

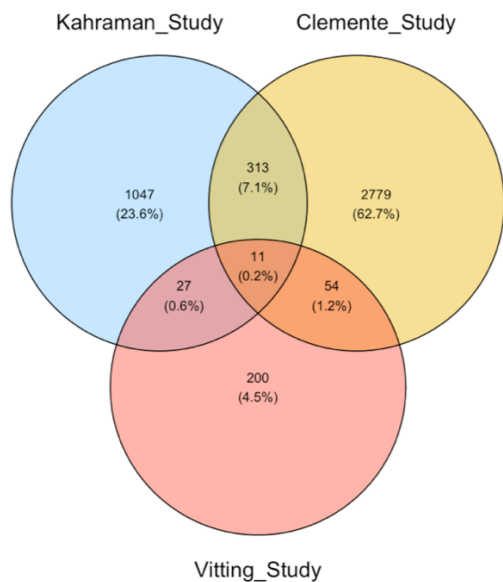
## **Supplementary information**

# **Probing Isoform Switching Events in Various Cancer Types: Lessons From Pan-Cancer Studies**

Tülay Karakulak, Holger Moch, Christian von Mering and Abdullah Kahraman

# Gene Set Analysis

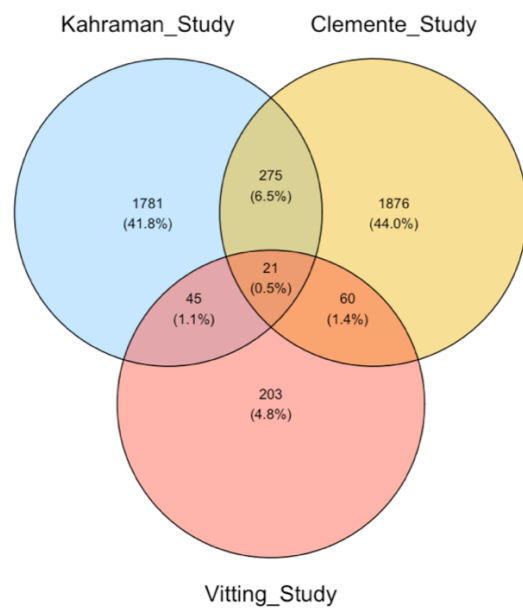
## Breast Invasive Carcinoma (BRCA)



### Genes Commonly Found in all 3 Studies:

*TNC, ATXN3, FAM76B, CAP2, PNPLA7, PPAN, DACHI, CPLX1, SKA2, BICD2, HOXC6*

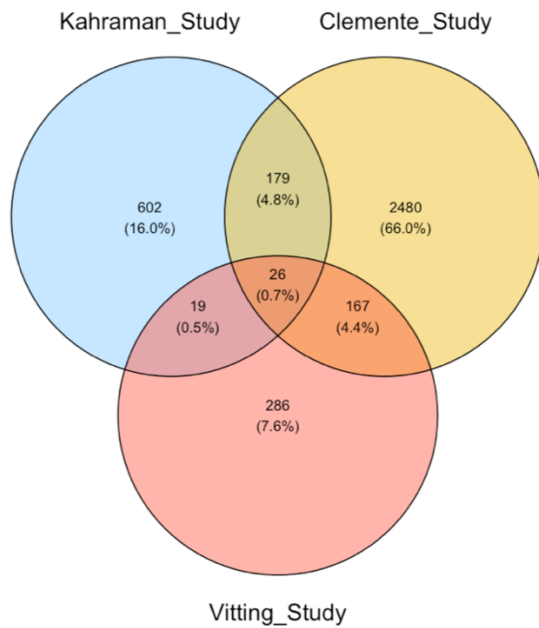
## Colon Adenocarcinoma (COAD)



### Genes Commonly Found in all 3 Studies:

*C19orf60, OSBPL5, CD44, ZFYVE16, TLE2, ST6GALNAC1, LIMS2, CALD1, PNKD, SHC2, RIN2, MYO 10, C7orf50, AK3, RABGEF1, TSPAN7, FMNL3, ING2, PCCA, SH3BGR, BTN3A2*

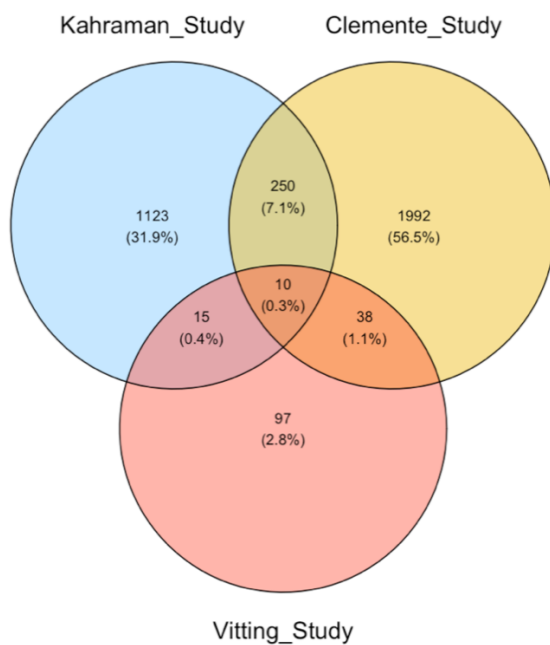
## Kidney Chromophobe (KICH)



### Genes Commonly Found in all 3 Studies:

*CD44, RC3H2, CEACAM1, NRCAM, CDADC1, GSPT1, CAV1, DNMBP, LIPA, NCOA7, KTN1, PDGFRA, BCAR3, RGS3, TARS2, ZNF385B, OBSCN, NAGS, BSCL2, PCMTD1, APIS2, EXD3, ZNF44, WWP2, CTNND1, SCAMP5*

