

# ***Tlr9 Cas9-KO Strategy***

**Designer:**

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**Design Date:**

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# Project Overview

**Project Name**

***Tlr9***

**Project type**

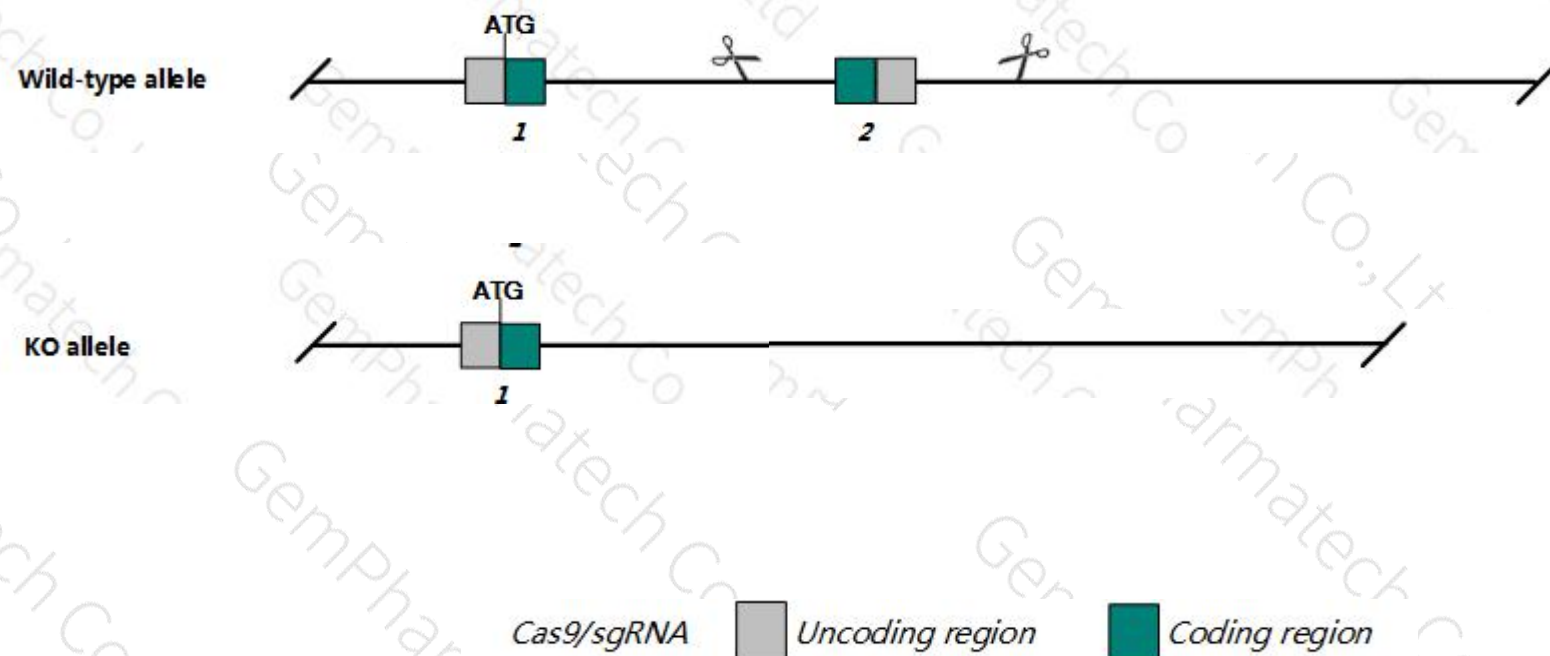
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tlr9* gene. The schematic diagram is as follows:



- The *Tlr9* gene has 1 transcript. According to the structure of *Tlr9* gene exon2 of *Tlr9*-201 (ENSMUST00000062241.10) transcript is recommended as the knockout region. The region contains the most coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tlr9* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data : Nullizygous mice exhibit impaired immune responses to CpG DNA and altered susceptibility to EAE and parasitic infection. ENU-induced mutants may exhibit altered susceptibility to viral infection or induced colitis and impaired immune response to unmethylated CpG oligonucleotides.
- The *Tlr9* gene is located on the Chr9. 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 )

