Trpc4 Cas9-KO Strategy

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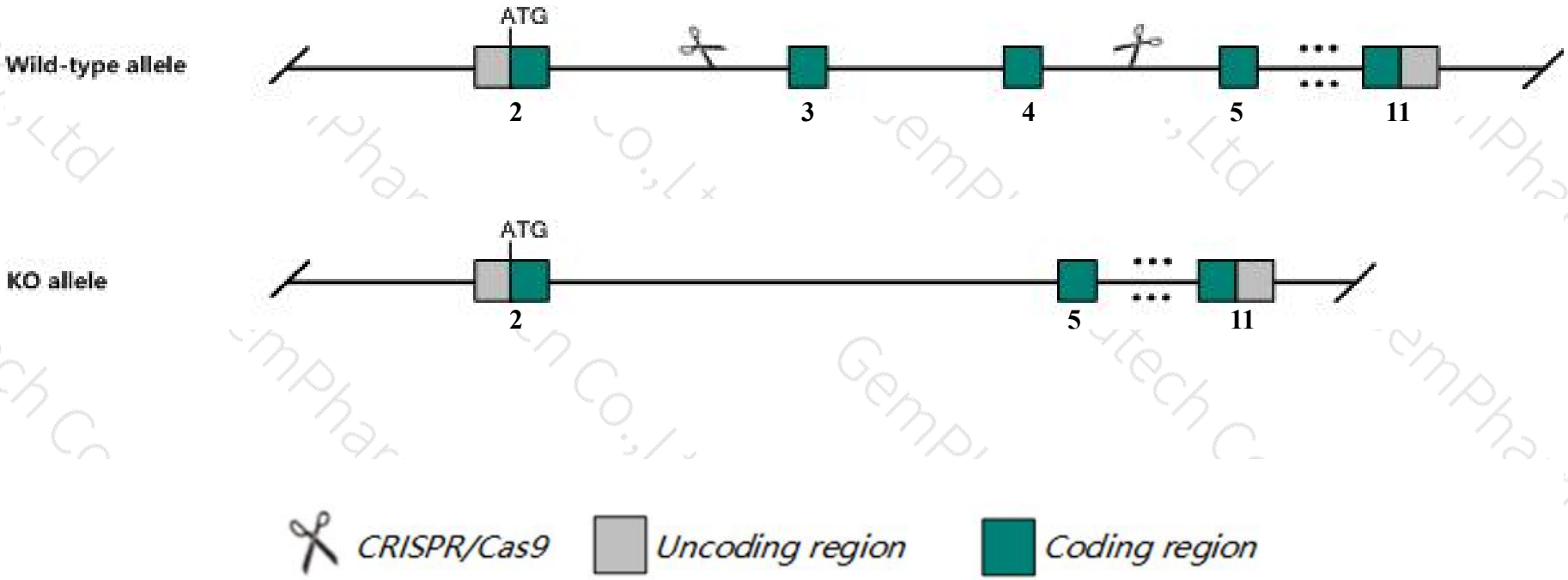
Project Overview

Project Name	***Trpc4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trpc4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Trpc4* gene has 6 transcripts. According to the structure of *Trpc4* gene, exon3-exon4 of *Trpc4-201* (ENSMUST00000029311.10) transcript is recommended as the knockout region.The region contains 856bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Trpc4* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Homozygous null mice exhibit a significant reduction in agonist-induced Ca2+ entry and vasorelaxation of aortic rings.

