

Ddb2 Cas9-KO Strategy

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Project Overview

Project Name

Ddb2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ddb2* gene. The schematic diagram is as follows:



- The *Ddb2* gene has 5 transcripts. According to the structure of *Ddb2* gene, exon2-exon7 of *Ddb2-201* (ENSMUST00000028696.4) transcript is recommended as the knockout region. The region contains 896bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ddb2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mutant mice are prone to both spontaneous and UV-induced skin cancer.
- The *Ddb2* gene is located on the Chr2. 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)

Ddb2 damage specific DNA binding protein 2 [Mus musculus (house mouse)]

Gene ID: 107986, updated on 31-Jan-2019

Summary



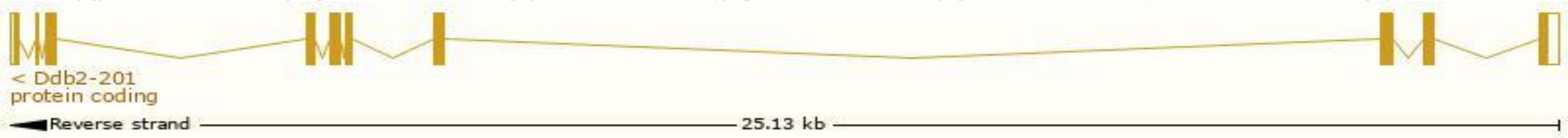
Official Symbol	Ddb2 provided by MGI
Official Full Name	damage specific DNA binding protein 2 provided by MGI
Primary source	MGI:MGI:1355314
See related	Ensembl:ENSMUSG000000002109
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610043A19Rik
Expression	Ubiquitous expression in mammary gland adult (RPKM 18.6), spleen adult (RPKM 15.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

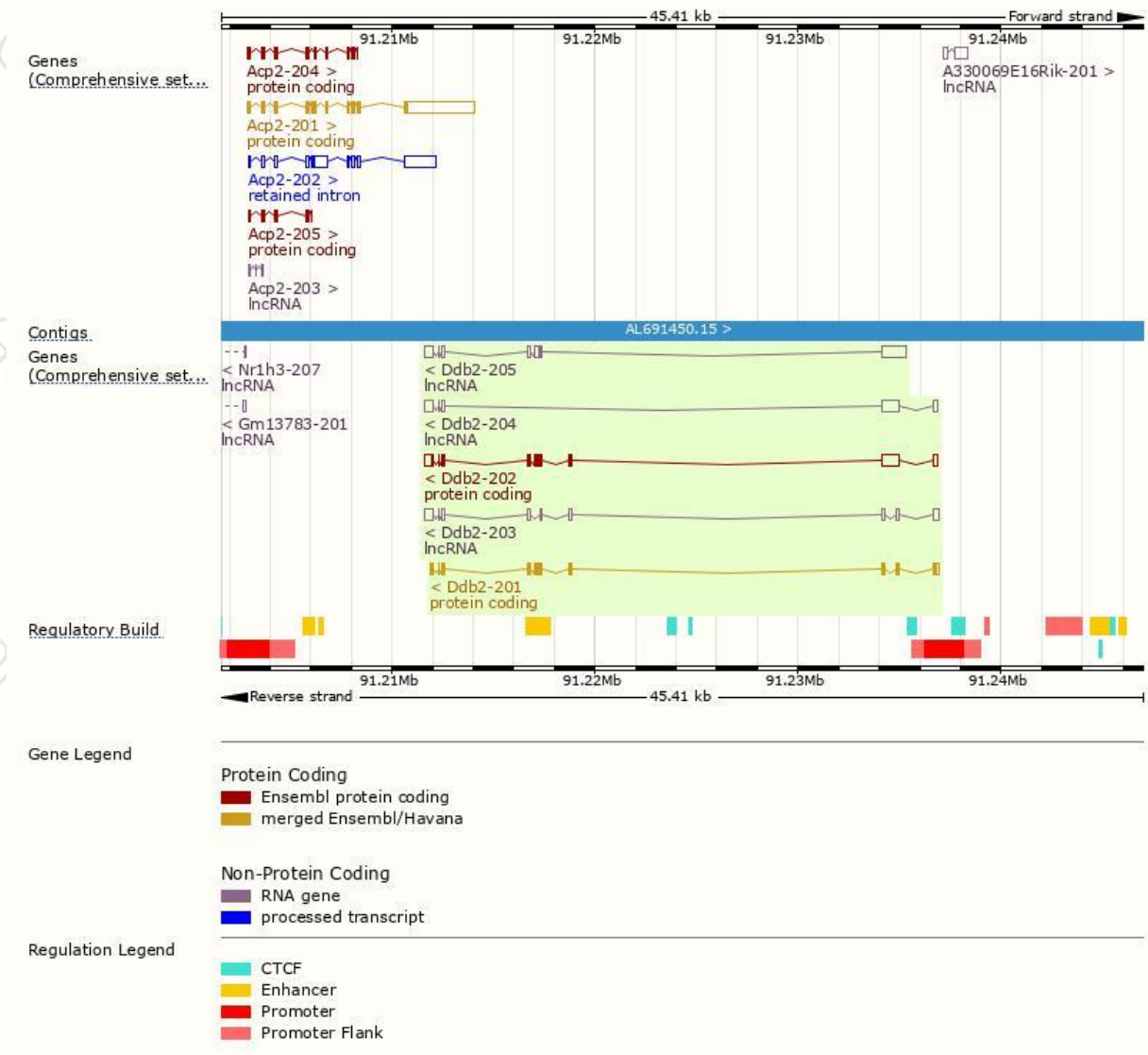
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ddb2-201	ENSMUST00000028696.4	1557	432aa	Protein coding	CCDS16428	Q99J79	TSL:1 GENCODE basic APPRIS P1
Ddb2-202	ENSMUST00000111352.7	2228	296aa	Protein coding	-	A2AGR6	TSL:1 GENCODE basic
Ddb2-205	ENSMUST00000152277.7	2297	No protein	lncRNA	-	-	TSL:1
Ddb2-204	ENSMUST00000150427.7	1698	No protein	lncRNA	-	-	TSL:1
Ddb2-203	ENSMUST00000135927.1	1592	No protein	lncRNA	-	-	TSL:5

