

***Guca2a* Cas9-KO Strategy**

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Project Overview

Project Name

Guca2a

Project type

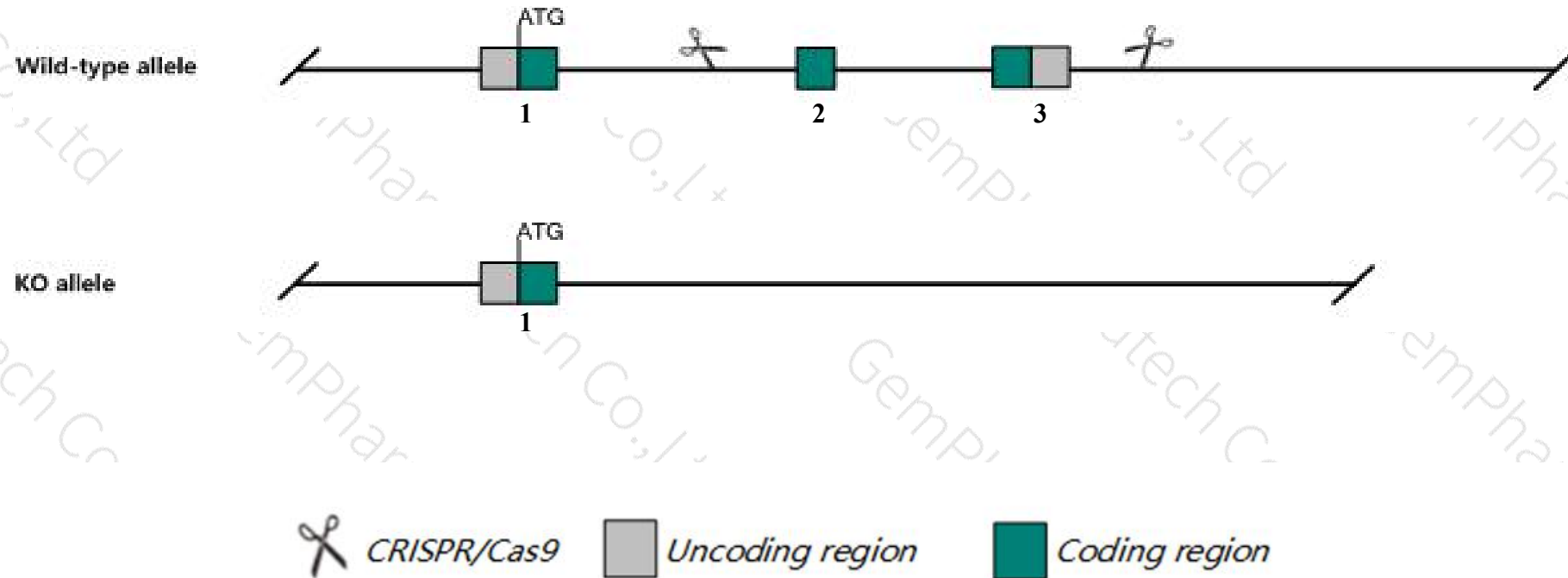
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Guca2a* gene. The schematic diagram is as follows:



- The *Guca2a* gene has 1 transcript. According to the structure of *Guca2a* gene, exon2-exon3 of *Guca2a-201* (ENSMUST00000024015.2) 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 *Guca2a* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutation of this gene results in increased proliferation and migration rate of colonic epithelia.
- The *Guca2a* gene is located on the Chr4. 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)

Guca2a guanylate cyclase activator 2a (guanylin) [*Mus musculus* (house mouse)]

Gene ID: 14915, updated on 12-Aug-2019

Summary

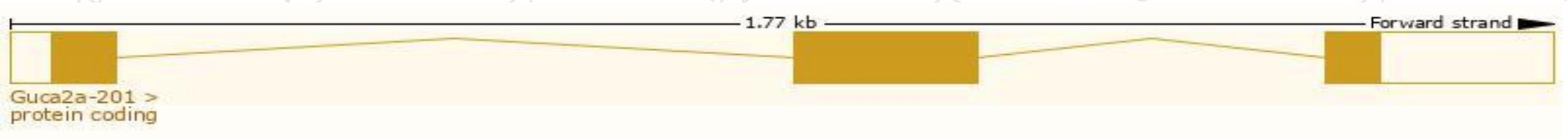
Official Symbol	Guca2a provided by MGI
Official Full Name	guanylate cyclase activator 2a (guanylin) provided by MGI
Primary source	MGI:MGI:102738
See related	Ensembl:ENSMUSG00000023247
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Guca2
Expression	Biased expression in colon adult (RPKM 1725.5), large intestine adult (RPKM 563.5) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

