

Flcn Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Flcn

Project type

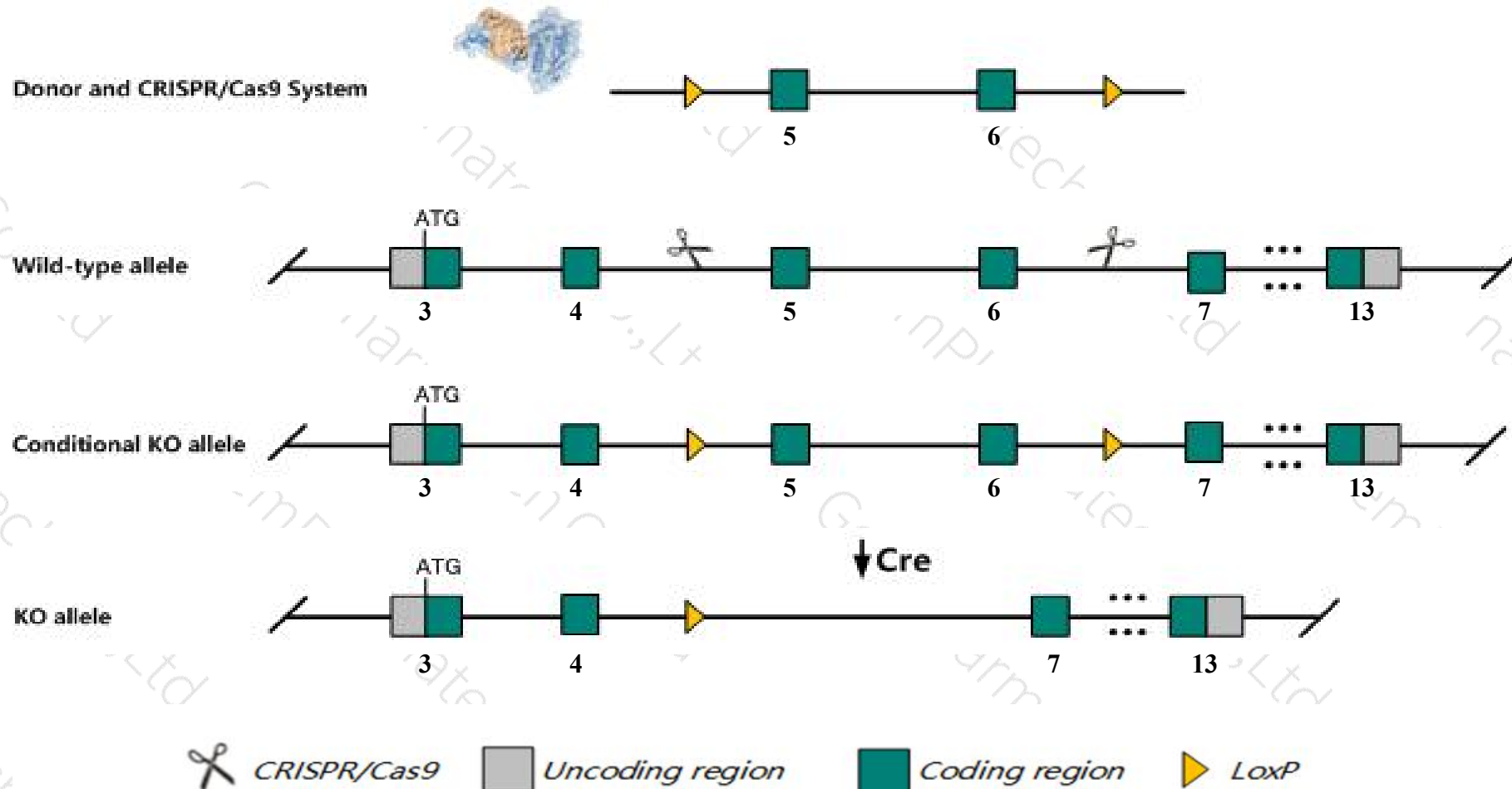
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Flcn* gene has 6 transcripts. According to the structure of *Flcn* gene, exon5-exon6 of *Flcn*-203 (ENSMUST00000102697.9) transcript is recommended as the knockout region. The region contains 383bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Flcn* 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.

