Dlx5 Cas9-KO Strategy

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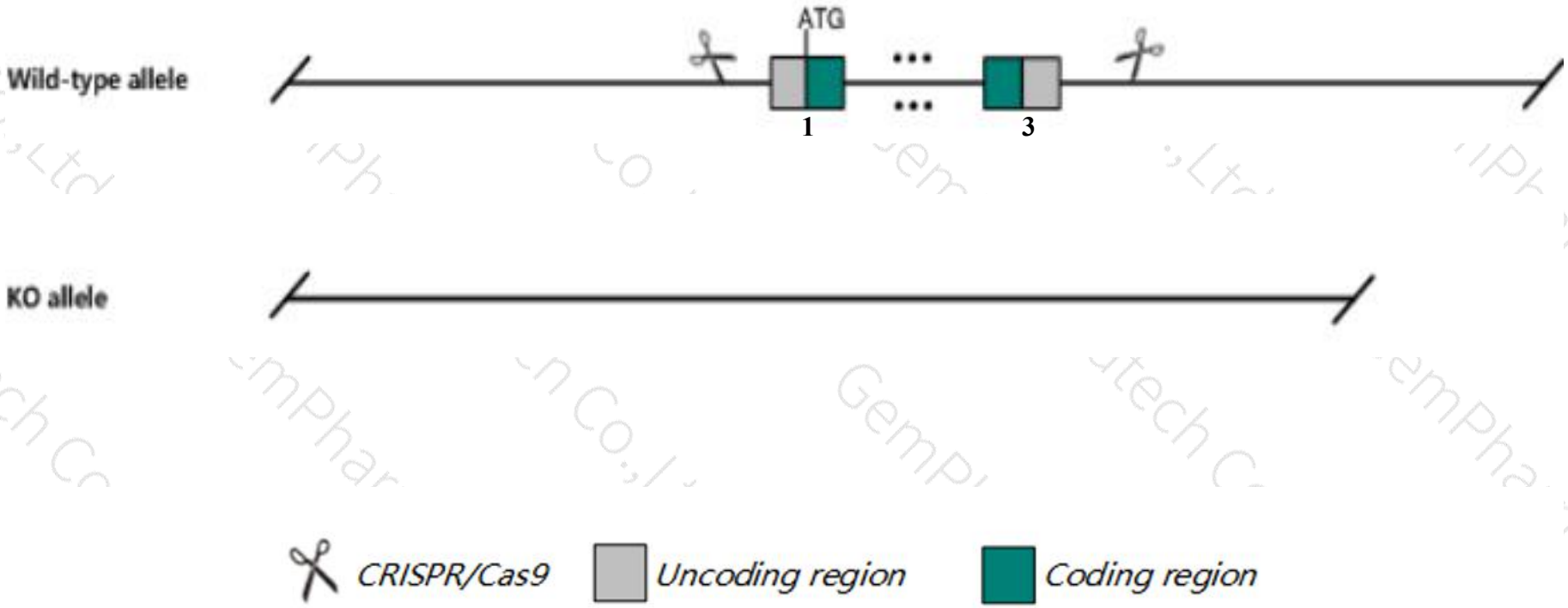
Project Overview

Project Name	***Dlx5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dlx5* gene. The schematic diagram is as follows:



Technical routes

➢ The *Dlx5* gene has 3 transcripts. According to the structure of *Dlx5* gene, exon1-exon3 of *Dlx5-201* (ENSMUST00000052609.8) transcript is recommended as the knockout region.The region contains all 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 *Dlx5* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygous null mutants display multiple defects in craniofacial structures, including ears, nose, mandible and calvaria, and die shortly after birth, with some exhibiting exencephaly.

