

# ***Rhpn1*** Cas9-KO Strategy

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# Project Overview

**Project Name**

***Rhpn1***

**Project type**

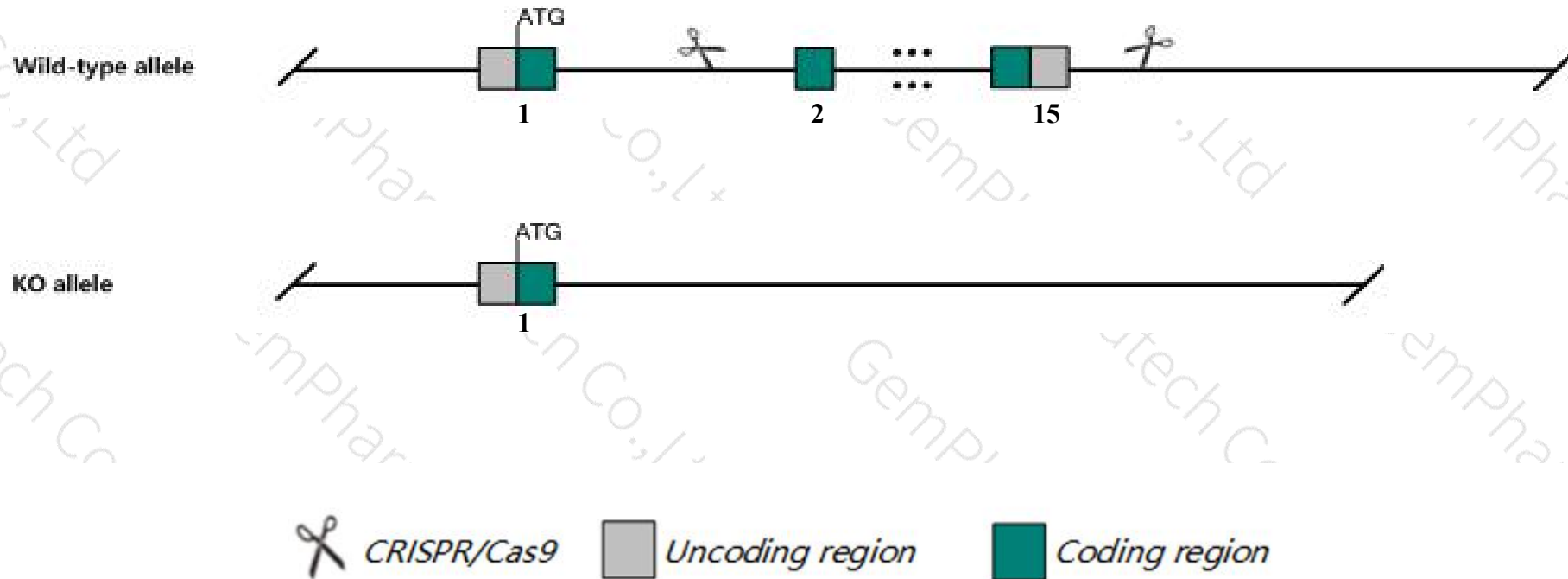
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rhpn1* gene. The schematic diagram is as follows:



- The *Rhpn1* gene has 8 transcripts. According to the structure of *Rhpn1* gene, exon2-exon15 of *Rhpn1-202* (ENSMUST00000121137.8) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rhpn1* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Rhpn1* gene is located on the Chr15. 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)



## Rhpn1 rophilin, Rho GTPase binding protein 1 [ *Mus musculus* (house mouse) ]

Gene ID: 14787, updated on 12-Aug-2019

Summary

- Official Symbol

Rhpn1 provided by MGI
- Official Full Name

rophilin, Rho GTPase binding protein 1 provided by MGI
- Primary source

MGI:MGI:1098783
- See related

Ensembl:ENSMUSG00000022580
- 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

Grbp; BB023497; Rophilin; mKIAA1929
- Expression

Biased expression in genital fat pad adult (RPKM 16.0), kidney adult (RPKM 15.8) and 13 other tissues See more
- Orthologs

human all

Genomic context

Location:

15; 15 D3

See Rhpn1 in [Genome Data Viewer](#)

Exon count:

