Trip11 Cas9-CKO Strategy

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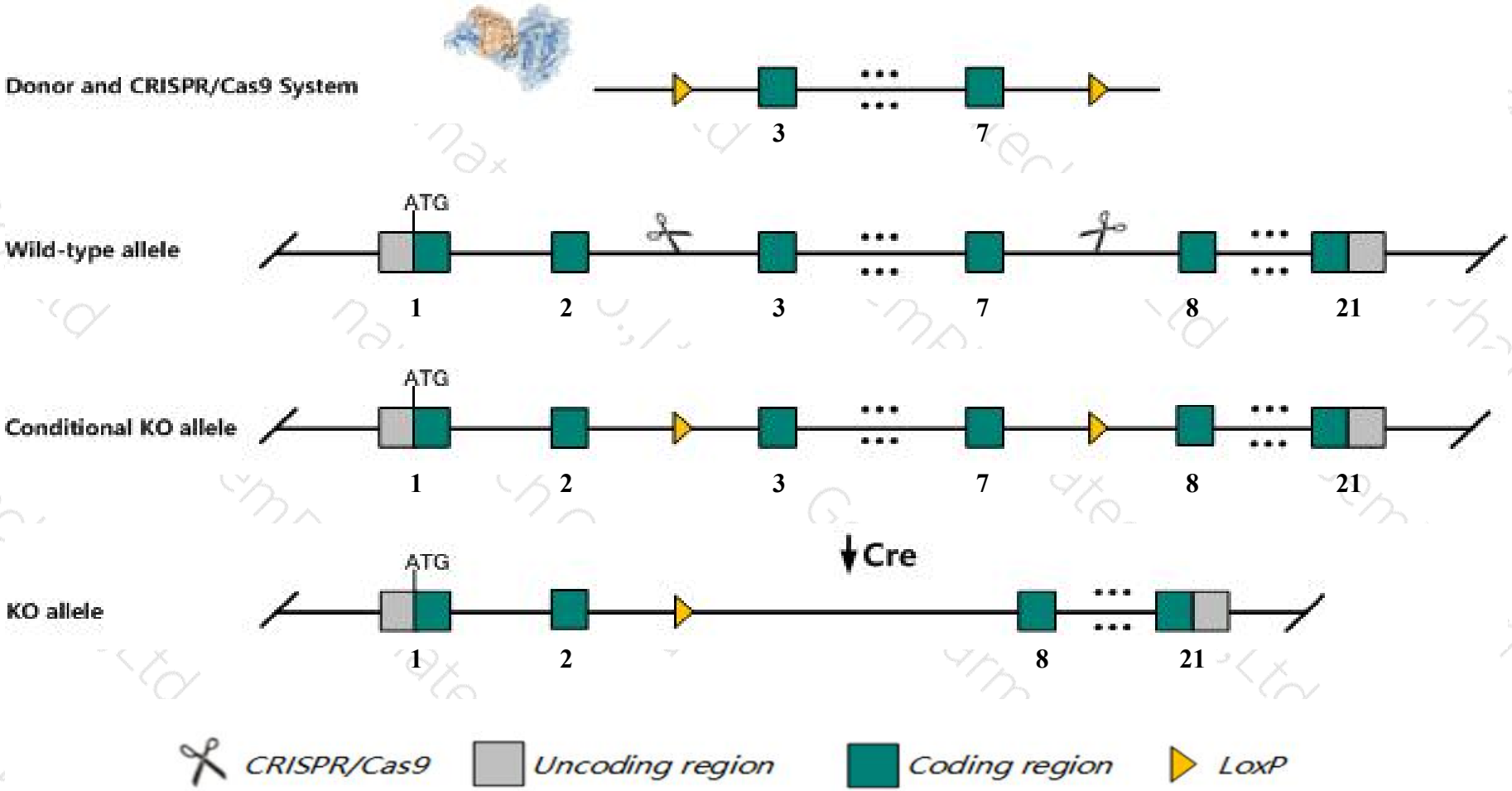
Project Overview

Project Name	***Trip11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trip11* gene. The schematic diagram is as follows:



Technical routes

➢ The *Trip11* gene has 6 transcripts. According to the structure of *Trip11* gene, exon3-exon7 of *Trip11-201*(ENSMUST00000021605.13) transcript is recommended as the knockout region.The region contains 985bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Trip11* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be 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

➢ According to the existing MGI data,mice homozygous for a null allele exhibit neonatal lethality associated with small size, lung hypoplasia, omphalocele, and ventricular septal defects.