- The *Dlx5* gene is located on the Chr6. 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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Dlx5 distal-less homeobox 5 [Mus musculus (house mouse)]

Gene ID: 13395, updated on 19-Mar-2019

Summary

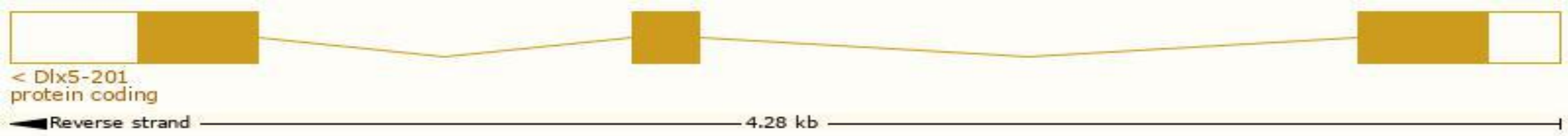
Official Symbol	Dlx5 provided by MGI
Official Full Name	distal-less homeobox 5 provided byMGI
Primary source	MGI:MGI:101926
See related	Ensembl:ENSMUSG00000029755
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI385752
Expression	Biased expression in limb E14.5 (RPKM 4.1), CNS E14 (RPKM 4.0) and 8 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

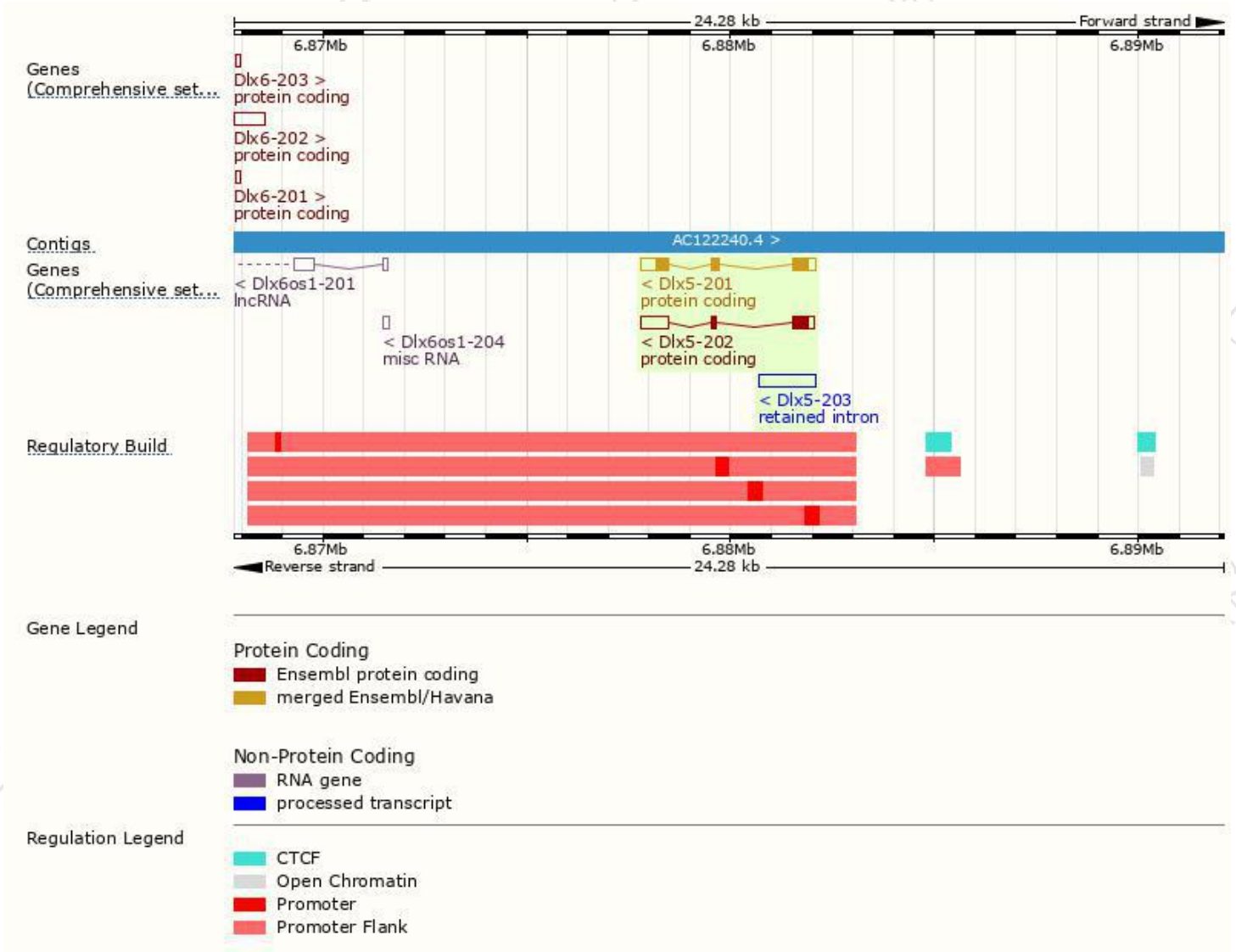
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dlx5-201	ENSMUST00000052609.8	1423	289aa	Protein coding	CCDS19905	P70396 Q3TYA7	TSL:1 GENCODE basic APPRIS P1
Dlx5-202	ENSMUST00000142635.1	1324	146aa	Protein coding	CCDS59691	P70396	TSL:1 GENCODE basic
Dlx5-203	ENSMUST00000204014.1	1391	No protein	Retained intron	-	-	TSL:NA