- According to the existing MGI data, Mice homozygous for either of two different knock-out alleles exhibit prenatal lethality. Mice homozygous for a gene-trapped allele show prenatal lethality while a fraction of heterozygotes develop spontaneous oncocytic renal cysts and solid renal tumors.
- The *Flcn* gene is located on the Chr11. 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)

Flcn folliculin [Mus musculus (house mouse)]

Gene ID: 216805, updated on 19-Mar-2019

Summary



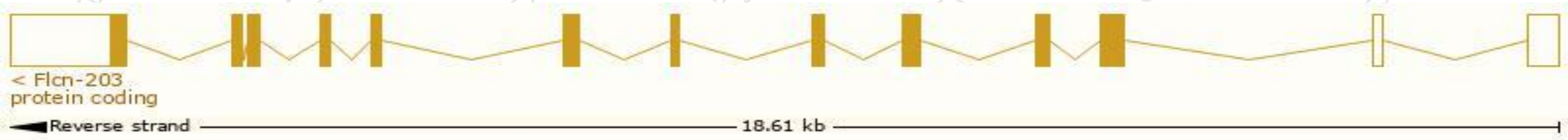
Official Symbol	Flcn provided by MGI
Official Full Name	folliculin provided by MGI
Primary source	MGI:MGI:2442184
See related	Ensembl:ENSMUSG000000032633
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU014660, B430214A04Rik, Bhd, FLCL
Expression	Ubiquitous expression in adrenal adult (RPKM 26.2), lung adult (RPKM 21.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

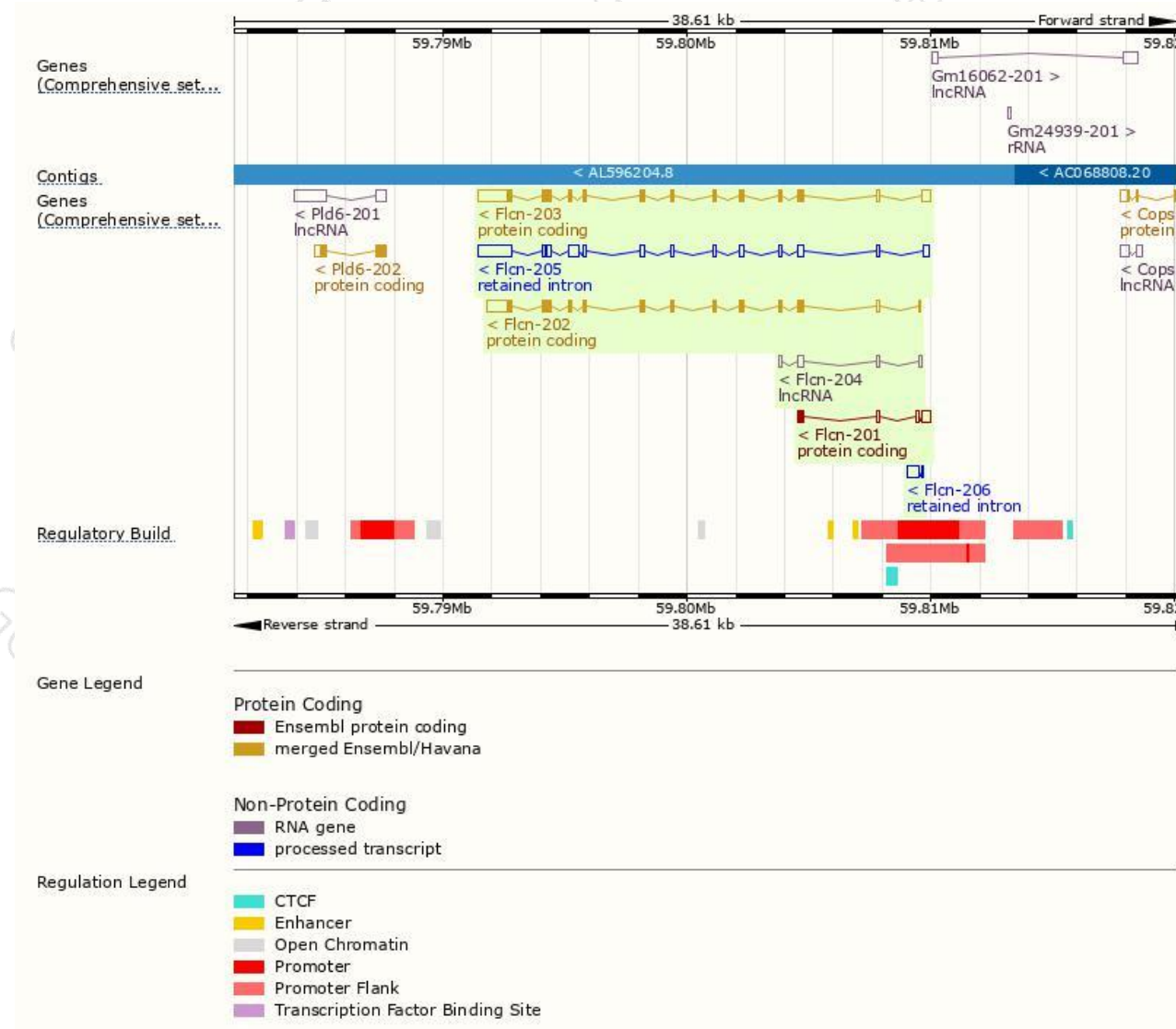
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Flcn-203	ENSMUST00000102697.9	3437	579aa	Protein coding	CCDS24777	Q8QZS3	TSL:1 GENCODE basic APPRIS P1
Flcn-202	ENSMUST00000091246.10	2768	579aa	Protein coding	CCDS24777	Q8QZS3	TSL:1 GENCODE basic APPRIS P1
Flcn-201	ENSMUST00000047706.2	842	82aa	Protein coding	-	Z4YJH7	CDS 3' incomplete TSL:2
Flcn-205	ENSMUST00000148151.7	3567	No protein	Retained intron	-	-	TSL:1
Flcn-206	ENSMUST00000151453.1	510	No protein	Retained intron	-	-	TSL:2
Flcn-204	ENSMUST00000133647.7	636	No protein	lncRNA	-	-	TSL:5

