

# *Htr2a* Cas9-KO Strategy

**Designer:**

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**Design Date:**

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# Project Overview

**Project Name**

*Htr2a*

**Project type**

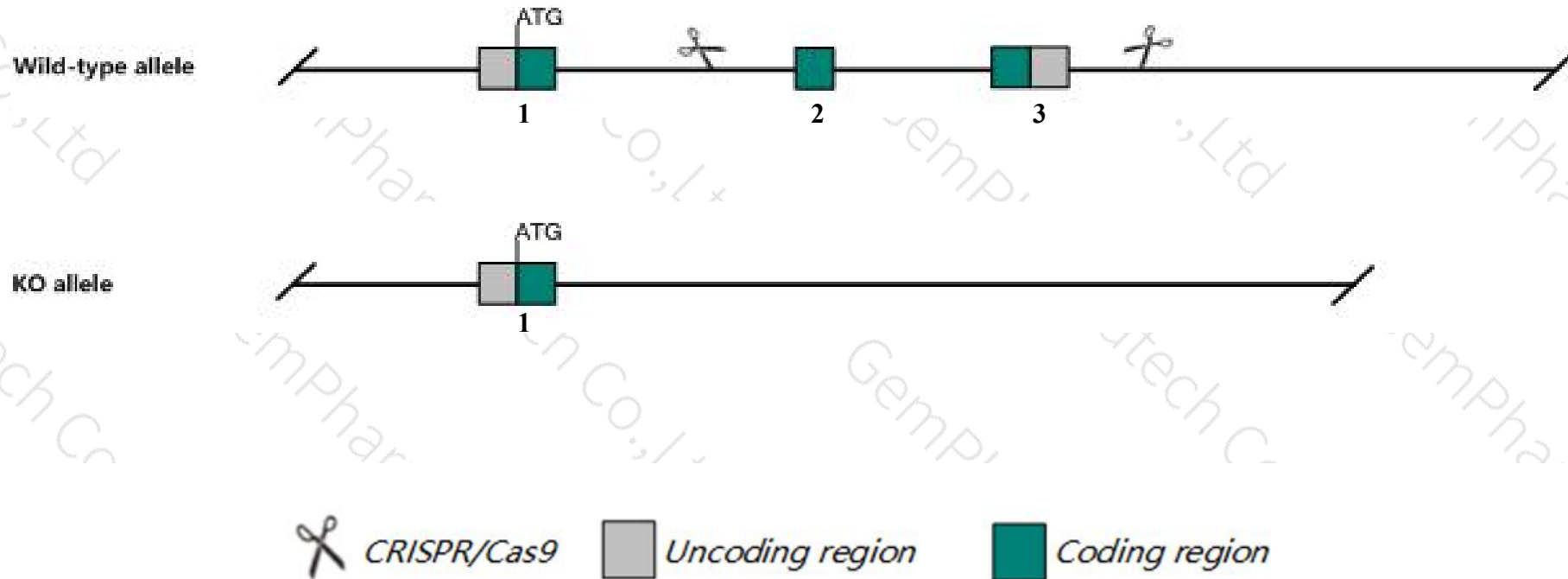
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Htr2a* gene. The schematic diagram is as follows:



- The *Htr2a* gene has 1 transcript. According to the structure of *Htr2a* gene, exon2-exon3 of *Htr2a-201* (ENSMUST00000036653.4) transcript is recommended as the knockout region. The region contains 1004bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Htr2a* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele show altered anxiety-related responses and increased vertical activity. Mice homozygous for a different knock-out allele exhibit abnormal enterocyte, Paneth cell and smooth muscle morphology.
- The *Htr2a* gene is located on the Chr14. 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)

## Htr2a 5-hydroxytryptamine (serotonin) receptor 2A [Mus musculus (house mouse)]

Gene ID: 15558, updated on 5-Mar-2019

### Summary



<b>Official Symbol</b>	Htr2a provided by <a href="#">MGI</a>
<b>Official Full Name</b>	5-hydroxytryptamine (serotonin) receptor 2A provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:109521</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG000000034997</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	5-HT-2, 5-HT-2A, E030013E04, Htr-2, Htr2
<b>Expression</b>	Biased expression in frontal lobe adult (RPKM 3.5), cortex adult (RPKM 2.6) and 13 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