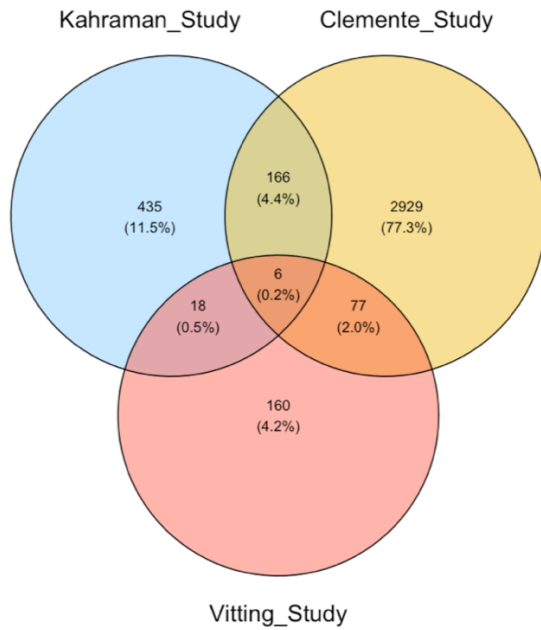
## Liver Hepatocellular Carcinoma (LIHC)



### Genes Commonly Found in all 3 Studies:

*KIF22, NXT2, NT5E, GBAS, PANK1, CXADR, MFAP4, NUDT6, FGGY, AQP1*

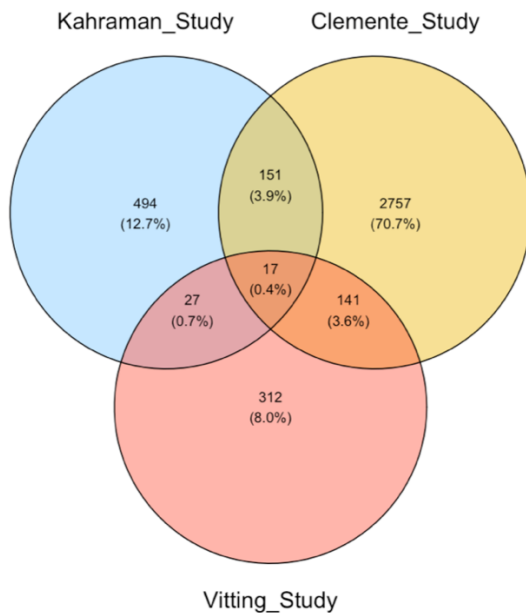
## Lung Adenocarcinoma (LUAD)



### Genes Commonly Found in all 3 Studies:

*SPAG9, LSR, ITM2C, CXADR, CPLX1, TNFRSF10C*

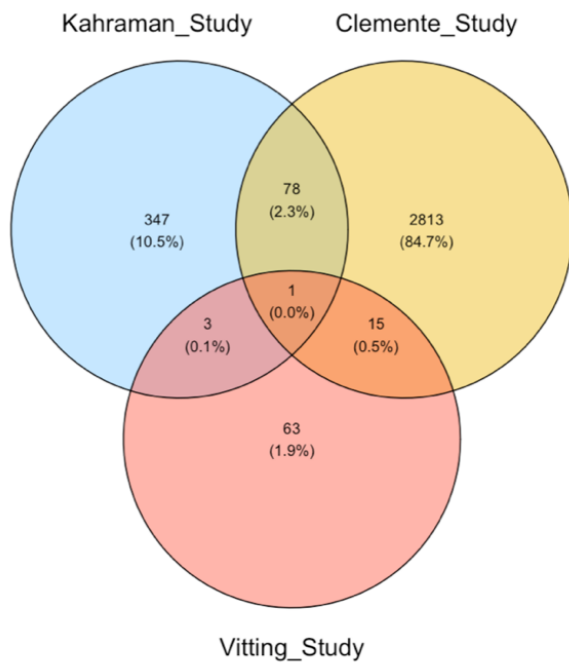
## Lung Squamous Cell Carcinoma (LUSC)



### Genes Commonly Found in all 3 Studies:

*CASP10, SDCCAG8, ATXN3, CECR1, DYRK1B, LSR, MEST, GAB1, CNOT2, MKLN1, SHROOM2, NTRK2, DST, IL17RE, PPFIBP2, WWOX, CTNND1*

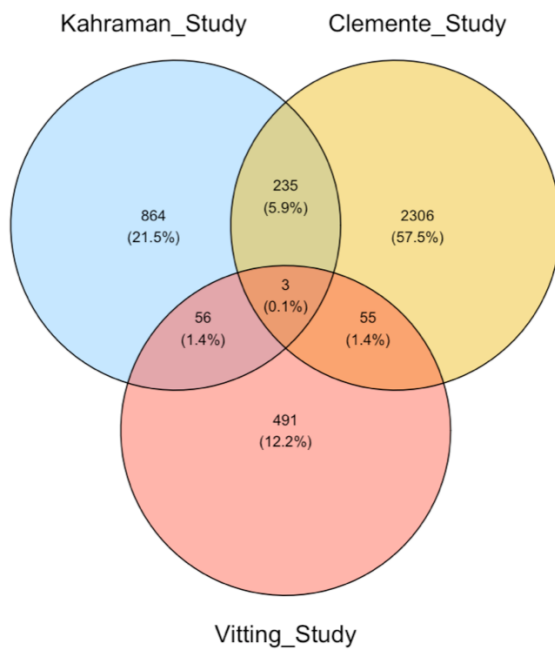
## Prostate Adenocarcinoma (PRAD)



