

Cdh5 Cas9-KO Strategy

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Project Overview



Project Name

Cdh5

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdh5* gene. The schematic diagram is as follows:



- The *Cdh5* gene has 2 transcripts. According to the structure of *Cdh5* gene, exon3-exon4 of *Cdh5-201* (ENSMUST00000034339.9) transcript is recommended as the knockout region. The region contains 406bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdh5* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous inactivation or cytosolic truncation of this gene causes embryonic growth retardation, abnormal somite and heart development, impaired remodeling and maturation of endothelial cells, increased endothelial apoptosis and severe vascular defects leading to embryonic death at midgestation.
- The *Cdh5* gene is located on the Chr8. 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)

Cdh5 cadherin 5 [Mus musculus (house mouse)]

Gene ID: 12562, updated on 19-Mar-2019

Summary



Official Symbol	Cdh5 provided by MGI
Official Full Name	cadherin 5 provided by MGI
Primary source	MGI:MGI:105057
See related	Ensembl:ENSMUSG00000031871
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	7B4, AA408225, Cd144, VE-Cad, VECD, VEcad, Vec
Summary	This gene encodes a member of the cadherin family of calcium-dependent glycoproteins that mediate cell adhesion and regulate many morphogenetic events during development. The encoded preproprotein is further processed to generate a mature protein. Mice lacking the encoded protein die in utero due to vascular insufficiency, caused by increased endothelial apoptosis. Multiple distinct genes of the cadherin family, including this gene, are found on chromosome 8. [provided by RefSeq, Oct 2015]
Expression	Biased expression in lung adult (RPKM 243.6), subcutaneous fat pad adult (RPKM 72.5) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

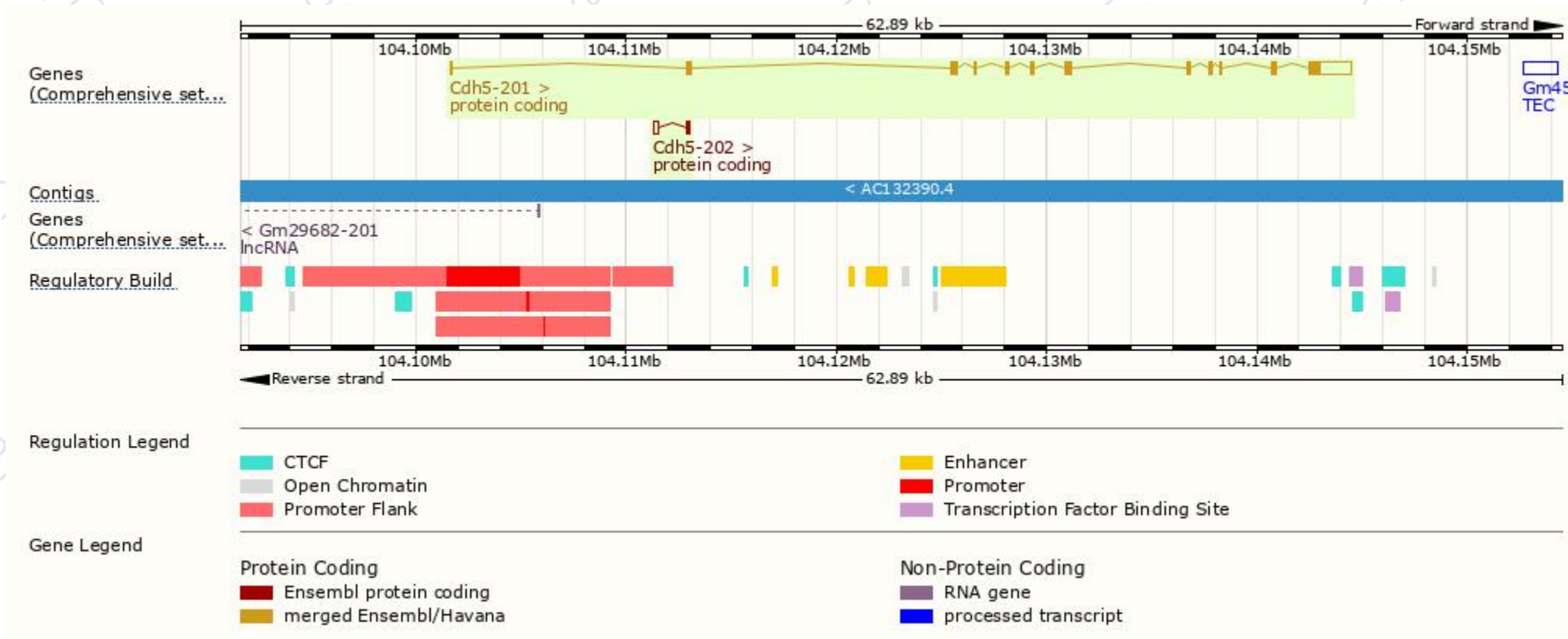
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdh5-201	ENSMUST00000034339.9	3995	784aa	Protein coding	CCDS22572	P55284	TSL:1 Gencode basic APPRIS P1
Cdh5-202	ENSMUST00000209911.1	346	39aa	Protein coding	-	A0A1B0GQW9	CDS 3' incomplete TSL:3