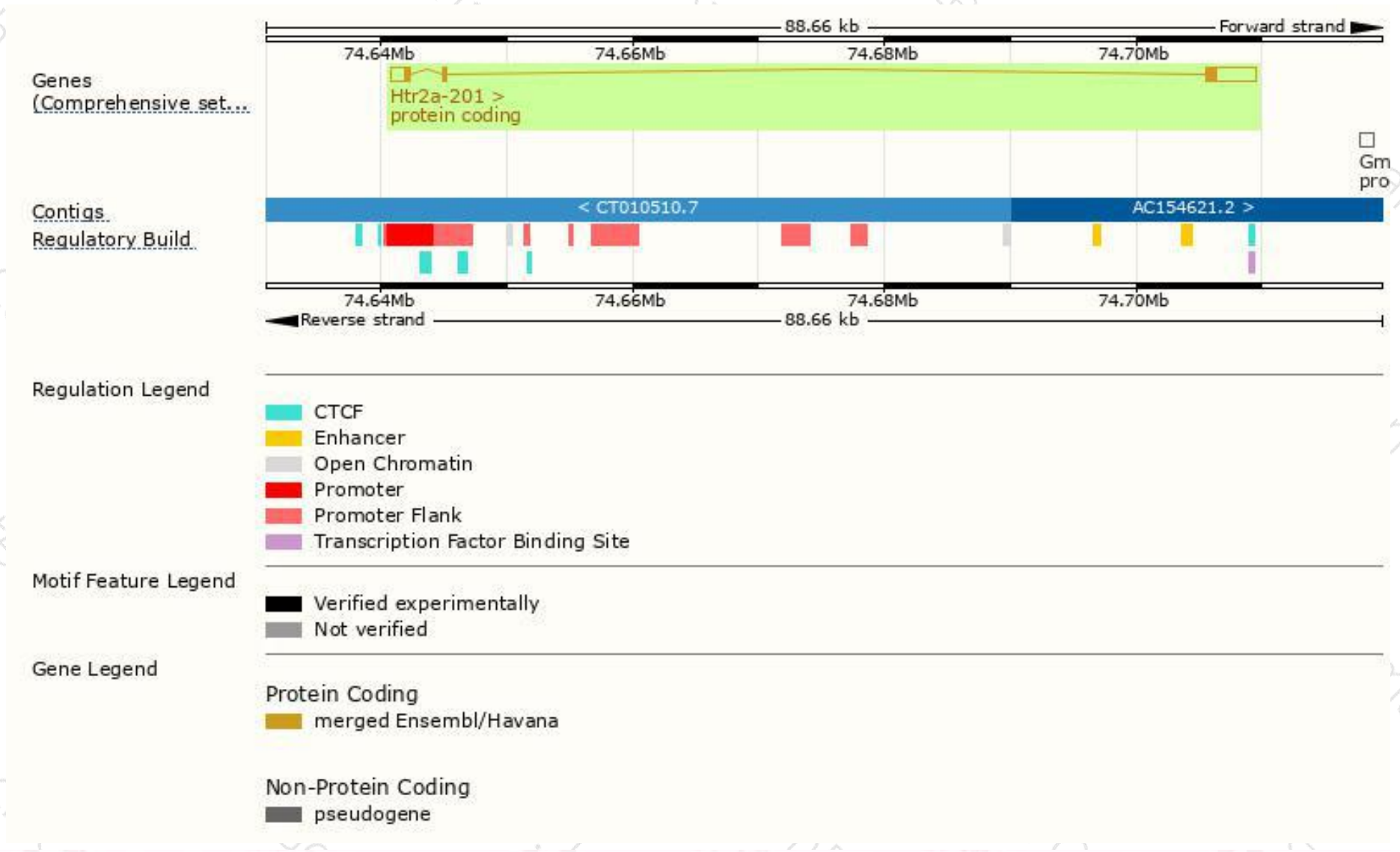
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Htr2a-201	<a href="#">ENSMUST00000036653.4</a>	5606	<a href="#">471aa</a>	Protein coding	<a href="#">CCDS27275</a>	<a href="#">P35363 Q543D4</a>	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Htr2a-201* transcript, The transcription is shown below