## Tlr9 toll-like receptor 9 [ *Mus musculus* (house mouse) ]

Gene ID: 81897, updated on 17-Oct-2018

### Summary

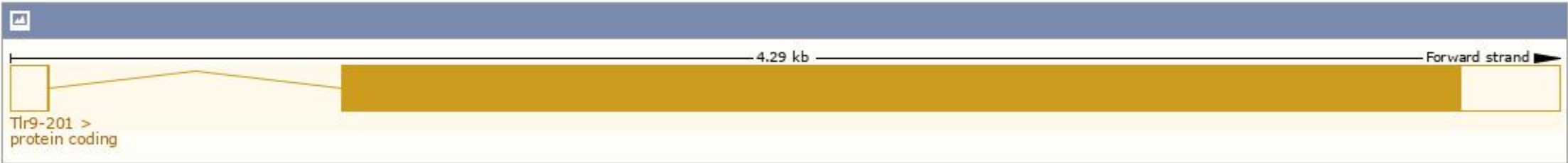
Official Symbol	Tlr9 provided by <a href="#">MGI</a>
Official Full Name	toll-like receptor 9 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1932389</a>
See related	<a href="#">Ensembl:ENSMUSG000000045322</a> <a href="#">Vega:OTTMUSG000000049422</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in spleen adult (RPKM 37.8), mammary gland adult (RPKM 11.5) and 5 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information ( Ensembl )

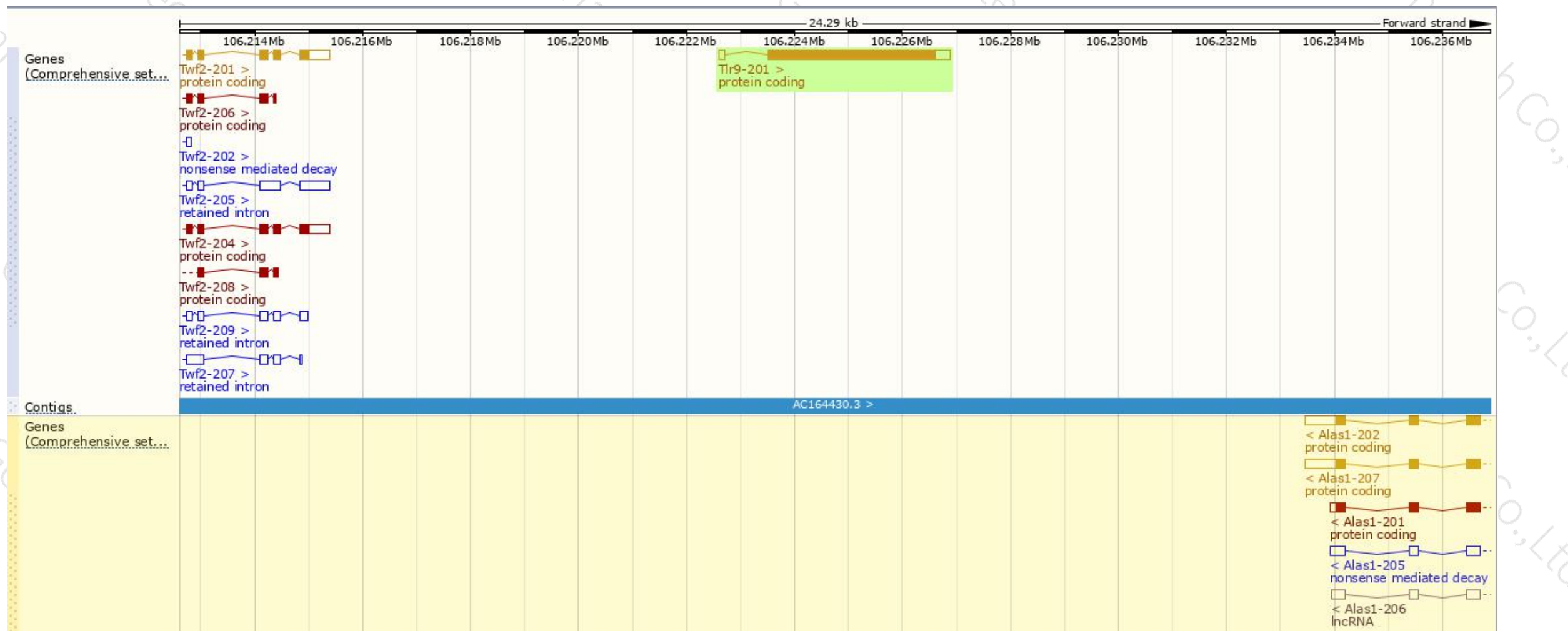
The gene has 1 transcript, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Tlr9-201	<a href="#">ENSMUST00000062241.10</a>	3478	<a href="#">1032aa</a>	Protein coding	<a href="#">CCDS40755</a>	<a href="#">Q9EQU3</a>	<a href="#">NM_031178</a> <a href="#">NP_112455</a>	TSL:1	GENCODE basic APPRIS P1

The strategy is based on the design of *Tlr9*-201 transcript, The transcription is shown below

