

Htt Cas9-KO Strategy

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Project Overview

Project Name

Htt

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Htt* gene has 8 transcripts. According to the structure of *Htt* gene, exon2-exon3 of *Htt-201* (ENSMUST00000080036.2) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Htt* gene. The brief process is as follows: CRISPR/Cas9 system we

- According to the existing MGI data, Null mutants gastrulate abnormally and die in utero. Conditional mutants are small with progressive neurodegeneration. Knock-ins of 20-150 CAG repeat units variably mimic Huntingtons with late-onset motor defects, reactive gliosis and neuronal inclusions.
- The *Htt* gene is located on the Chr5. 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)

Htt huntingtin [Mus musculus (house mouse)]

Gene ID: 15194, updated on 30-Mar-2019

Summary



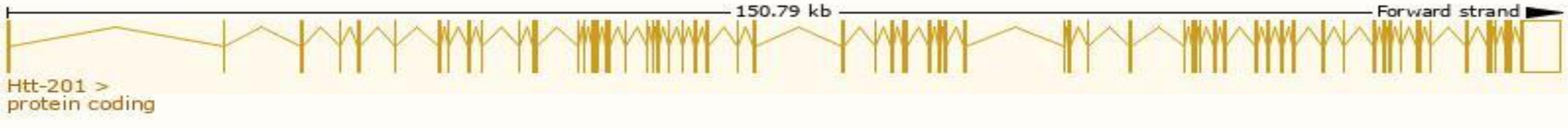
Official Symbol	Htt provided by MGI
Official Full Name	huntingtin provided by MGI
Primary source	MGI:MGI:96067
See related	Ensembl:ENSMUSG00000029104
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI256365, C430023I11Rik, Hd, Hdh, IT15
Expression	Ubiquitous expression in cerebellum adult (RPKM 10.2), cortex adult (RPKM 9.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

