Ace2 humanization strategy

Type	**Cas9 KI**
Background strain	**NCG**
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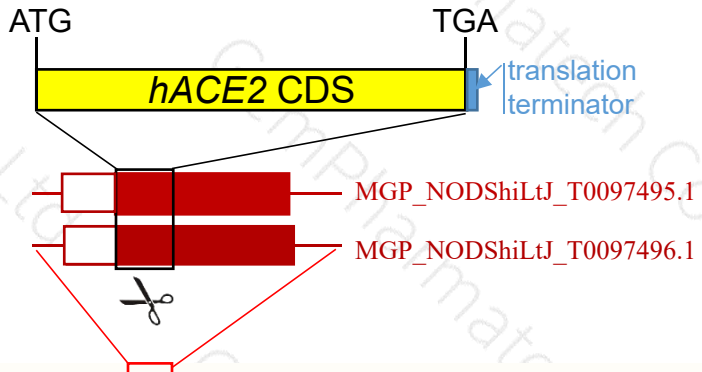
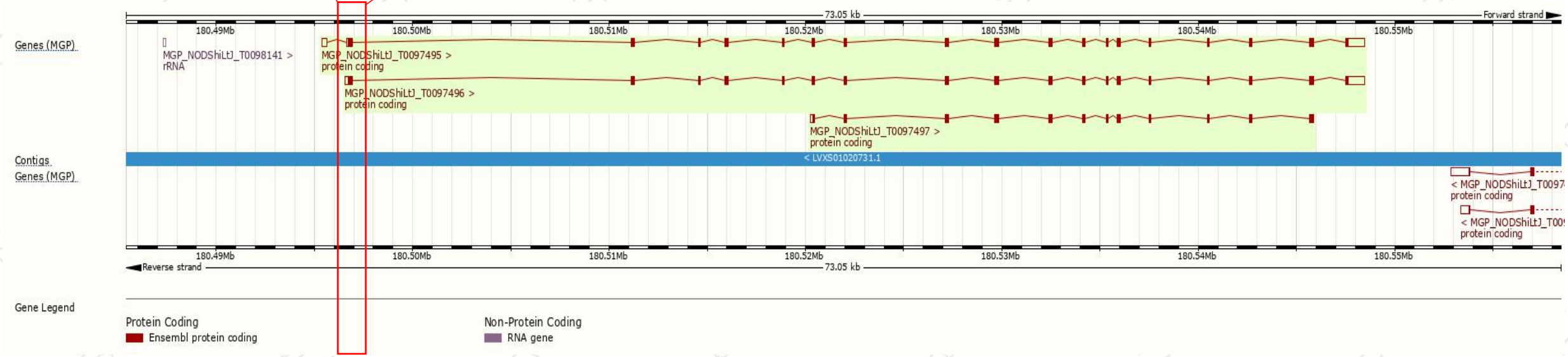
Strategy Reviewer	**Cunxiang JU**
Approval Date	**2020-01-29**

hACE2 in situ KI model



- Human *ACE2* CDS (from ATG to TGA) plus translation terminator will be inserted after the ATG code of mouse *Ace2* in the second coding exon;
- Several nucleotides will be replaced by the *hACE2* CDS;
- No polyA element will be introduced after *hACE2* CDS;



Cas9/sgRNA complex

Mouse *Ace2* exon

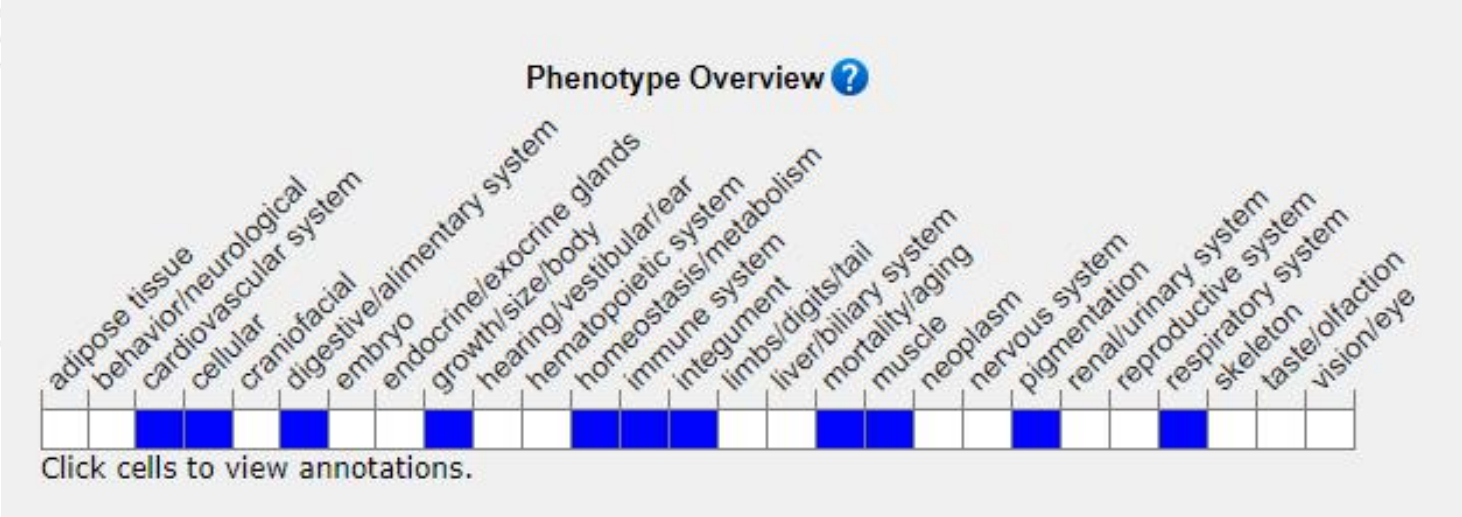
Human *ACE2* CDS (~2.4kb)

hACE2 in situ KI model

- Human *ACE2* CDS including ATG and TGA will be introduced to precisely after the internal ATG code of mouse *Ace2* gene;
- Human *ACE2* will be expressed physiologically under the direction of endogenous regulatory mechanism;
- Several nucleotides of the first coding exon (harboring the sgRNAs) of mouse *Ace2* will be replaced when integration of human *ACE2* CDS;
- To ensure the normal regulatory function of potential transcription elements lying the introns, NO polyA signal or transcription terminators will be introduced after the human *ACE2* CDS;
- The pathological characteristics after infection of coronaviruses remains unknown;

MGI phenotype data/Lethality

Neither embryonic lethality nor early fatal postnatal development defects reported.



Targeted disruption of this locus results in reduced cardiac contractility. Male mice hemizygous for a knock-out allele exhibit increased susceptibility to induced colitis.

Source: http://www.informatics.jax.org/marker/key/53988