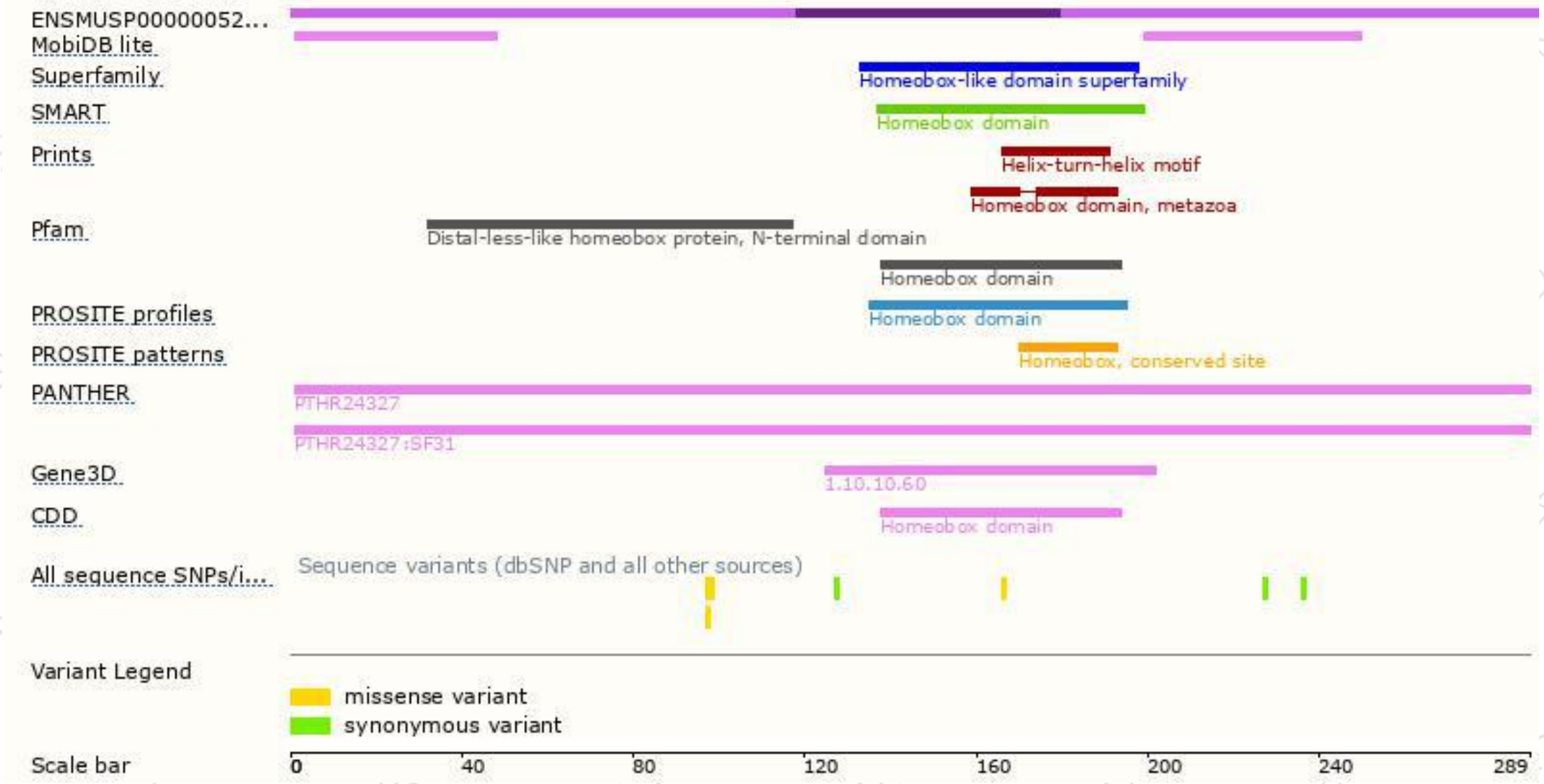
The strategy is based on the design of *Dlx5-201* transcript,The transcription is shown below