➢Transcript 203,205,206 CDS 3' incomplete the influences is unknown.

➢Transcript 204 CDS 5' incomplete the influences is unknown.

➢ The *Trip11* gene is located on the Chr12. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Trip11 thyroid hormone receptor interactor 11 [Mus musculus (house mouse)]

Gene ID: 109181, updated on 13-Mar-2020

Summary

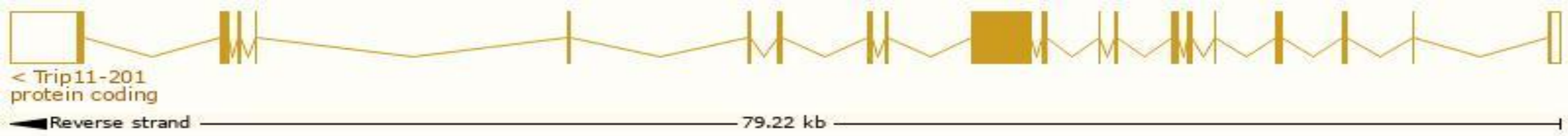
Official Symbol	Trip11 provided by MGI
Official Full Name	thyroid hormone receptor interactor 11 provided by MGI
Primary source	MGI:MGI:1924393
See related	Ensembl:ENSMUSG00000021188
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610511G22Rik, 3110031G15Rik, 6030460N08Rik, AI450776, GMAP-210, TRIP230
Expression	Ubiquitous expression in bladder adult (RPKM 5.0), cerebellum adult (RPKM 3.6) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