### Genes Commonly Found in all 3 Studies:

*VAMP1*

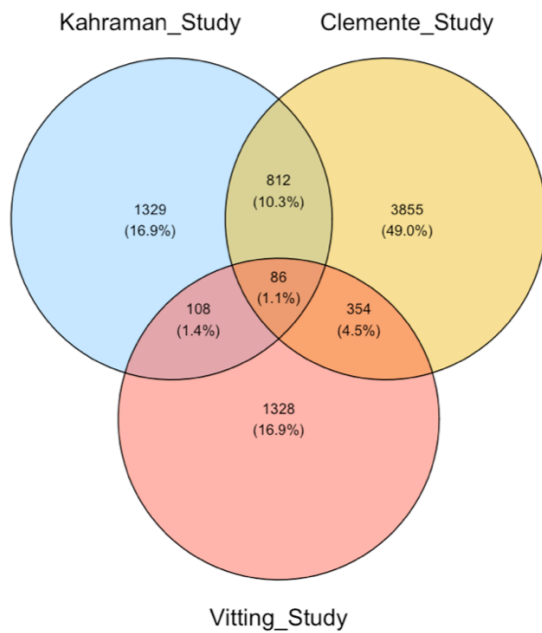
## Thyroid Carcinoma (THCA)



### Genes Commonly Found in all 3 Studies:

*CHF, Clorf198, FAM174B*

## Kidney Renal Cell Carcinoma, Clear Cell and Papillary (KIRC + KIRP)

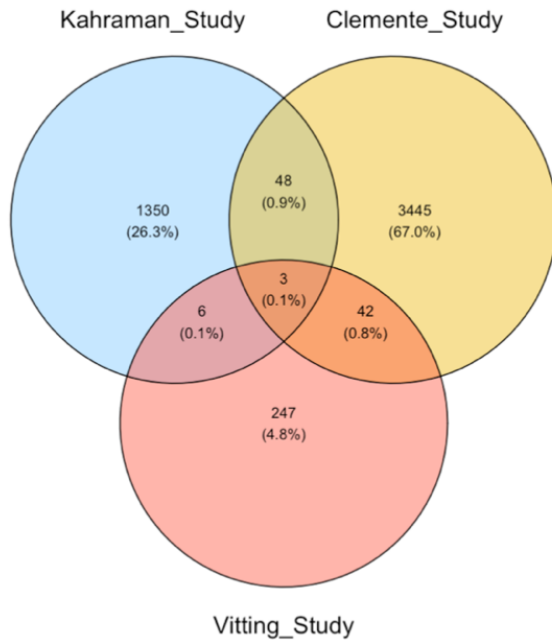


### Genes Commonly Found in all 3 Studies:

*C19orf60, MLXIPL, PLEKHH1, ATP2B4, SLC9A3R2, FGFR2, RASSF1, ATP2B1, BAZ2A, SMARCA2, EPS15, IPO11, MMP2, CECR1, MFNG, PATZ1, ASB9, FLT1, TAF1C, ILVBL, TIMM50, ADAP1, CAV1, DOCK8, DNMBP, LIPA, SHOC2, KLHL2, ST3GAL4, MVK, SCNN1A, BTN3A3, DOCK7, MXI1, ARAP3, ACOT9, IQSEC2, PSD4, EML2, TRPM4, EPS8L1, DIAPH1, DMGDH, PDGFRA, BIVM, ITM2C, CIB2, BIN1, FPGS, BCAR3, NCOA4, RNF185, SSBP2, DCDC2, ZNF185, TM7SF2, SCOC, ABI3BP, CXADR, RABGEF1, RMND1, AIFM1, SLC35B2, KALRN, MUM1, TBC1D24, STK36, HDAC11, MYO5B, TMCC1, GOLGA8A, EFCAB4A, GRAMD1C, LIMK2, SPNS3, AFMID, RBM33, FAM174B, MITF, ZNF559, TMEM201, ZNF44, WWP2, SCAMP5, PPME1, CUX1*

# Isoform Switch Analysis

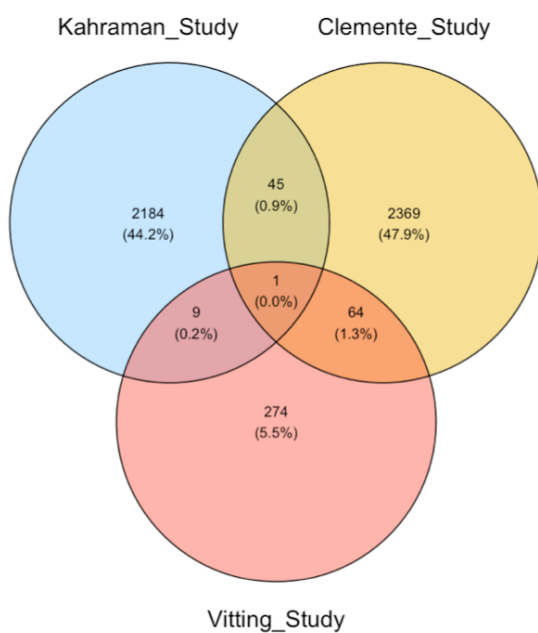
## Breast Invasive Carcinoma (BRCA)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc003gbj\_uc003gbi (CPLX1)  
uc004aso\_uc004asp (BICD2)  
uc003ncb\_uc011djb (CAP2)

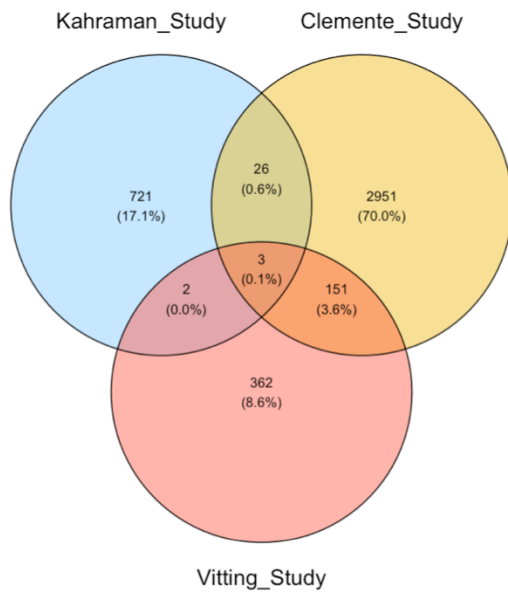
## Colon Adenocarcinoma (COAD)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc002vhm\_uc002vhq (PNKD)