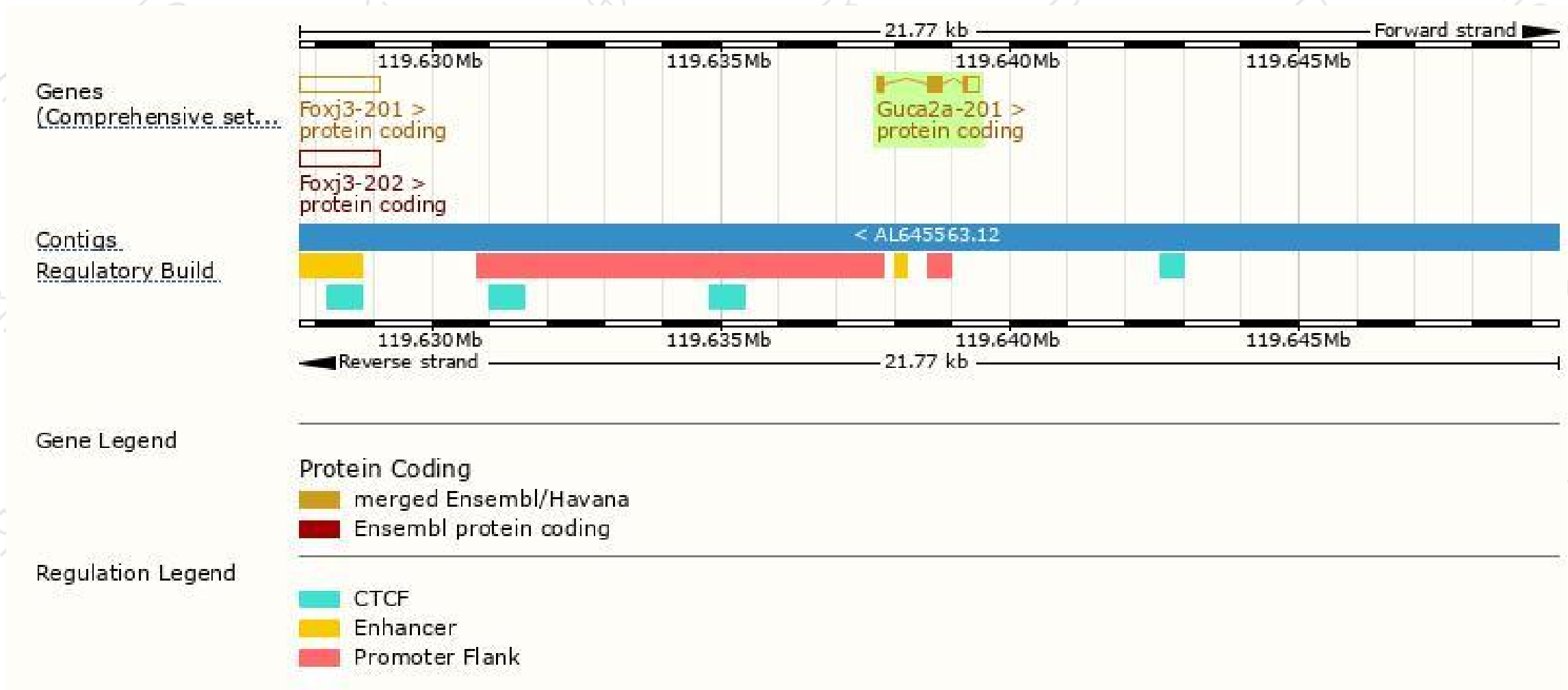
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Guca2a-201	ENSMUST00000024015.2	594	116aa	Protein coding	CCDS18586	P33680	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Guca2a-201* transcript, The transcription is shown below



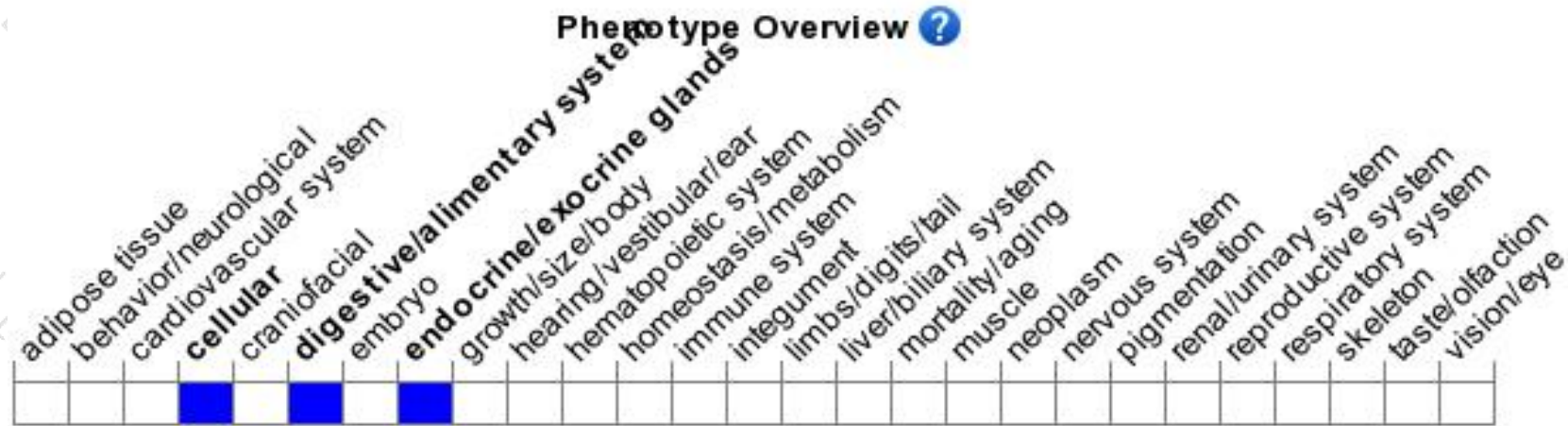
Genomic location distribution



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 mutation of this gene results in increased proliferation and migration rate of colonic epithelia.

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

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