- The *Trpc4* gene is located on the Chr3. 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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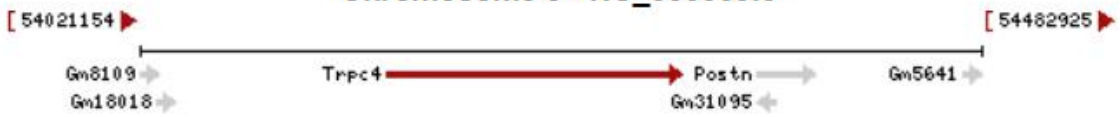
Trpc4 transient receptor potential cation channel, subfamily C, member 4 [*Mus musculus* (house mouse)]

Gene ID: 22066, updated on 12-Oct-2019

Summary

Official Symbol	Trpc4 provided by MGI
Official Full Name	transient receptor potential cation channel, subfamily C, member 4 provided by MGI
Primary source	MGI:MGI:109525
See related	Ensembl:ENSMUSG00000027748
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	CCE1; Trp4; Trrp4; STRPC4
Expression	Biased expression in frontal lobe adult (RPKM 2.6), CNS E18 (RPKM 2.6) and 10 other tissues See more
Orthologs	human all

Chromosome 3 - NC_000069.6

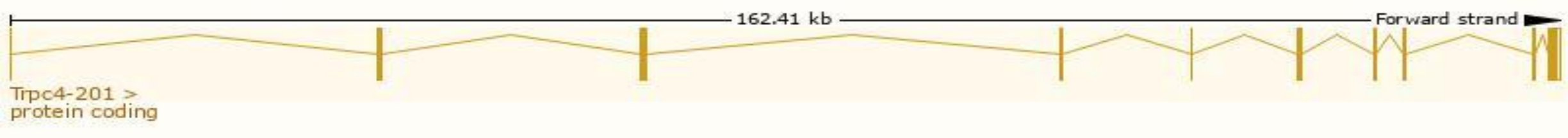


Transcript information（Ensembl）

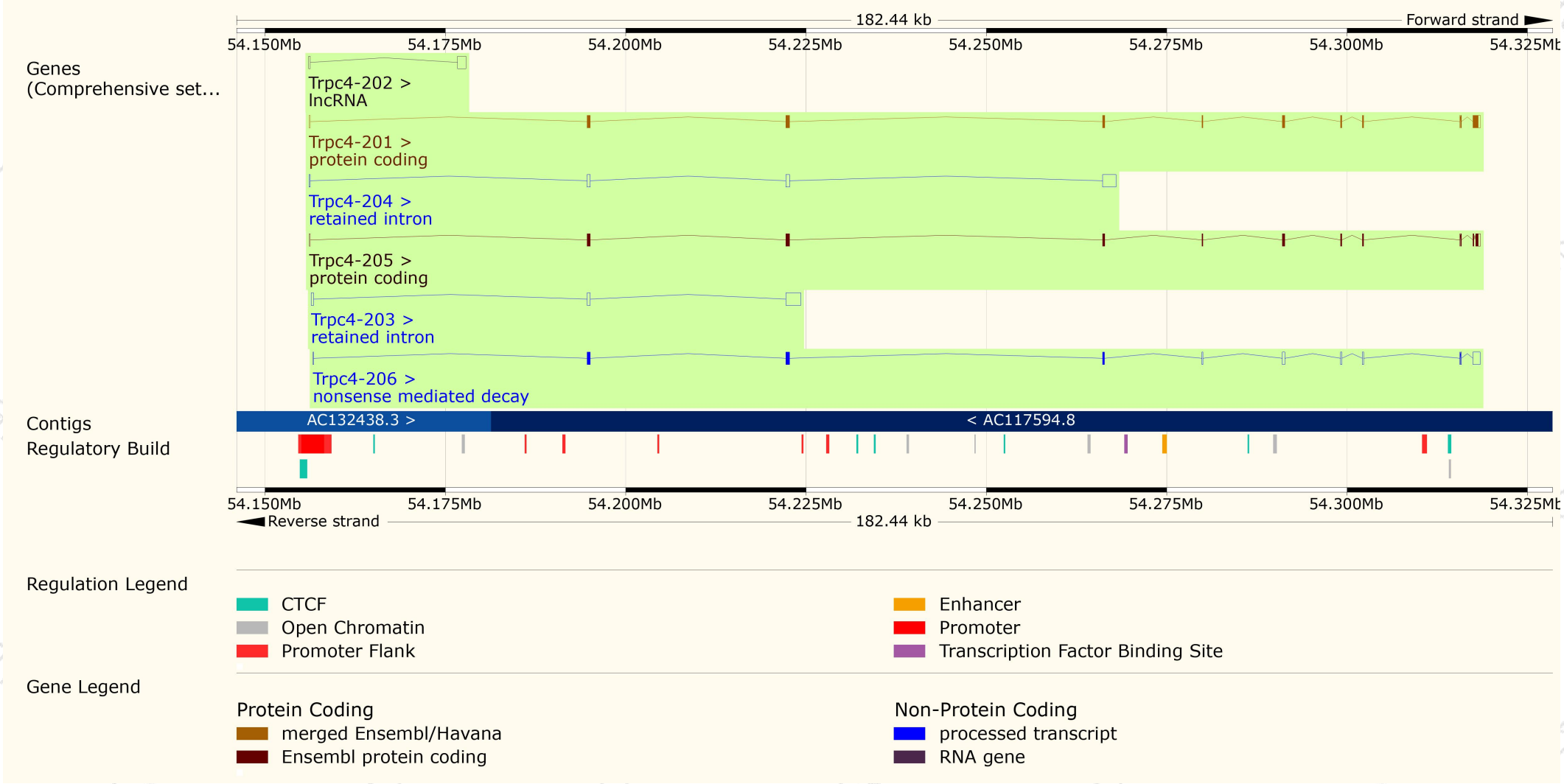
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Trpc4-201	ENSMUST00000029311.10	3473	974aa	ENSMUSP00000029311.6	Protein coding	CCDS17350	Q0VB97 Q9QUQ5	TSL:1 GENCODE basic APPRIS P3
Trpc4-205	ENSMUST00000200048.4	3170	890aa	ENSMUSP00000143593.1	Protein coding	CCDS79904	Q9QUQ5	TSL:1 GENCODE basic APPRIS ALT2
Trpc4-206	ENSMUST00000200341.1	3257	400aa	ENSMUSP00000142921.1	Nonsense mediated decay	-	A0A0G2JEV6	TSL:1
Trpc4-204	ENSMUST00000199399.4	2977	No protein	-	Retained intron	-	-	TSL:1
Trpc4-203	ENSMUST00000199359.1	2790	No protein	-	Retained intron	-	-	TSL:1
Trpc4-202	ENSMUST00000198444.1	1380	No protein	-	lncRNA	-	-	TSL:1