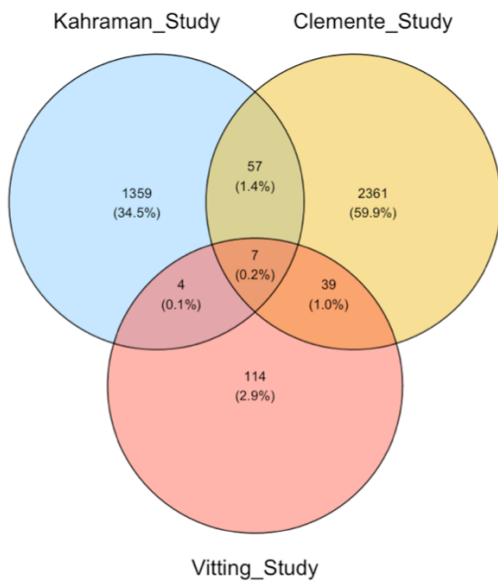
## Kidney Chromophobe (KICH)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc002otv\_uc002otw (CEACAM1)  
uc001mvx\_uc001mvw (CD44)  
uc002unj\_uc002unn (ZNF385B)

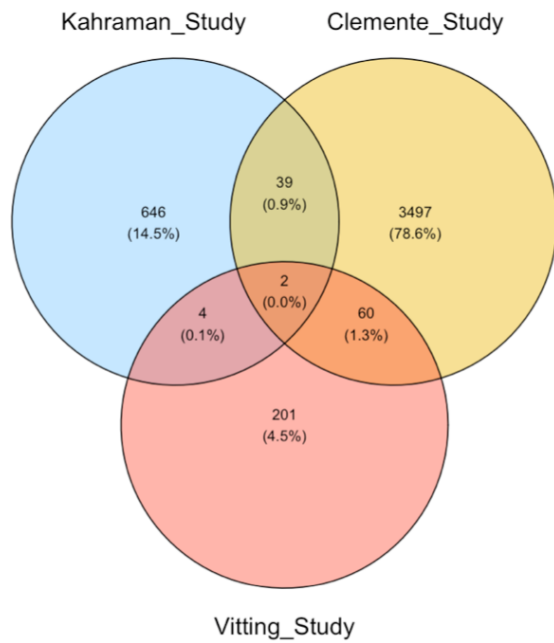
## Liver Hepatocellular Carcinoma (LIHC)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc003iew\_uc003iex (NUDT6)  
uc003tbv\_uc010kwf (AQP1)  
uc003pko\_uc010kbr (NT5E)  
uc003tre\_uc003trf (NIPSNAP2)  
uc002yki\_uc002ykj (CXADR)  
uc001kgn\_uc001kgo (PANK1)  
uc001qyu\_uc001qyt (YBX3)

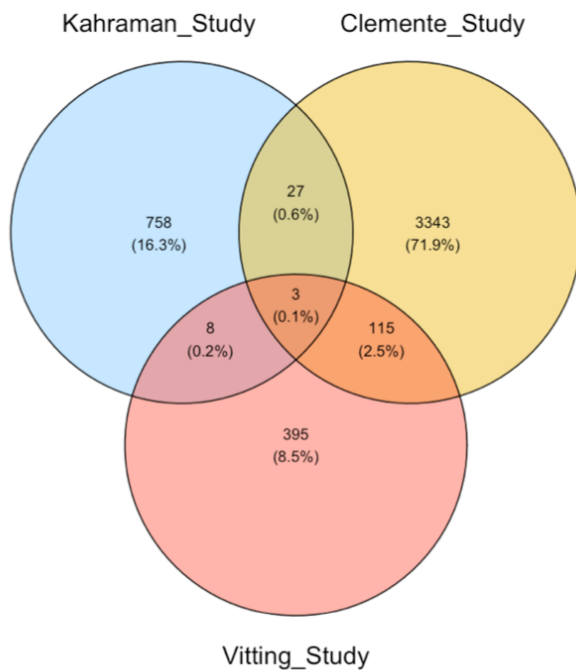
## Lung Adenocarcinoma (LUAD)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc003gbj\_uc003gbi (CPLX1)  
uc002yki\_uc002ykj (CXADR)

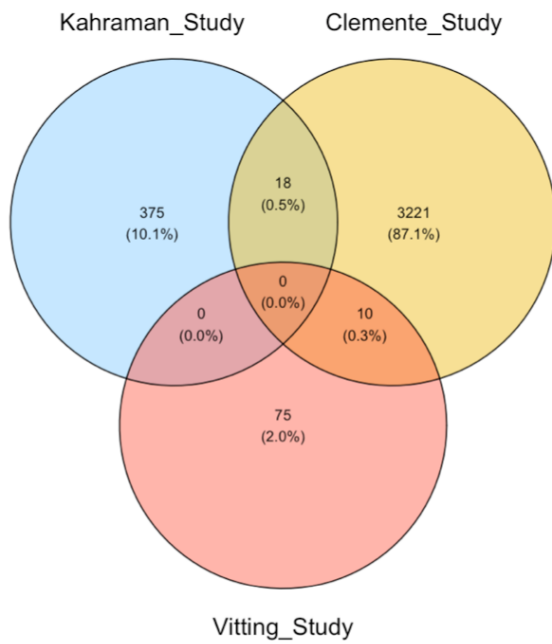
## Lung Squamous Cell Carcinoma (LUSC)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

uc002uxj\_uc010ftb (CASP10)  
uc002nym\_uc002nyn (LSR)  
uc003vqg\_uc003vqc (MEST)