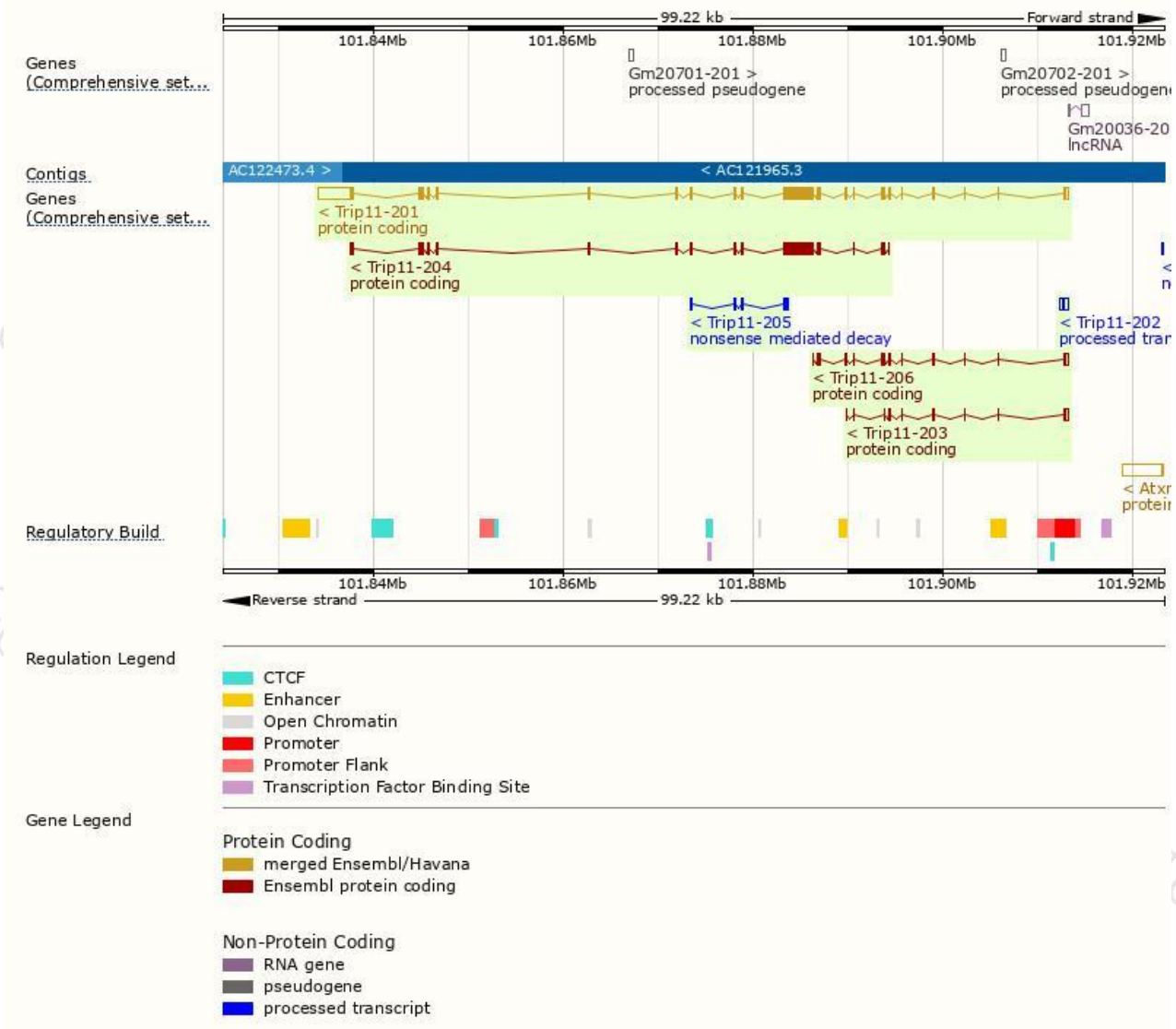
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trip11-201	ENSMUST00000021605.13	9873	1976aa	Protein coding	CCDS49143	E9Q512	TSL:1 GENCODE basic APPRIS P1
Trip11-204	ENSMUST00000177183.7	5076	1691aa	Protein coding	-	H3BJG4	CDS 5' incomplete TSL:5
Trip11-206	ENSMUST00000177536.7	1876	527aa	Protein coding	-	Q8BVJ9	CDS 3' incomplete TSL:1
Trip11-203	ENSMUST00000176728.1	1186	291aa	Protein coding	-	H3BJH8	CDS 3' incomplete TSL:1
Trip11-205	ENSMUST00000177480.1	744	139aa	Nonsense mediated decay	-	H3BJU5	CDS 5' incomplete TSL:3
Trip11-202	ENSMUST00000085086.5	743	No protein	Processed transcript	-	-	TSL:1