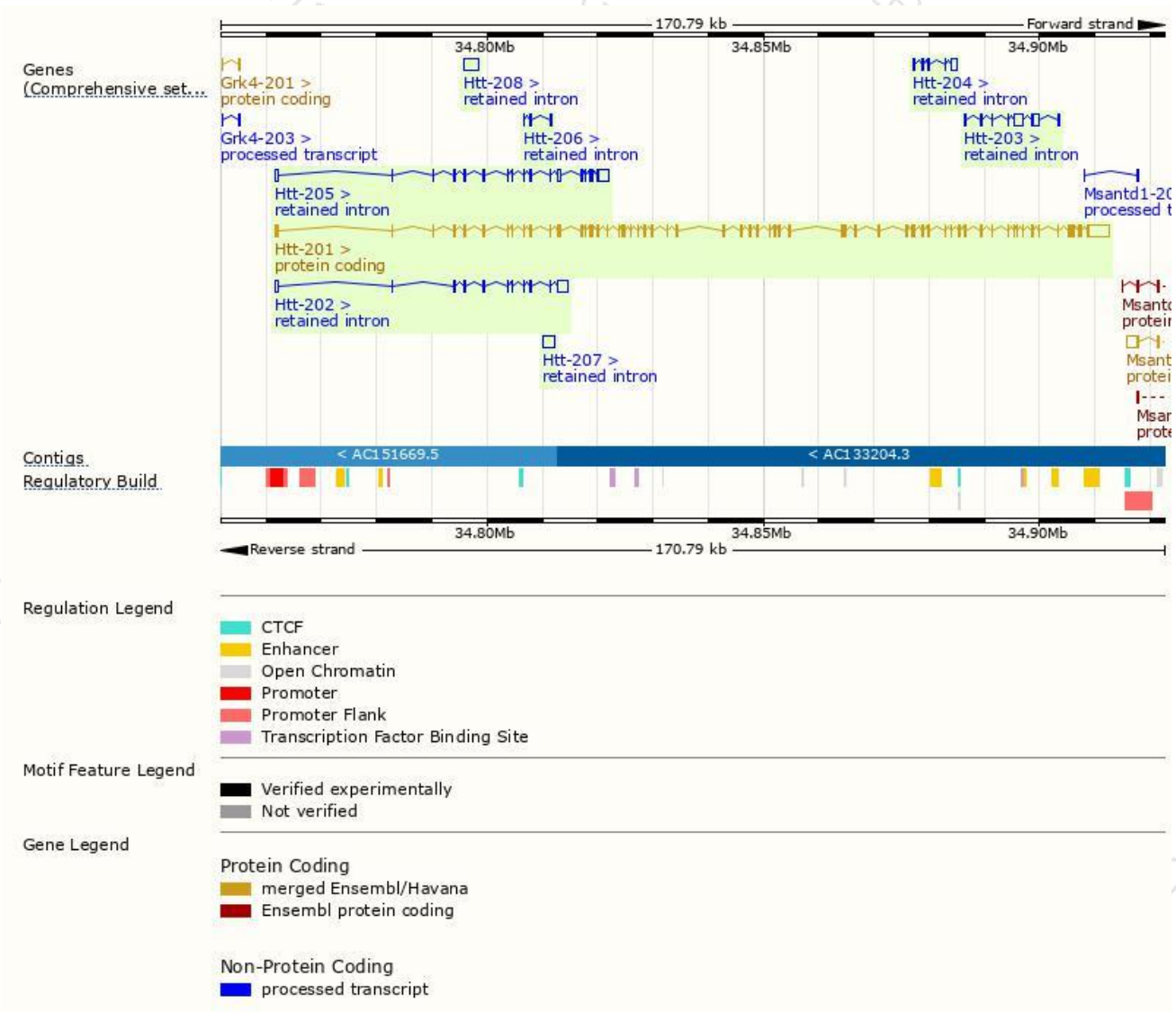
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Htt-201	ENSMUST00000080036.2	13215	3120aa	Protein coding	CCDS19220	G3X9H5	TSL:1 GENCODE basic APPRIS P1
Htt-205	ENSMUST00000148953.7	4382	No protein	Retained intron	-	-	TSL:1
Htt-203	ENSMUST00000124272.1	3976	No protein	Retained intron	-	-	TSL:1
Htt-202	ENSMUST00000123755.7	3225	No protein	Retained intron	-	-	TSL:1
Htt-208	ENSMUST00000202059.1	2614	No protein	Retained intron	-	-	TSL:NA
Htt-207	ENSMUST00000201613.1	2271	No protein	Retained intron	-	-	TSL:NA
Htt-204	ENSMUST00000135039.1	1570	No protein	Retained intron	-	-	TSL:1
Htt-206	ENSMUST00000156490.1	457	No protein	Retained intron	-	-	TSL:3

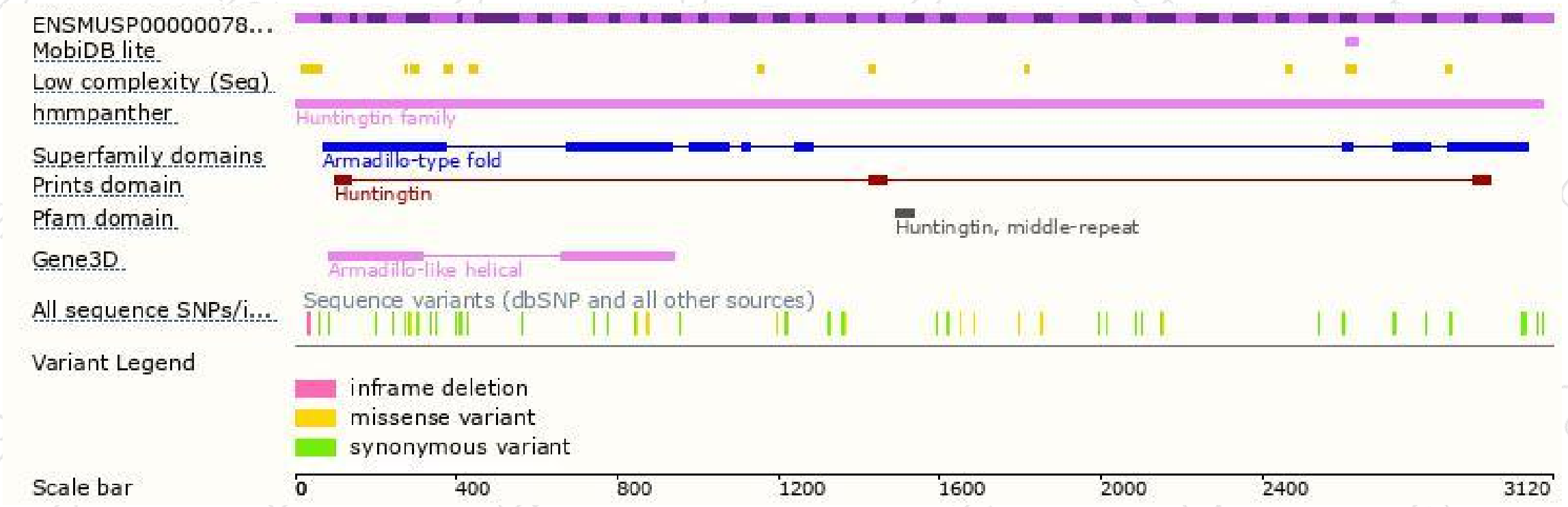
The strategy is based on the design of *Htt-201* transcript,The transcription is shown below



