Ccin Cas9-CKO Strategy

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Project Overview

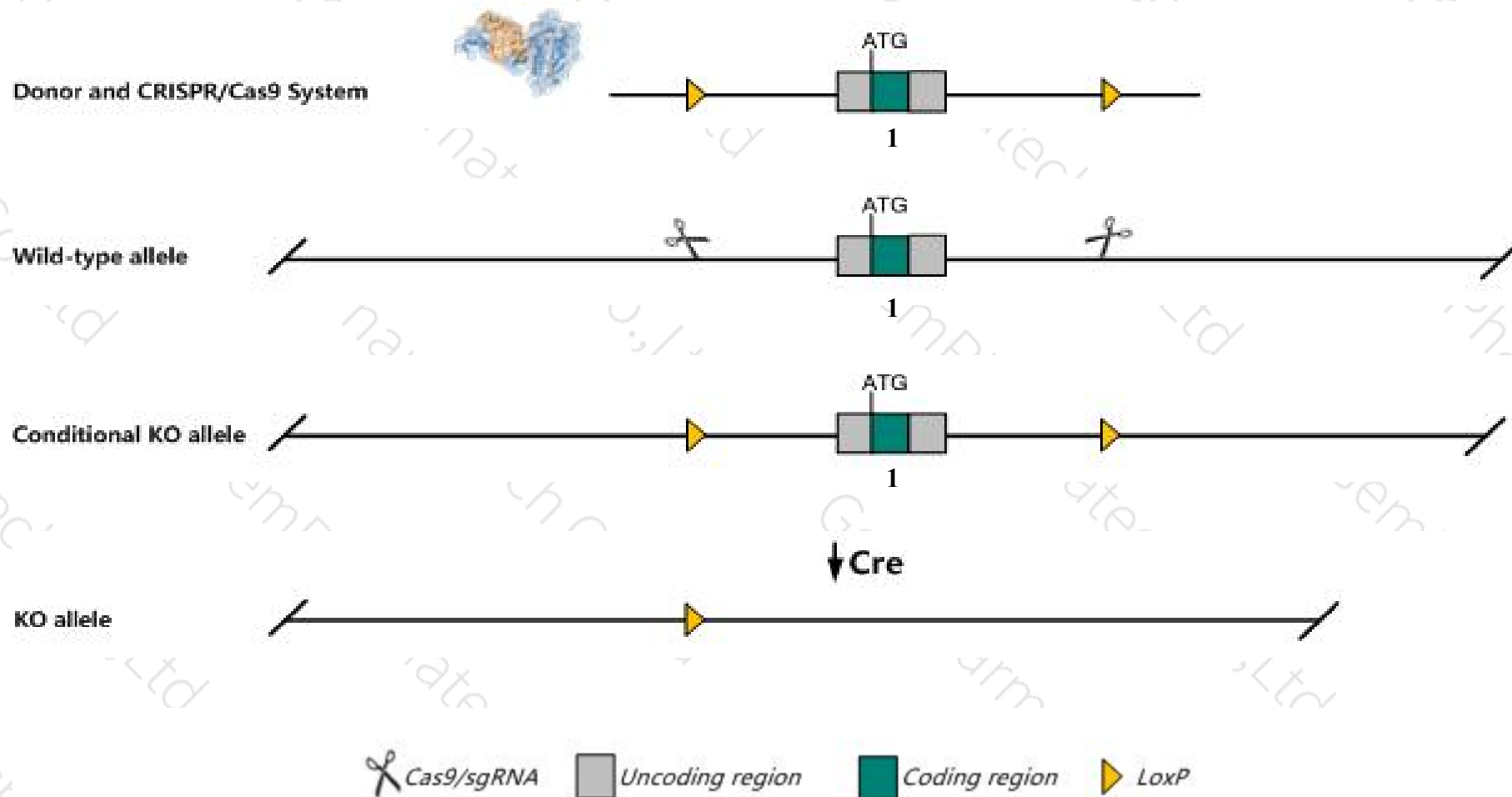|	
Project Name	*Ccin*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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

Technical routes

➤ The *Ccin* gene has 1 transcript. According to the structure of *Ccin* gene, exon1 of *Ccin-201*(ENSMUST00000095107.2) 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 *Ccin* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

➤ The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ The *Ccin* 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.

➢ The floxed region is near to the C-terminal of *Glipr2* gene,this strategy may influence the regulatory function of the C-terminal of *Glipr2* gene.