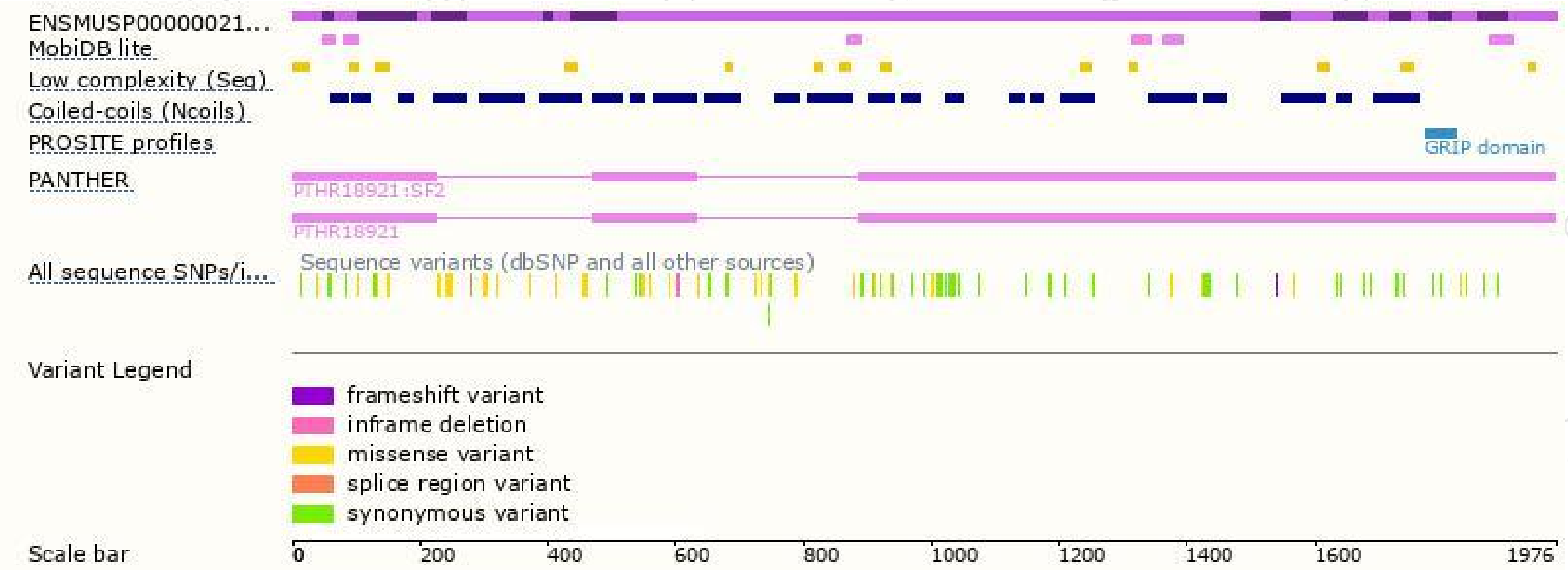
The strategy is based on the design of *Trip11-201* transcript,the transcription is shown below:



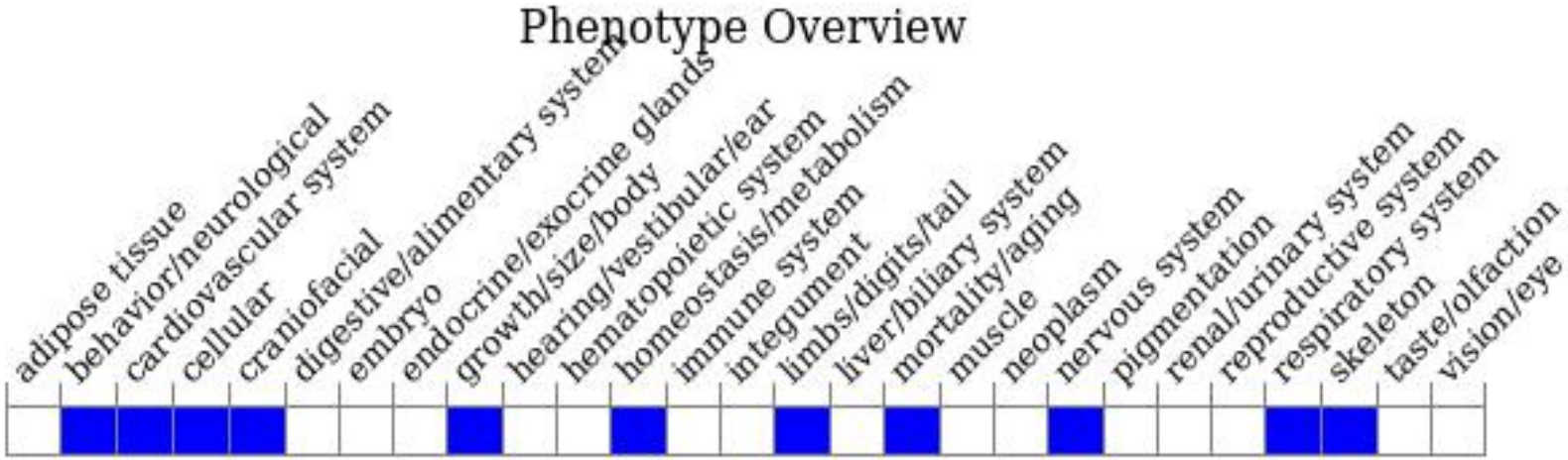
Genomic location distribution



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,mice homozygous for a null allele exhibit neonatal lethality associated with small size, lung hypoplasia, omphalocele, and ventricular septal defects.

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

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