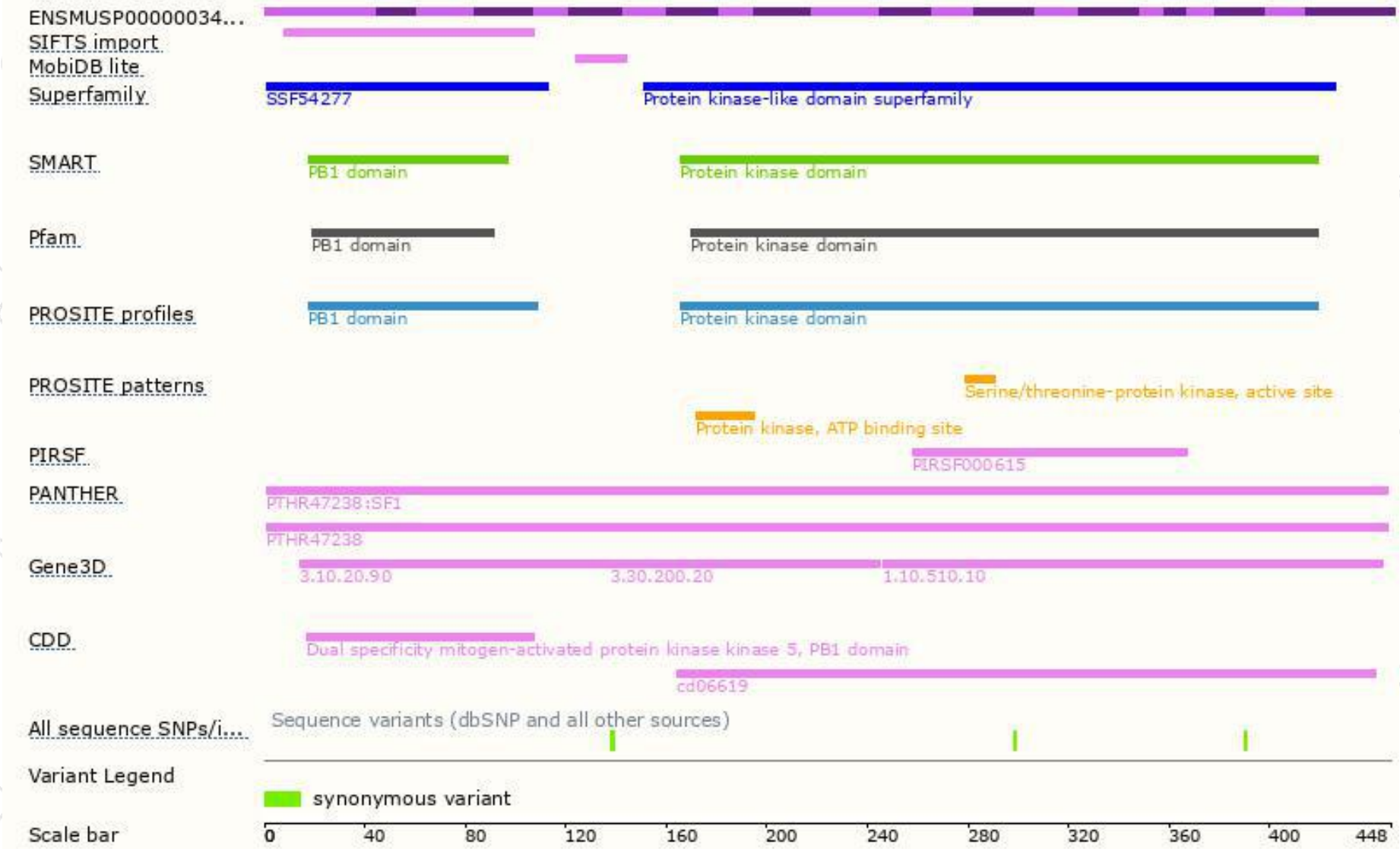
The strategy is based on the design of *Map2k5-201* transcript,The transcription is shown below



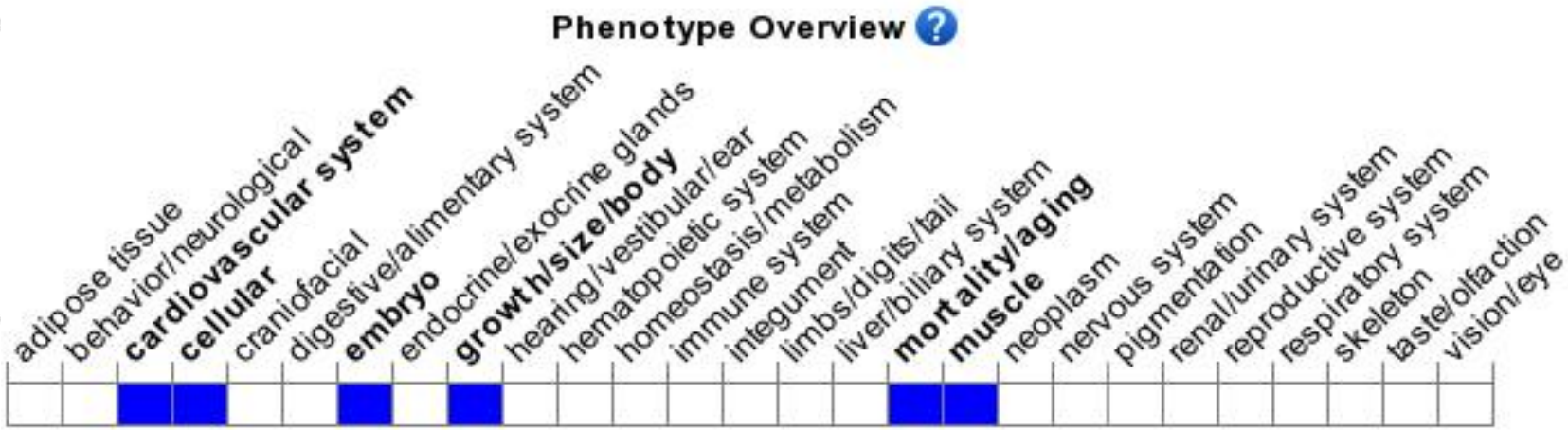
Genomic location distribution



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/).

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

Tel: 400-9660890

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