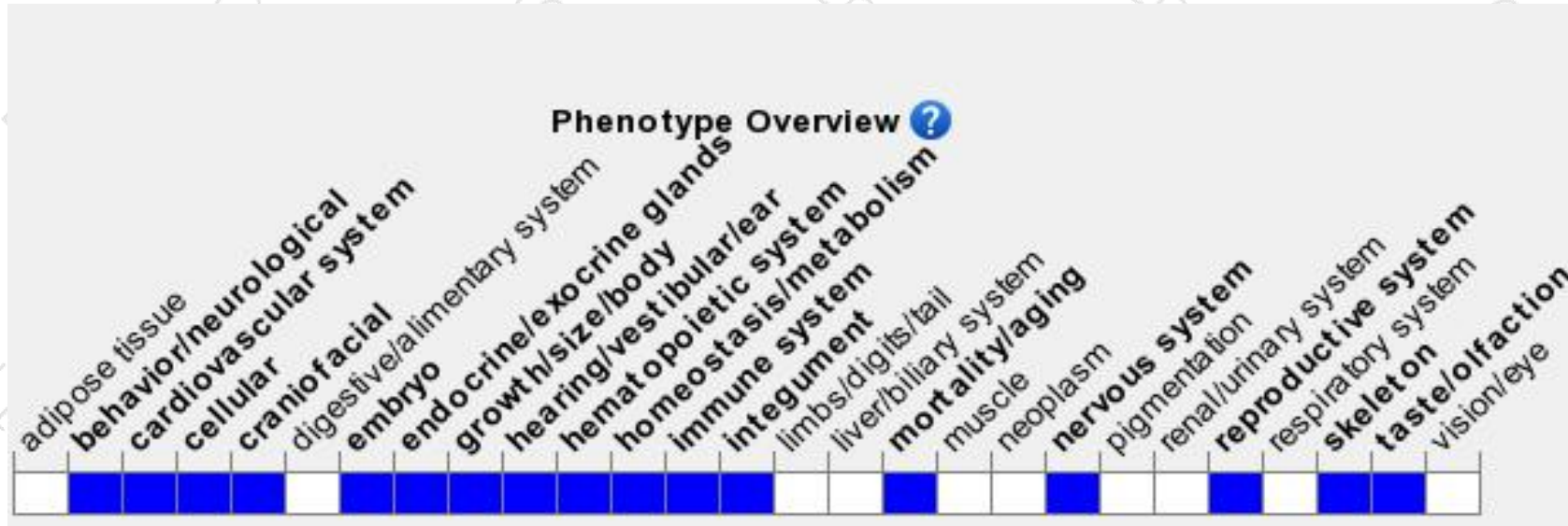
Genomic location distribution



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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