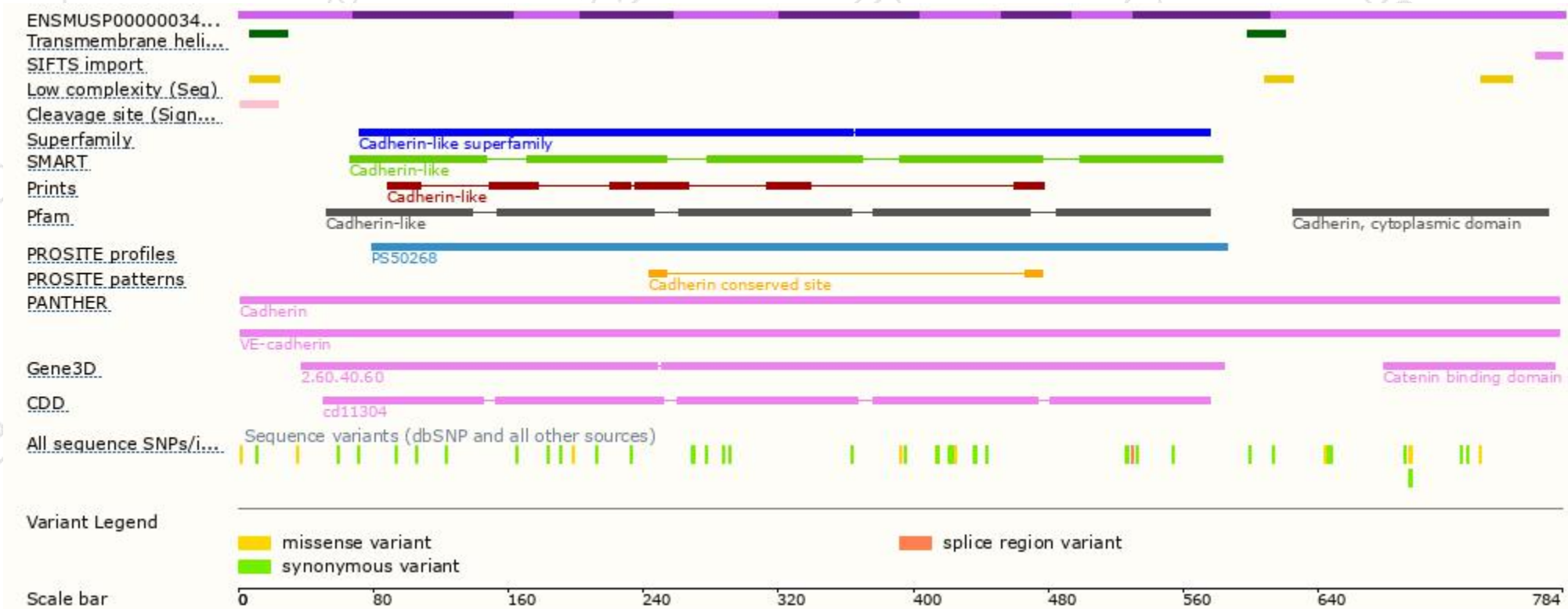
The strategy is based on the design of *Cdh5-201* transcript, The transcription is shown below



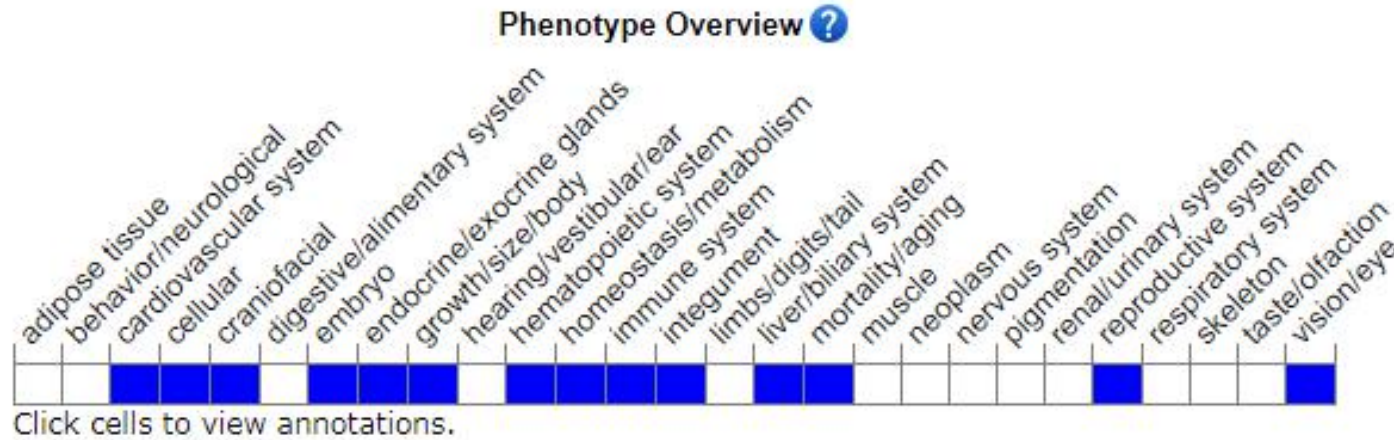
Genomic location distribution



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 inactivation or cytosolic truncation of this gene causes embryonic growth retardation, abnormal somite and heart development, impaired remodeling and maturation of endothelial cells, increased endothelial apoptosis and severe vascular defects leading to embryonic death at midgestation.

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

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