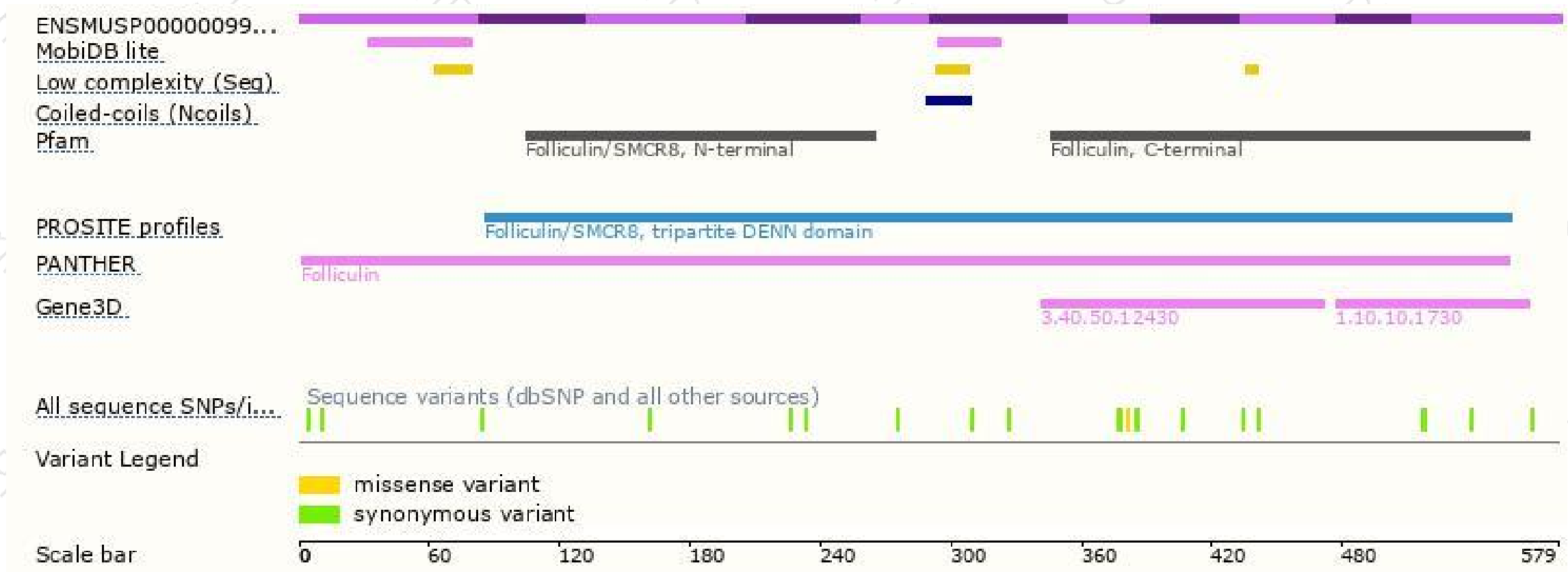
The strategy is based on the design of *Flcn-203* transcript,The transcription is shown below



