

Smndc1 Cas9-CKO Strategy

Designer:

Jinling Wang

Design Date:

2019-8-8

Project Overview

Project Name

Smndc1

Project type

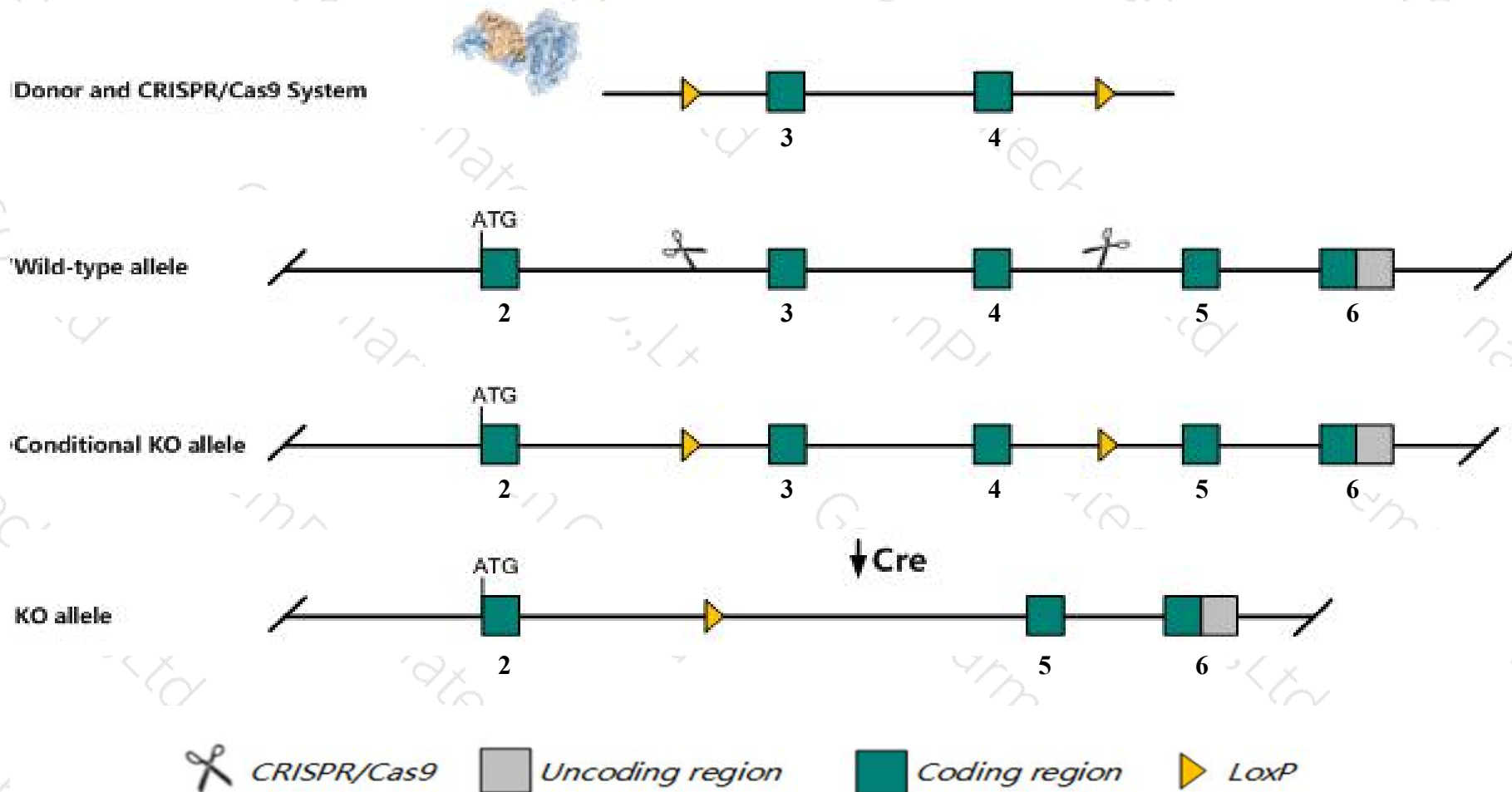
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Smndc1* gene. The schematic diagram is as follows:



Technical routes

- The *Smndc1* gene has 5 transcripts. According to the structure of *Smndc1* gene, exon3-exon4 of *Smndc1*-201 (ENSMUST00000025997.6) transcript is recommended as the knockout region. The region contains 305bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Smndc1* 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.