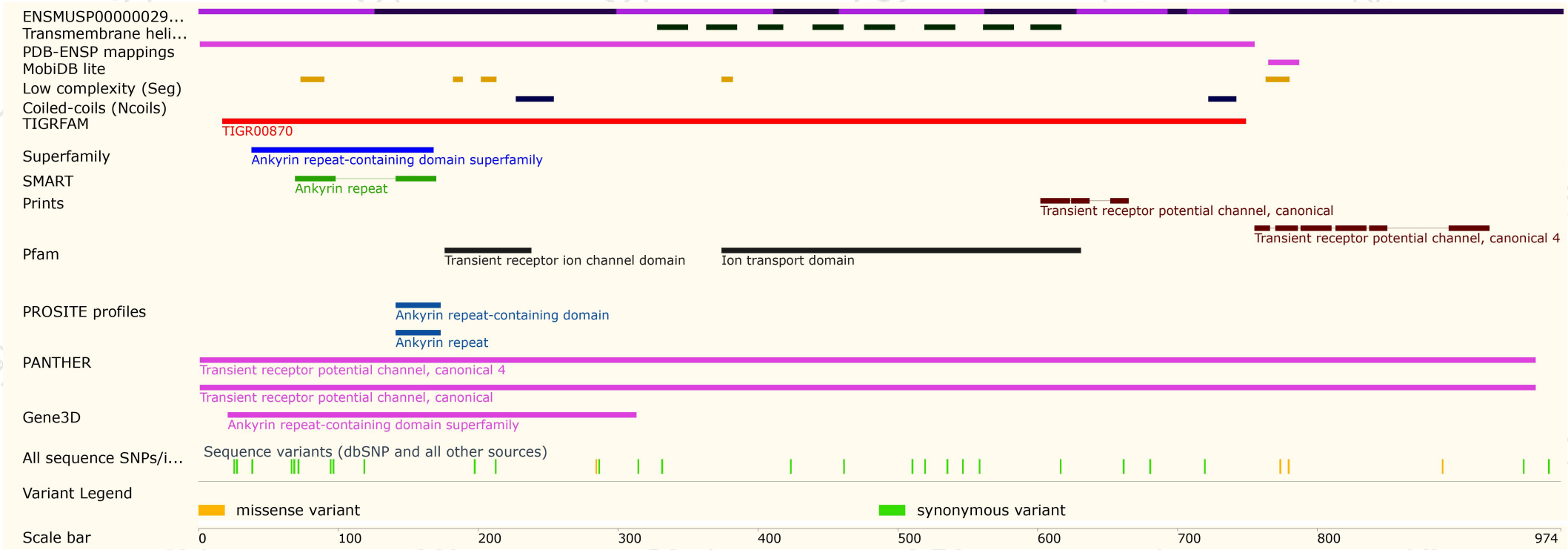
The strategy is based on the design of *Trpc4-201* transcript,The transcription is shown below