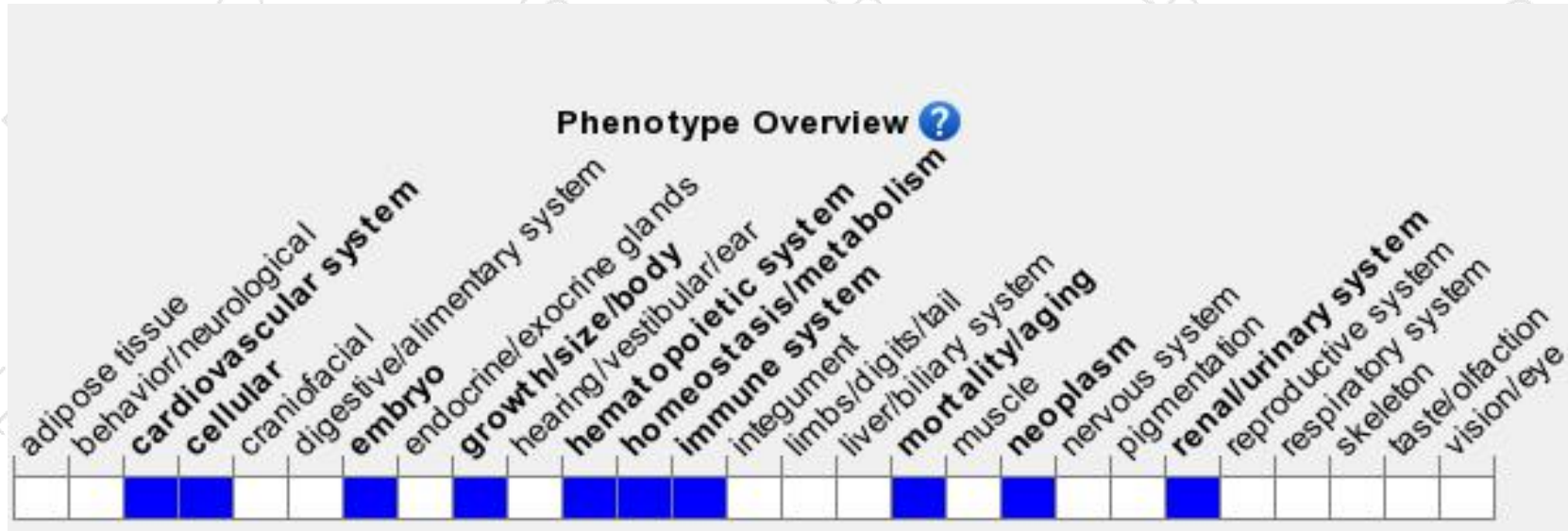
Genomic location distribution



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 either of two different knock-out alleles exhibit prenatal lethality. Mice homozygous for a gene-trapped allele show prenatal lethality while a fraction of heterozygotes develop spontaneous oncocytic renal cysts and solid renal tumors.

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

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