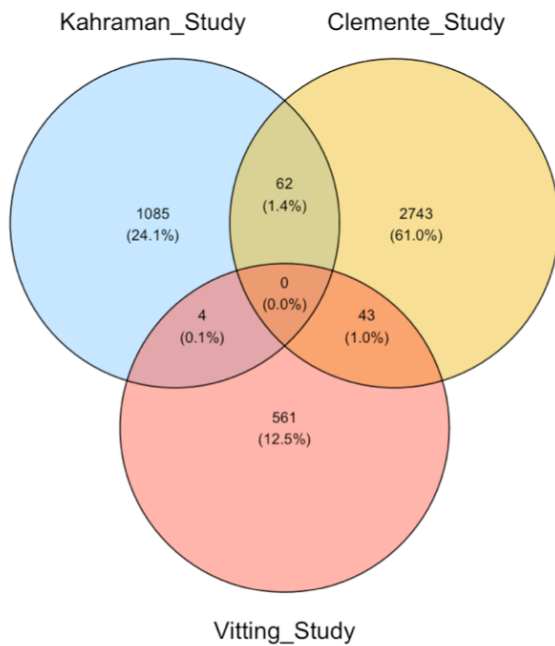
## Prostate Adenocarcinoma (PRAD)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

No common switching event

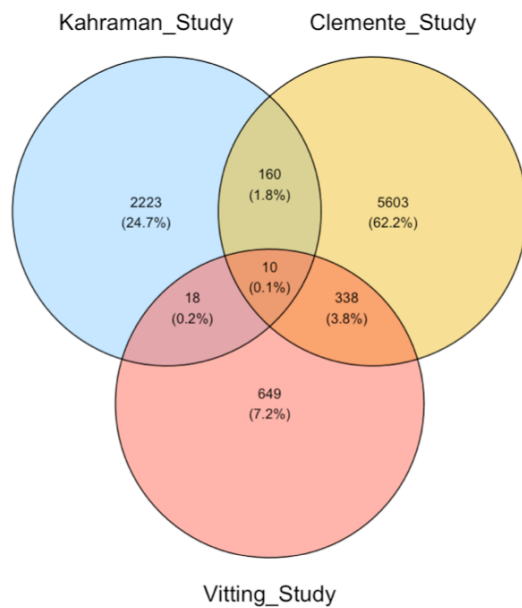
## Thyroid Carcinoma (THCA)



**Isoform Switch Commonly Found in all 3 Studies:**  
**Normal Isoform Cancer-specific Isoform (Gene Name)**

No common switching event

# Kidney Renal Cell Carcinoma, Clear Cell and Papillary (KIRC + KIRP)

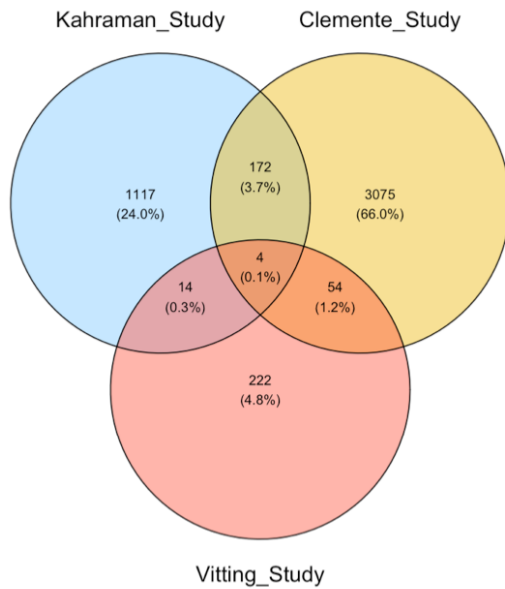


## Isoform Switch Commonly Found in all 3 Studies: Normal Isoform Cancer-specific Isoform (Gene Name)

uc001kza\_uc001kyy (MXI1)  
uc003akb\_uc003ake (RNF185)  
uc004evg\_uc004evi (AIFM1)  
uc002bdb\_uc002bdc (CIB2)  
uc002cok\_uc002coi (SLC9A3R2)  
uc001dpx\_uc001dpy (BCAR3)  
uc002yki\_uc002ykj (CXADR)  
uc004bsg\_uc004bsi (FBGS)  
uc003aks\_uc003akr (PATZ1)  
uc003eas\_uc003eaq (GRAMD1C)

# Normal Isoform Analysis

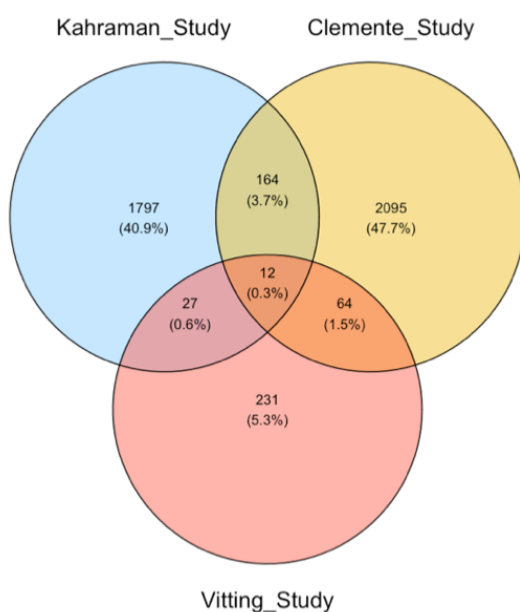
## Breast Invasive Carcinoma (BRCA)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003gbj, uc004aso, uc003ncb, uc001sev

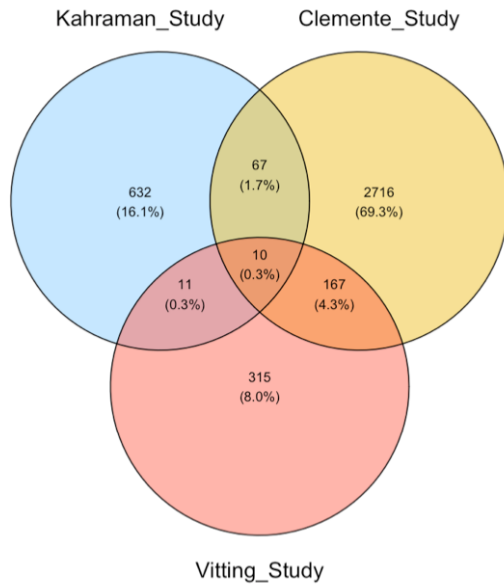
## Colon Adenocarcinoma (COAD)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc002tpa, uc001voo, uc001lxx, uc002njv, uc002vhm,  
uc002jsh, uc003kgq, uc002loq, uc003jft, uc003ziq,  
uc004deg, uc002yya