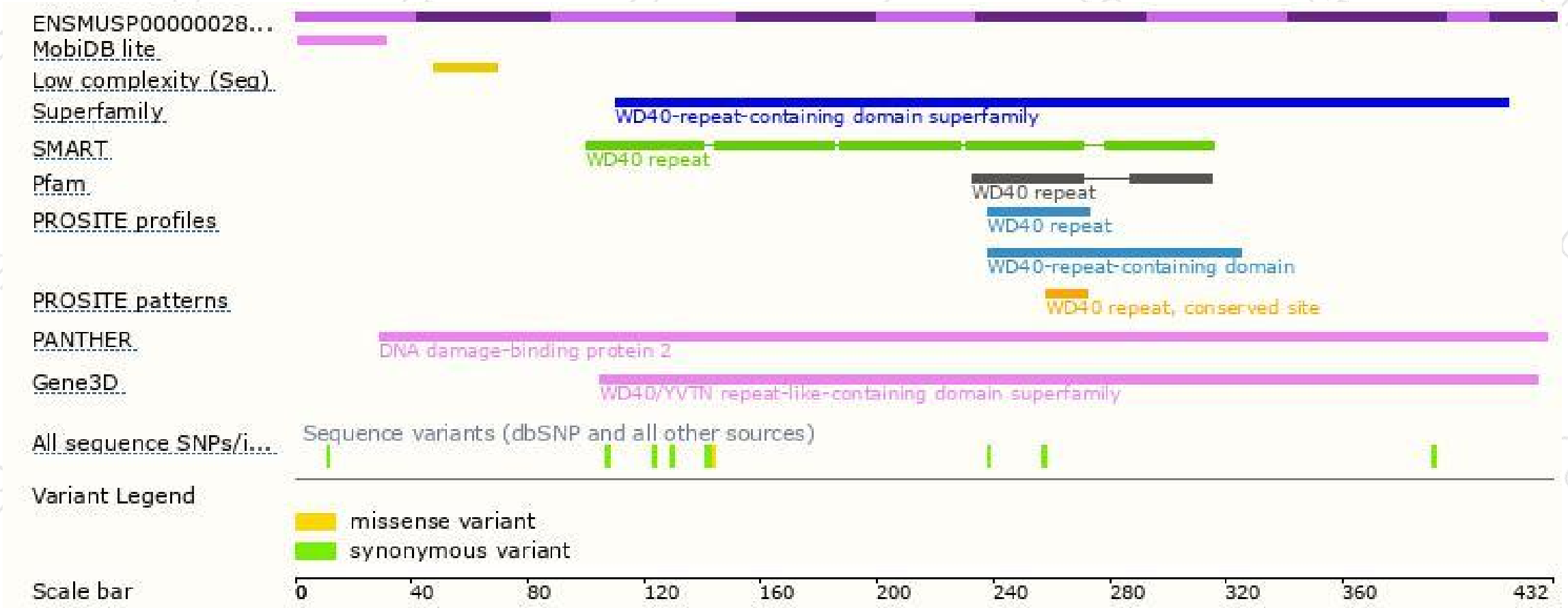
The strategy is based on the design of *Ddb2-201* transcript,The transcription is shown below