Notice

- The *Smndc1* gene is located on the Chr19. 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)

Smndc1 survival motor neuron domain containing 1 [Mus musculus (house mouse)]

Gene ID: 76479, updated on 31-Jan-2019

Summary



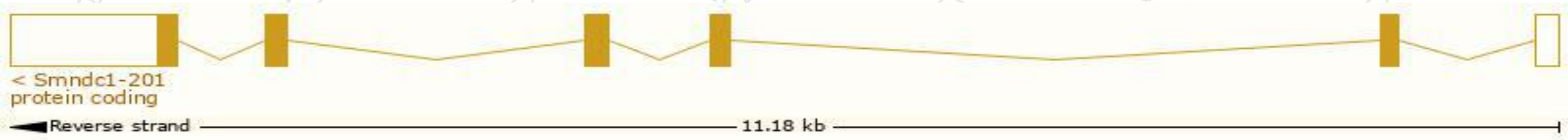
Official Symbol	Smndc1 provided by MGI
Official Full Name	survival motor neuron domain containing 1 provided by MGI
Primary source	MGI:MGI:1923729
See related	Ensembl:ENSMUSG00000025024
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in placenta adult (RPKM 8.0), CNS E11.5 (RPKM 7.7) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

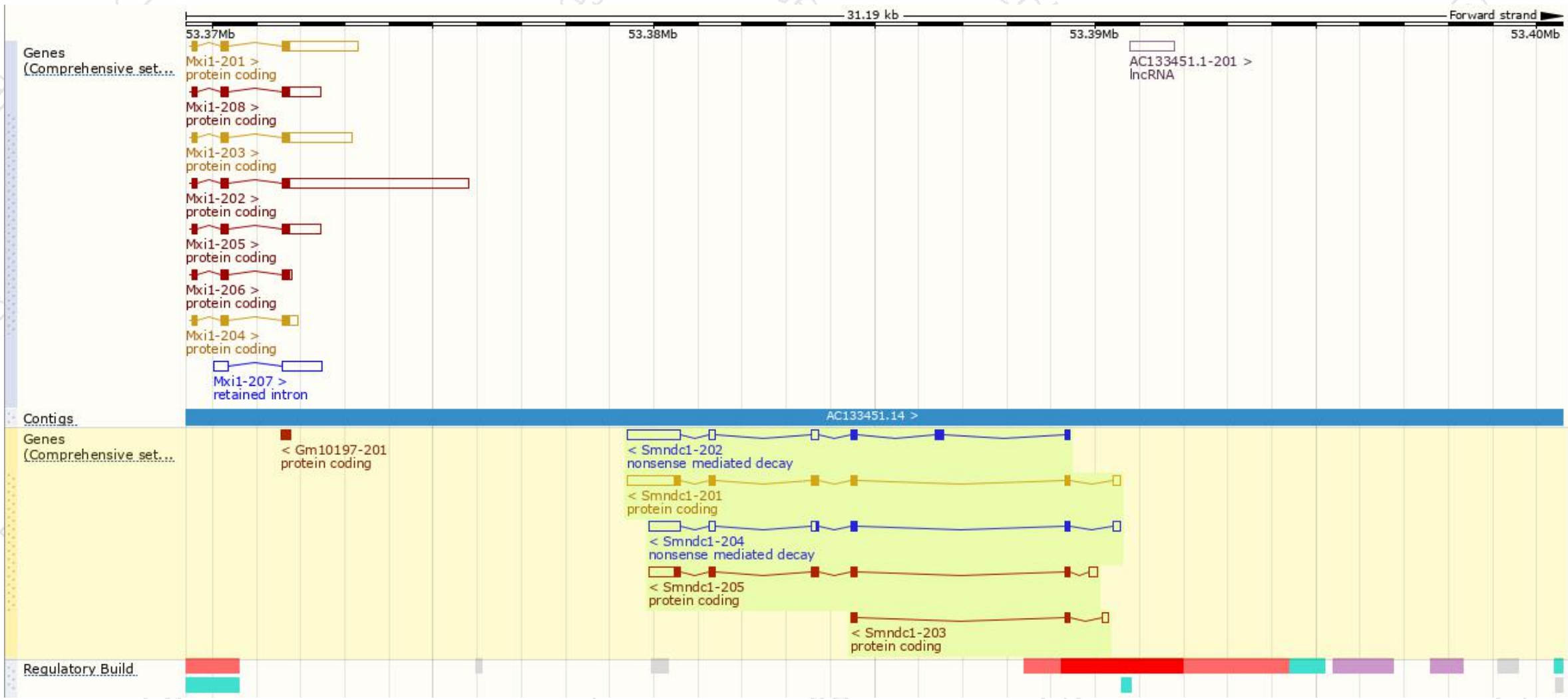
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Smndc1-201	ENSMUST00000025997.6	1948	238aa	Protein coding	CCDS29902	Q8BGT7	TSL:1 GENCODE basic APPRIS P1
Smndc1-205	ENSMUST00000237529.1	1480	238aa	Protein coding	CCDS29902	-	GENCODE basic APPRIS P1
Smndc1-203	ENSMUST00000236245.1	393	83aa	Protein coding	-	-	CDS 3' incomplete
Smndc1-202	ENSMUST00000235830.1	1992	145aa	Nonsense mediated decay	-	-	
Smndc1-204	ENSMUST00000236962.1	1478	102aa	Nonsense mediated decay	-	-	