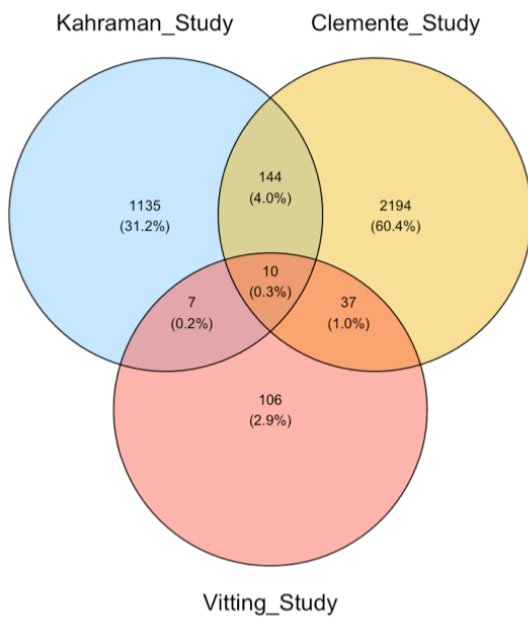
## Kidney Chromophobe (KICH)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc002otv, uc001qba, uc004cxi, uc004cmp, uc001mvx,  
uc001nup, uc003vfc, uc003han, uc002unj, uc002ies

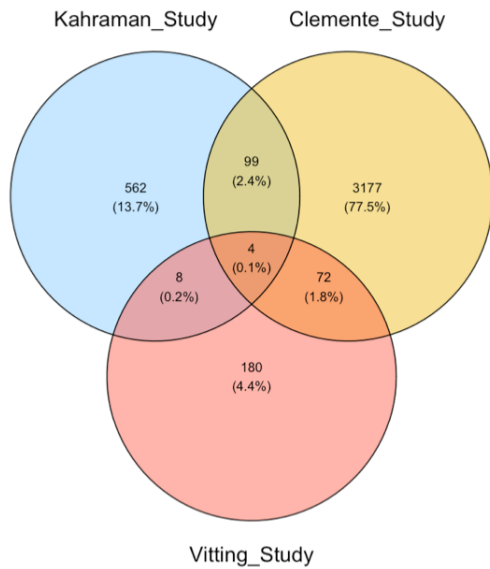
## Liver Hepatocellular Carcinoma (LIHC)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003iew, uc003tbv, uc002gvt, uc003pko, uc003tre,  
uc002yki, uc001kgn, uc003hzc, uc001qyu, uc004eof

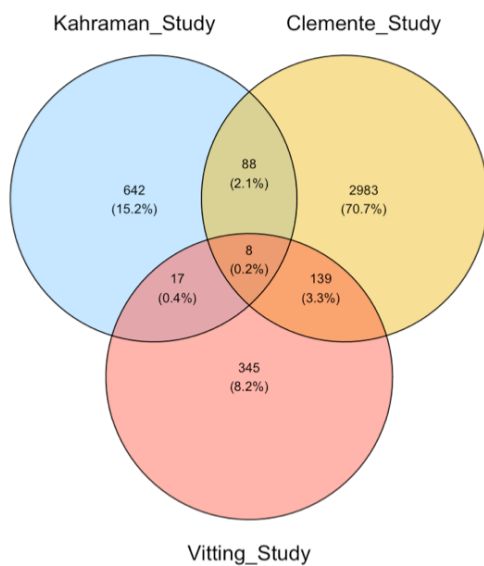
## Lung Adenocarcinoma (LUAD)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc002vqz, uc003gbj, uc003xcy, uc002yki

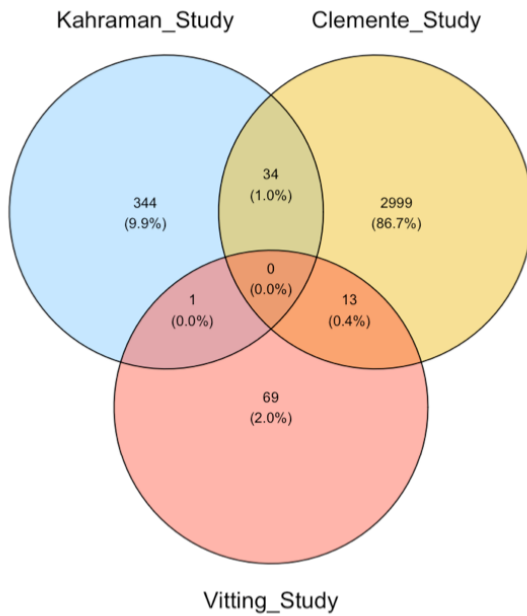
## Lung Squamous Cell Carcinoma (LUSC)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc002uxj, uc002nym, uc002ffk, uc004csu, uc011chq,  
uc009zro, uc003vqg, uc003btw

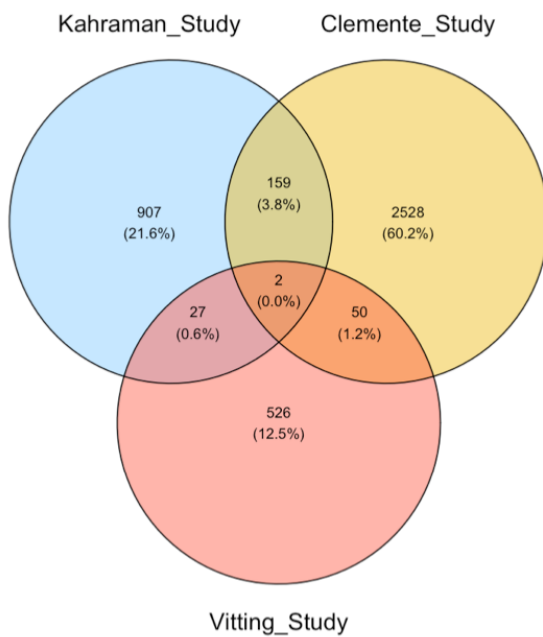
## Prostate Adenocarcinoma (PRAD)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