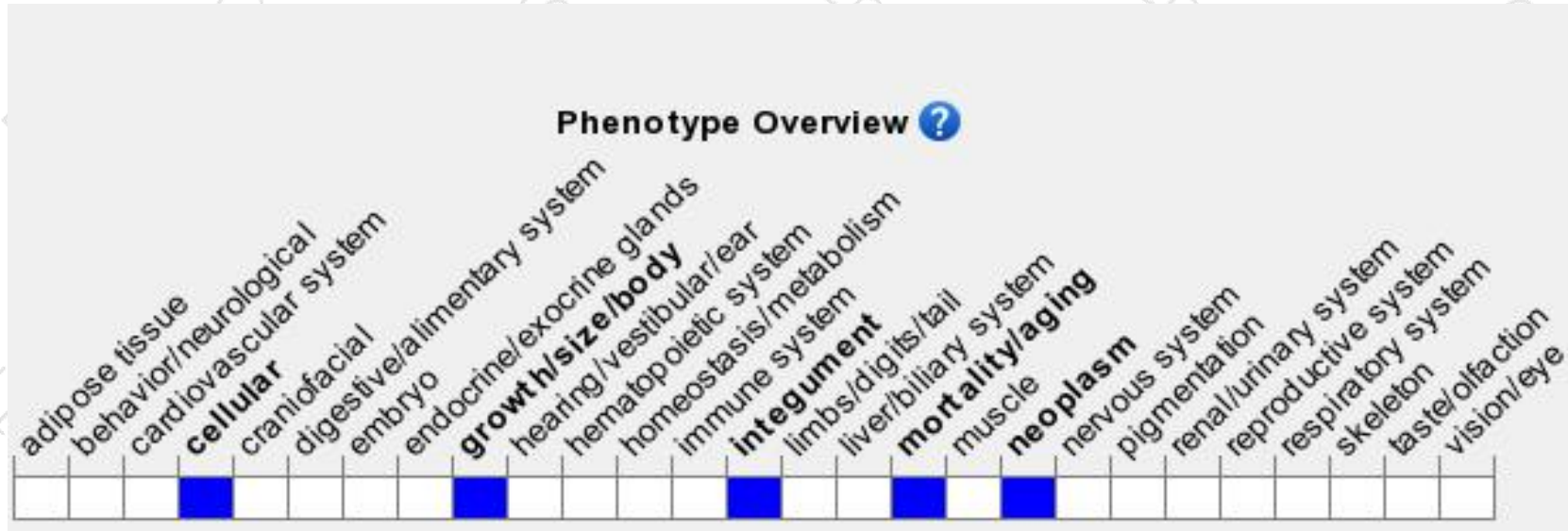
Genomic location distribution



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, Mutant mice are prone to both spontaneous and UV-induced skin cancer.

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

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