15

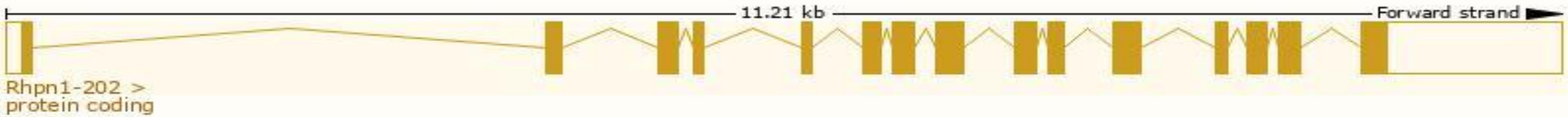
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	15	NC_000081.6 (75704246..75714419)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	15	NC_000081.5 (75534718..75544849)

# Transcript information (Ensembl)

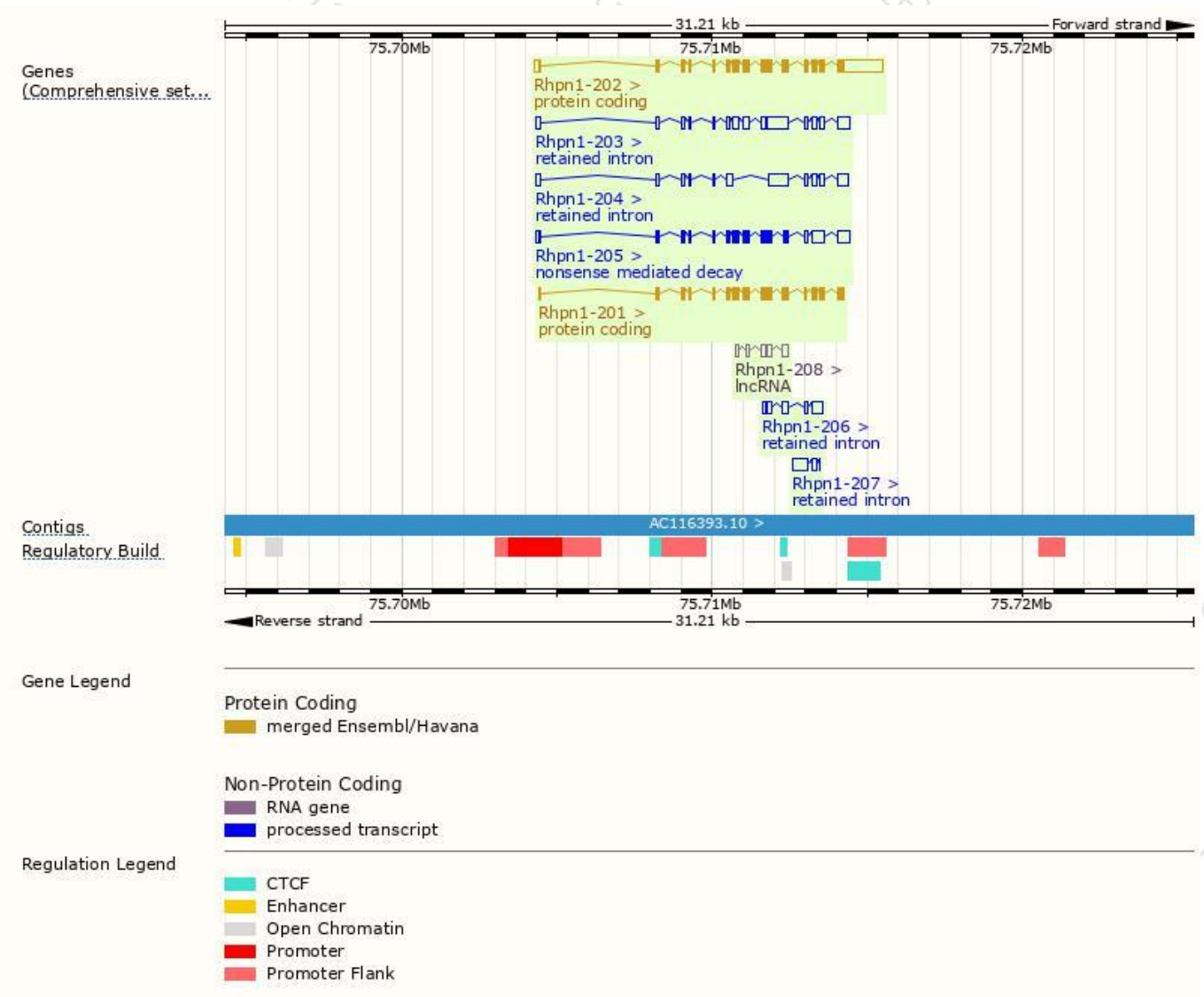
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rhpn1-202	<a href="#">ENSMUST00000121137.8</a>	3360	<a href="#">661aa</a>	Protein coding	<a href="#">CCDS49641</a>	<a href="#">E9Q7Q7</a>	TSL:1 GENCODE basic APPRIS ALT2
Rhpn1-201	<a href="#">ENSMUST00000023244.5</a>	1932	<a href="#">643aa</a>	Protein coding	<a href="#">CCDS27548</a>	<a href="#">Q61085</a>	TSL:1 GENCODE basic APPRIS P3
Rhpn1-205	<a href="#">ENSMUST00000149407.7</a>	2283	<a href="#">451aa</a>	Nonsense mediated decay	-	<a href="#">Q80WU2</a>	TSL:2
Rhpn1-203	<a href="#">ENSMUST00000124749.7</a>	2605	No protein	Retained intron	-	-	TSL:1
Rhpn1-204	<a href="#">ENSMUST00000143056.7</a>	2146	No protein	Retained intron	-	-	TSL:1
Rhpn1-206	<a href="#">ENSMUST00000229182.1</a>	827	No protein	Retained intron	-	-	
Rhpn1-207	<a href="#">ENSMUST00000229670.1</a>	663	No protein	Retained intron	-	-	
Rhpn1-208	<a href="#">ENSMUST00000229843.1</a>	665	No protein	lncRNA	-	-	