No common normal isoform

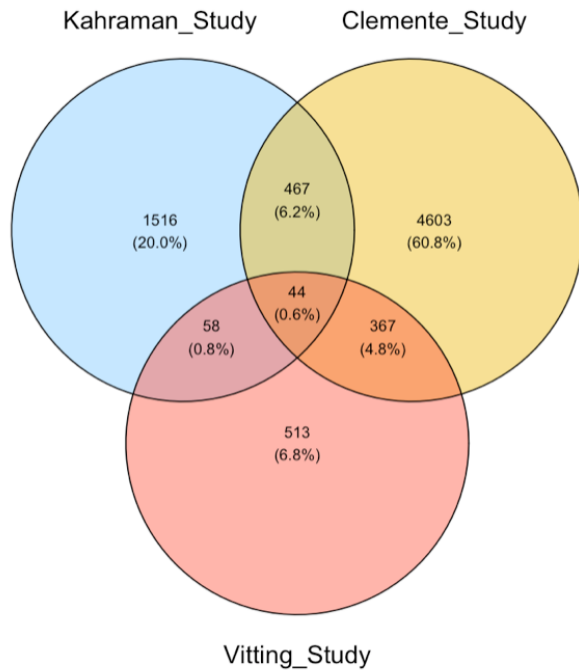
## Thyroid Carcinoma (THCA)



**Normal Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc001hub, uc010boe

## Kidney Renal Cell Carcinoma, Clear Cell and Papillary (KIRC + KIRP)

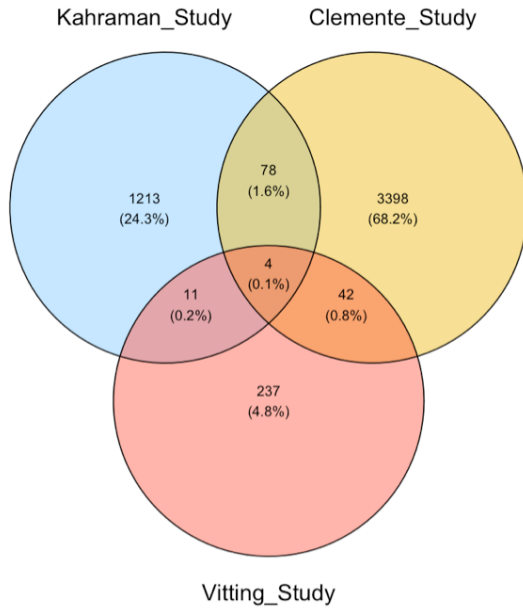


### Normal Isoform Commonly Found in all 3 Studies: Normal Isoform

uc001csq, uc001kzl, uc001vps, uc002vqz, uc003oxd, uc002cqq, uc002njv, uc003dab, uc002bdb, uc003tyn, uc001xjl, uc003han, uc004cwk, uc004dap, uc003eas, uc001apy, uc003irb, uc009zvz, uc001kza, uc002pcn, uc002tob, uc003akb, uc001oct, uc004evg, uc010boe, uc003vcm, uc003sjo, uc001lr, uc002zmj, uc002pmw, uc003ass, uc003llm, uc002cok, uc002nam, uc001dpx, uc002yki, uc004bsg, uc011che, uc002jva, uc003aks, uc002tjc, uc002qis, uc003kfs, uc003ndx

# Cancer Isoform Analysis

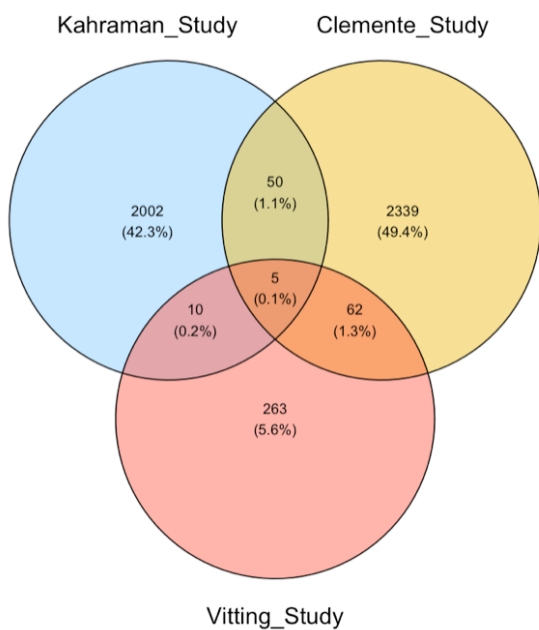
## Breast Invasive Carcinoma (BRCA)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003gbi, uc004asp, uc002uhz, uc011djb

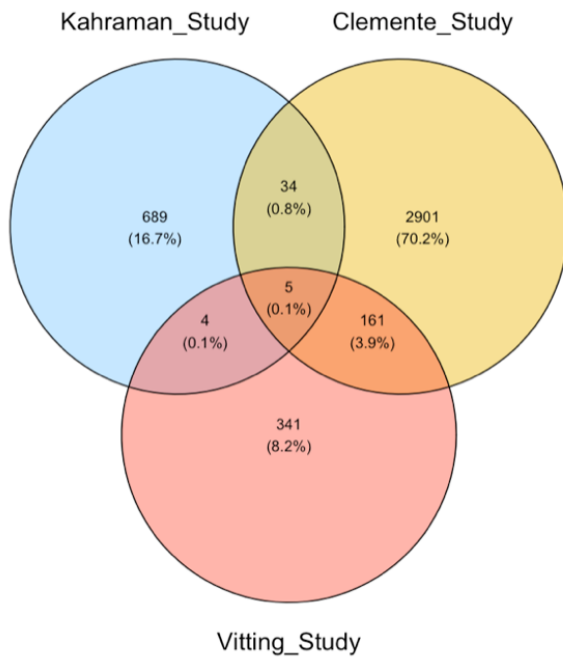
## Colon Adenocarcinoma (COAD)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003sju, uc003tvh, uc002uhz, uc002vhq, uc009xkg