➢ This strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes,all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

Ccin calicin [Mus musculus (house mouse)]

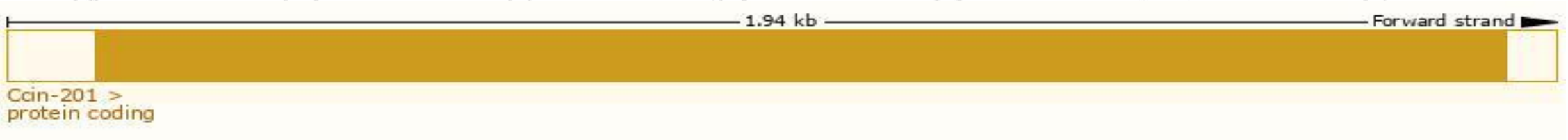Gene ID: 442829, updated on 13-Mar-2020

▲ Summary

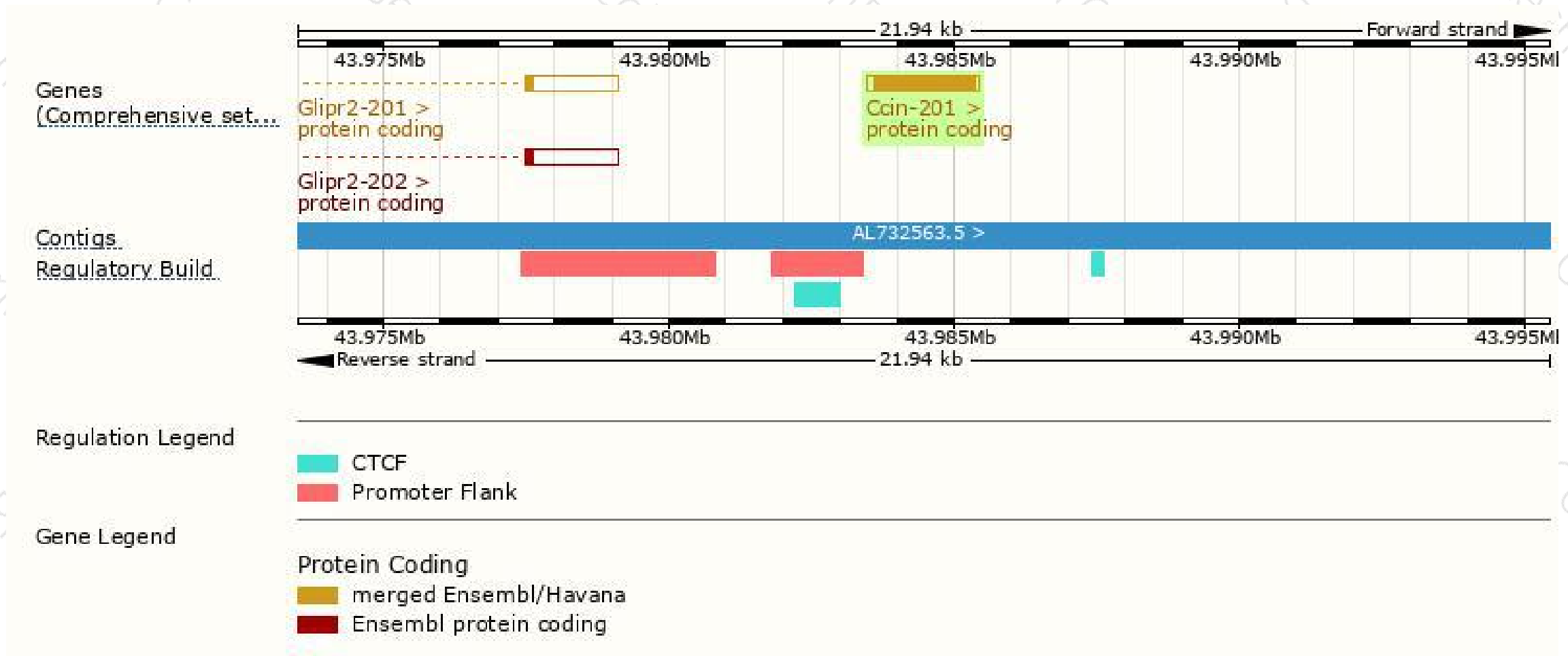|	
Official Symbol	Ccin provided by MGI
Official Full Name	calicin provided by MGI
Primary source	MGI:MGI:3045316
See related	Ensembl:ENSMUSG00000070999
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4933417A14Rik
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
Ccin-201	ENSMUST00000095107.2	1941	588aa	Protein coding	CCDS18118	B2RX51 Q8CDE2	TSL:NA GENCODE basic APPRIS P1