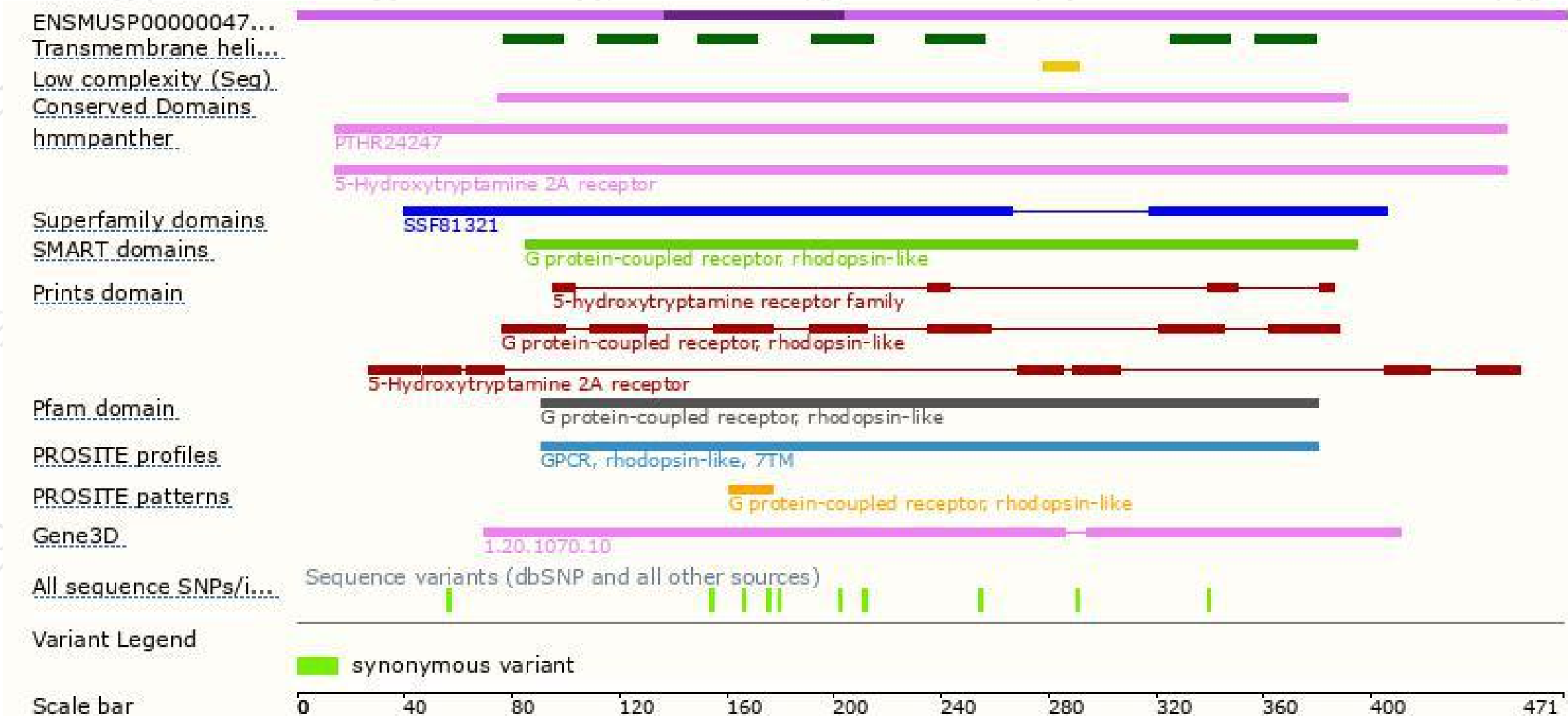


# Genomic location distribution

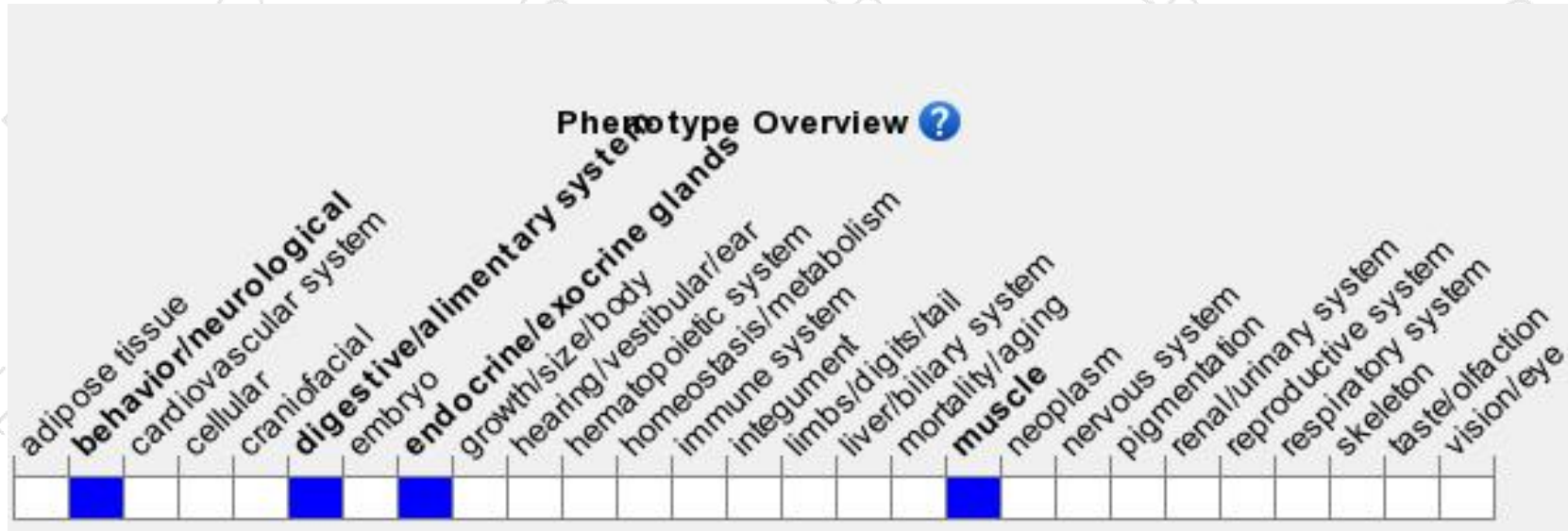




# Protein domain



# 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, Mice homozygous for a knock-out allele show altered anxiety-related responses and increased vertical activity. Mice homozygous for a different knock-out allele exhibit abnormal enterocyte, Paneth cell and smooth muscle morphology.

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

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