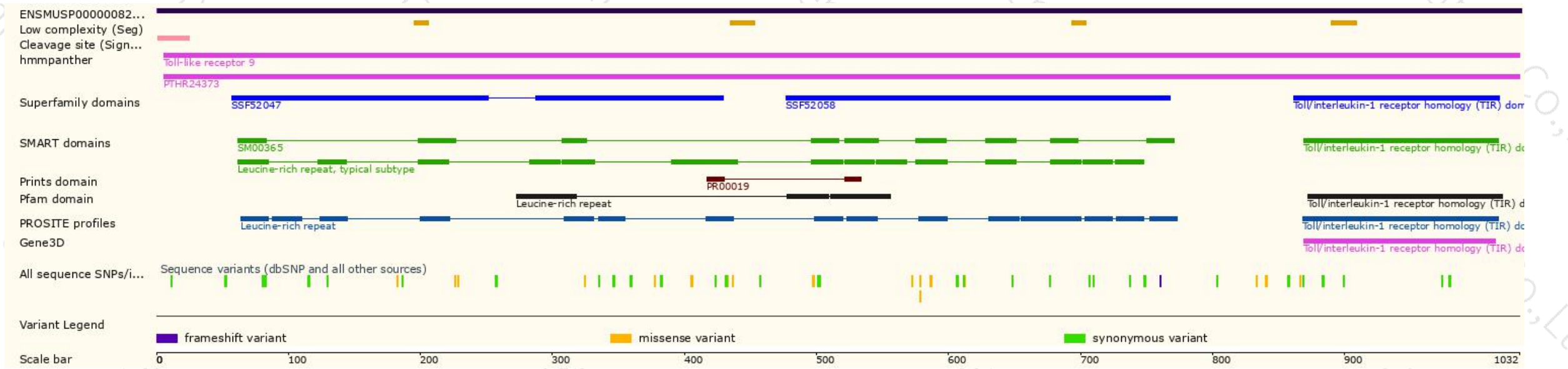


# Genomic location distribution

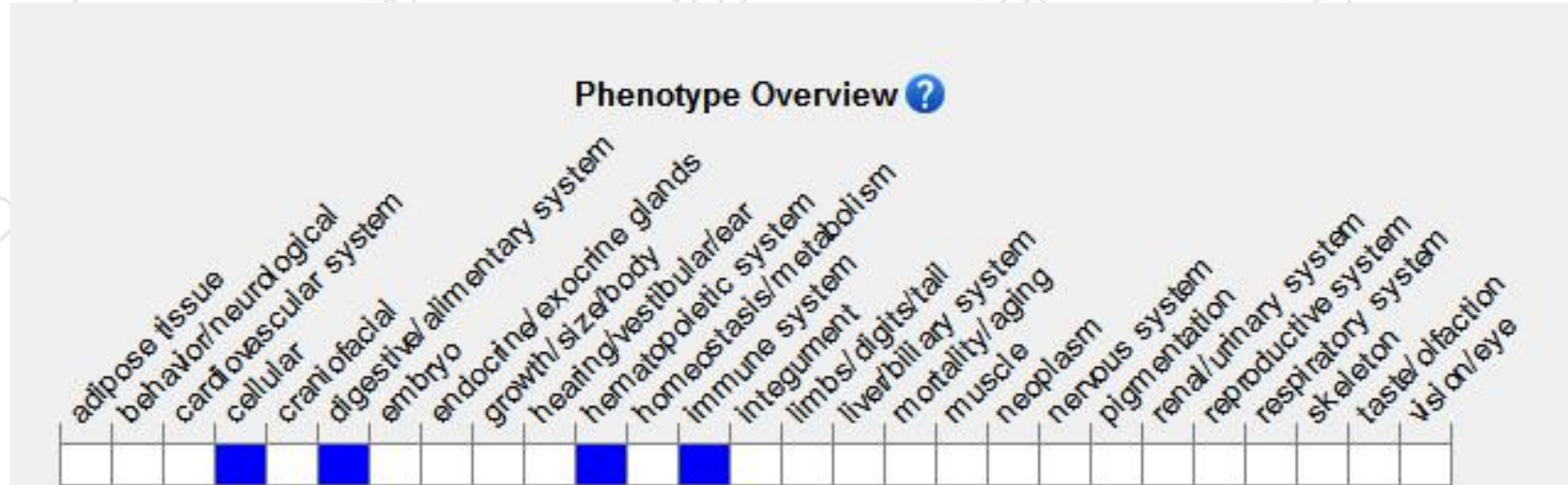




# Protein domain



# Mouse phenotype description(MGI)



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .*

Nullizygous mice exhibit impaired immune responses to CpG DNA and altered susceptibility to EAE and parasitic infection. ENU-induced mutants may exhibit altered susceptibility to viral infection or induced colitis and impaired immune response to unmethylated CpG oligonucleotides.

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

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