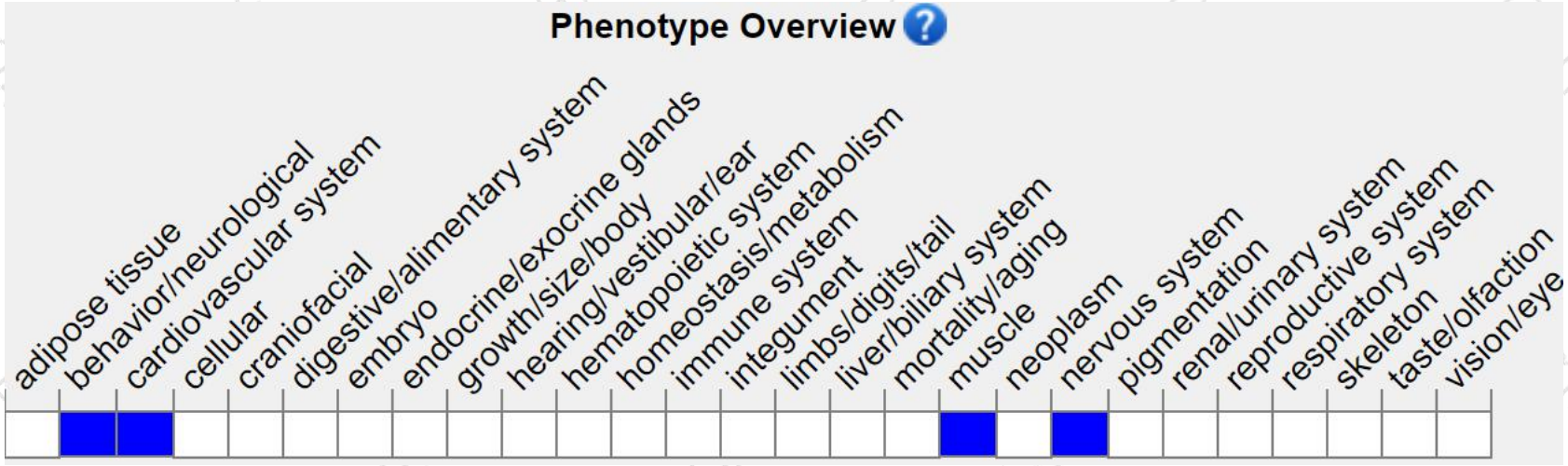
Genomic location distribution



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 null mice exhibit a significant reduction in agonist-induced Ca2+ entry and vasorelaxation of aortic rings.

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

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