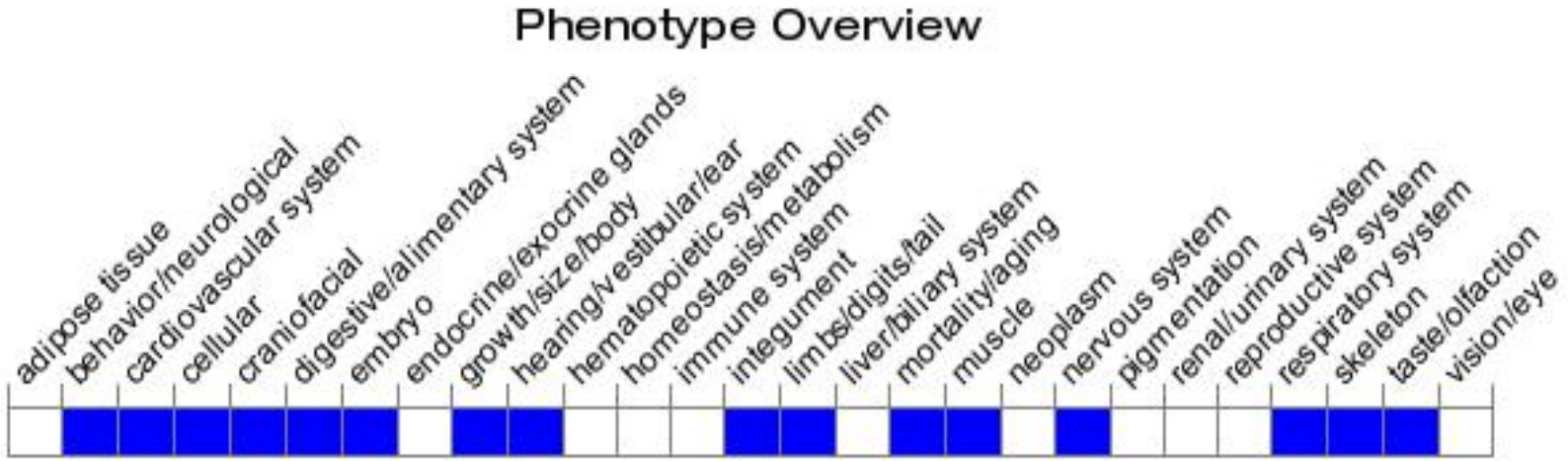
Genomic location distribution



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/).

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

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