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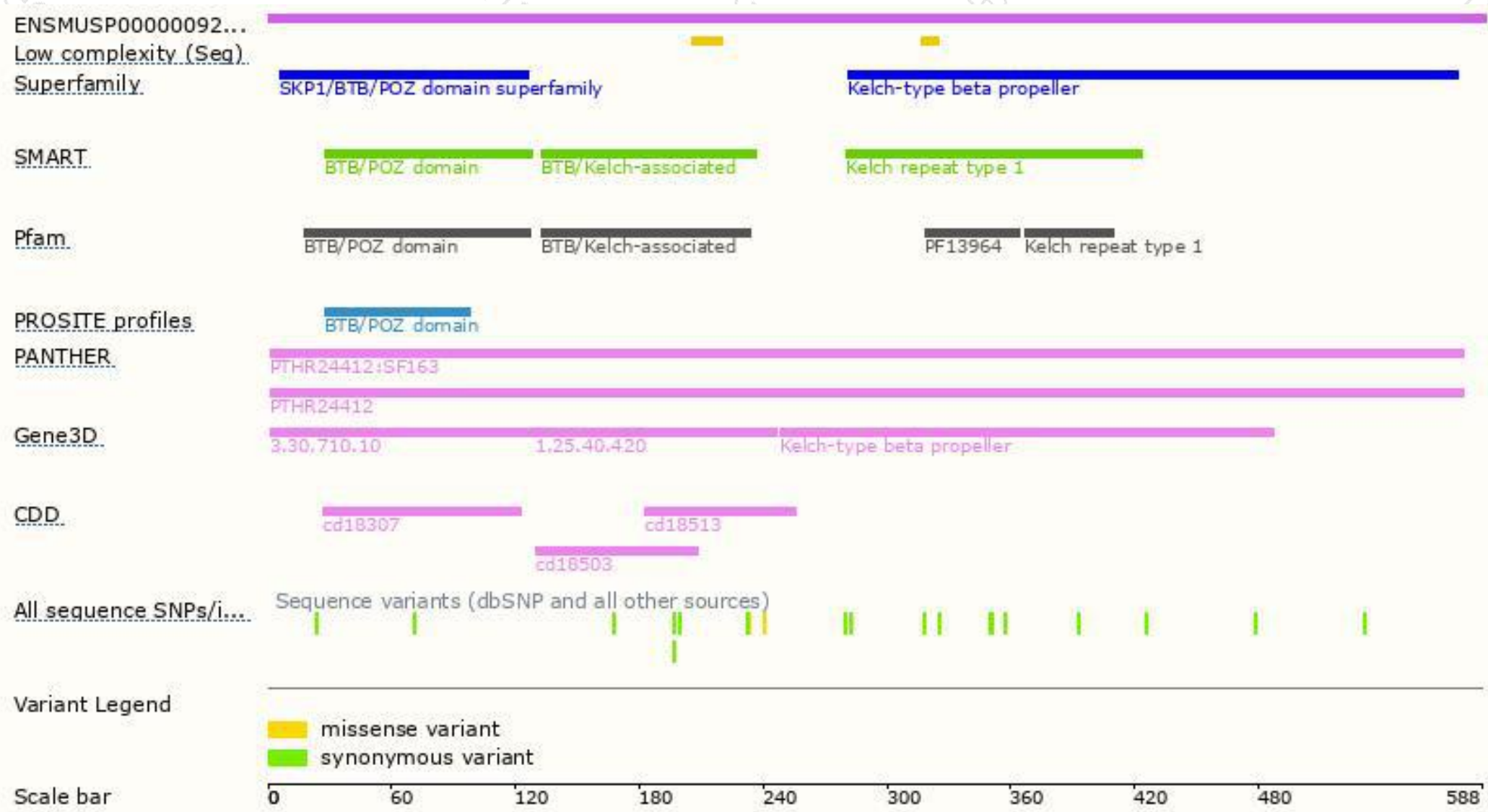

1.94 kb — Forward strand ▶

Ccin-201 >
protein coding

Genomic location distribution

Protein domain

ENSMUSP00000092...	
Low complexity (Seq)	
Superfamily	SKP1/BTB/POZ domain superfamily Kelch-type beta propeller
SMART	BTB/POZ domain BTB/Kelch-associated Kelch repeat type 1
Pfam	BTB/POZ domain BTB/Kelch-associated PF13964 Kelch repeat type 1
PROSITE profiles	BTB/POZ domain
PANTHER	PTHR24412:SF163 PTHR24412
Gene3D	3.30.710.10 1.25.40.420 Kelch-type beta propeller
CDD	cd18307 cd18513 cd18503
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)

Variant Legend

- 🟨 missense variant
- 🟩 synonymous variant

Scale bar: 0   60   120   180   240   300   360   420   480   588

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