The strategy is based on the design of *Rhpn1-202* transcript,The transcription is shown below



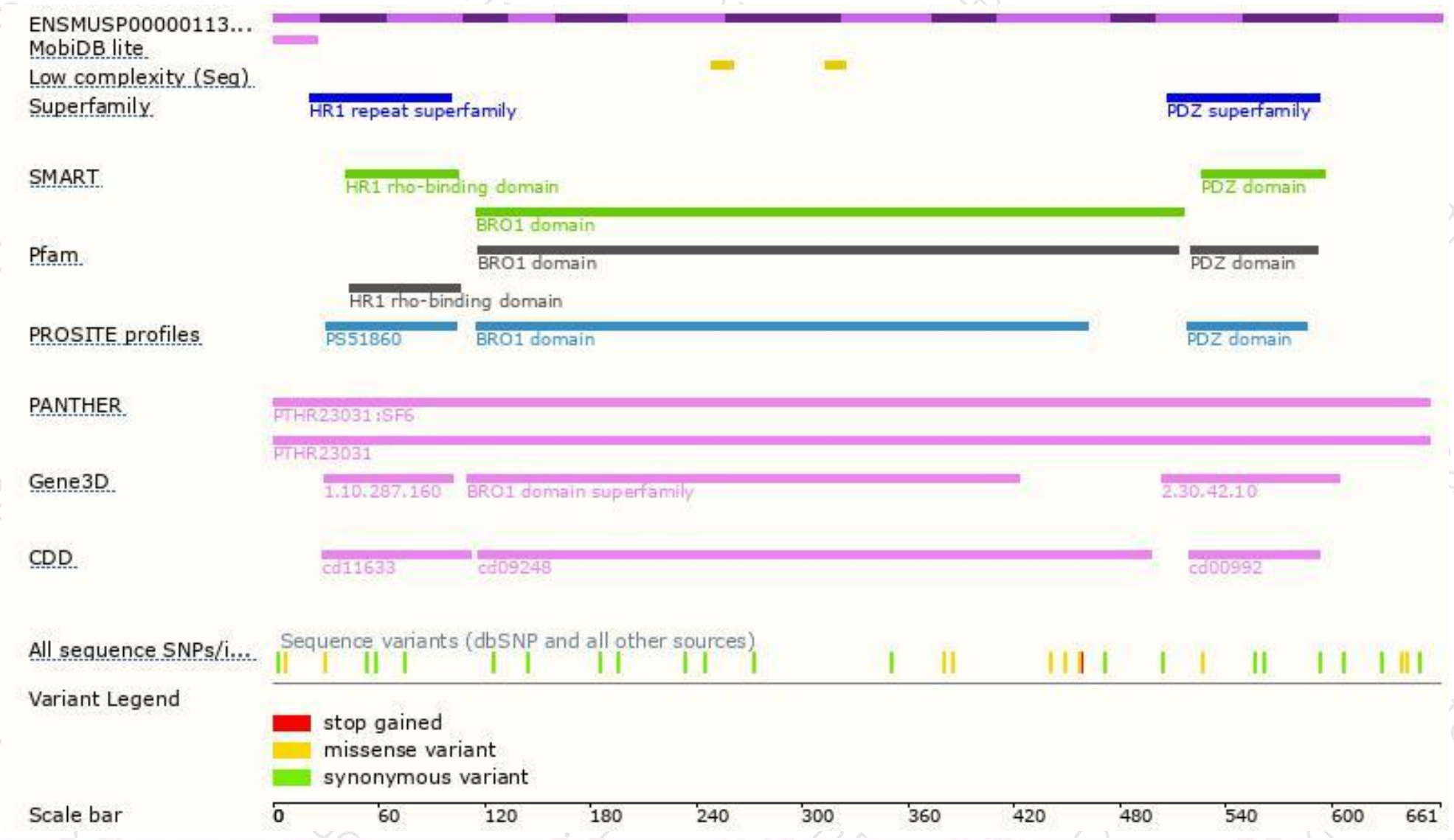
# Genomic location distribution



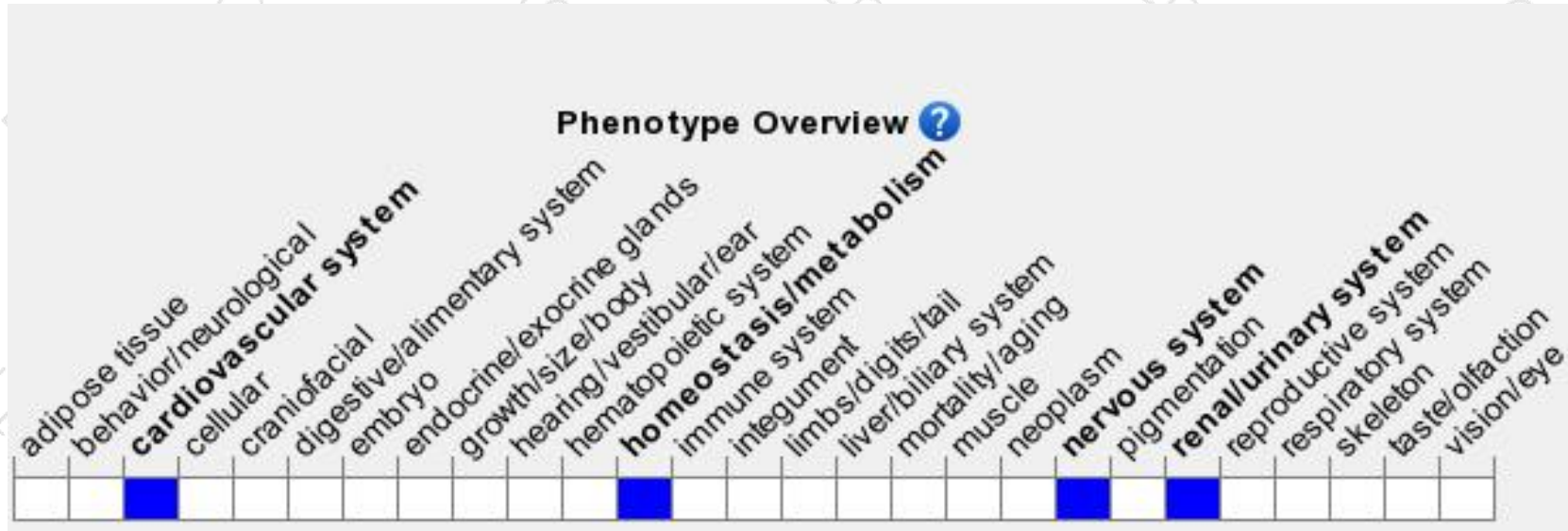
# Protein domain



集萃药康  
GemPharmatech



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

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

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