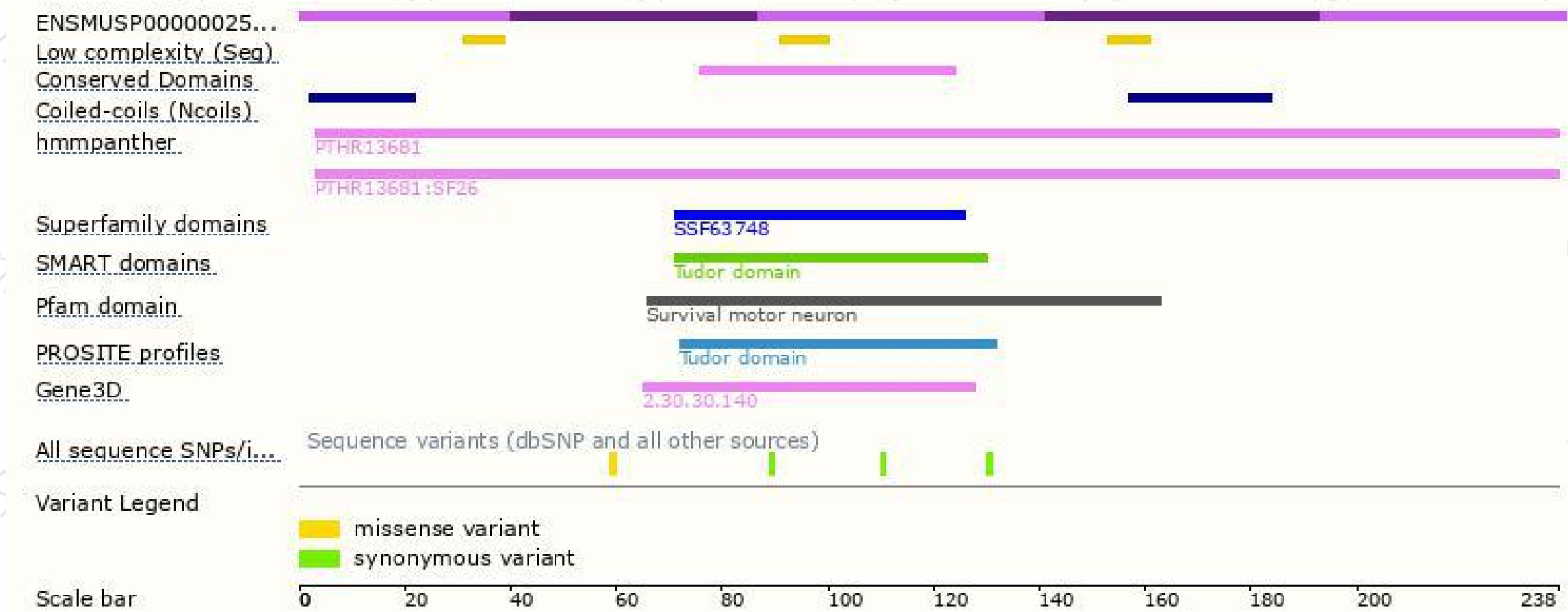
The strategy is based on the design of *Smndc1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