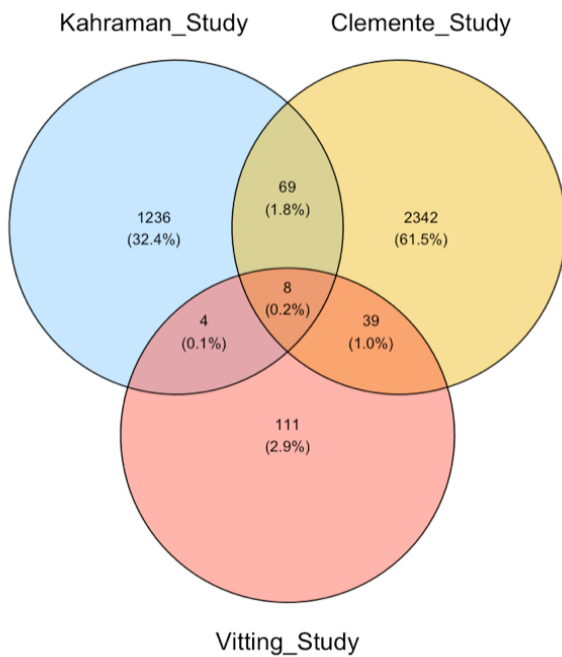
## Kidney Chromophobe (KICH)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc002otw, uc003qai, uc001mvw, uc001dpy, uc002unn

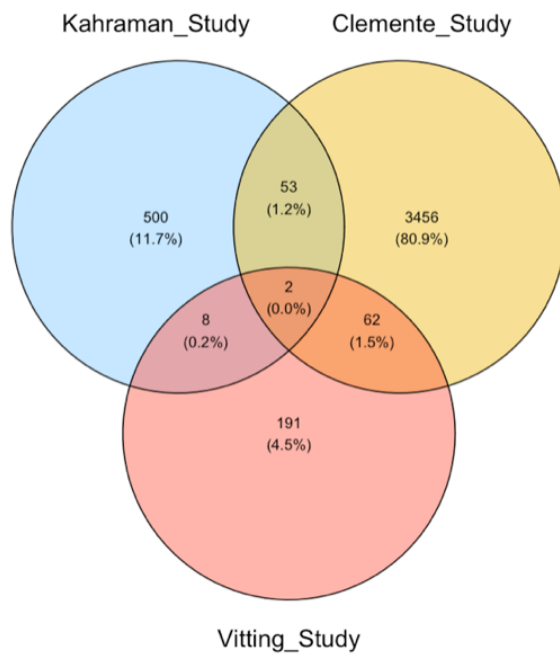
## Liver Hepatocellular Carcinoma (LIHC)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003iex, uc010kwf, uc010kbr, uc003trf, uc002ykj,  
uc001kgo, uc001qyt, uc002dts

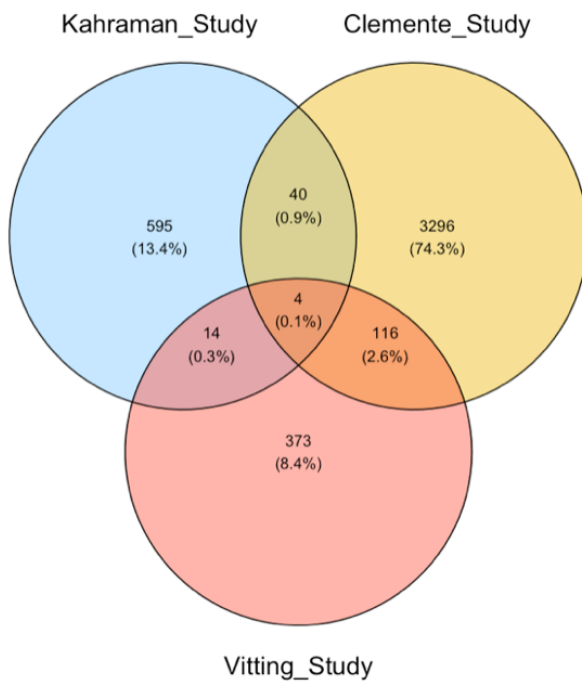
## Lung Adenocarcinoma (LUAD)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc003gbi, uc002ykj

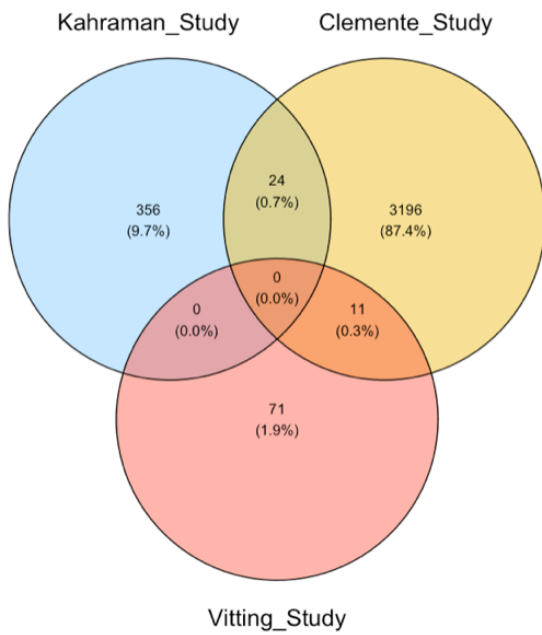
## Lung Squamous Cell Carcinoma (LUSC)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc010ftb, uc002nyn, uc003pdc, uc003vqc

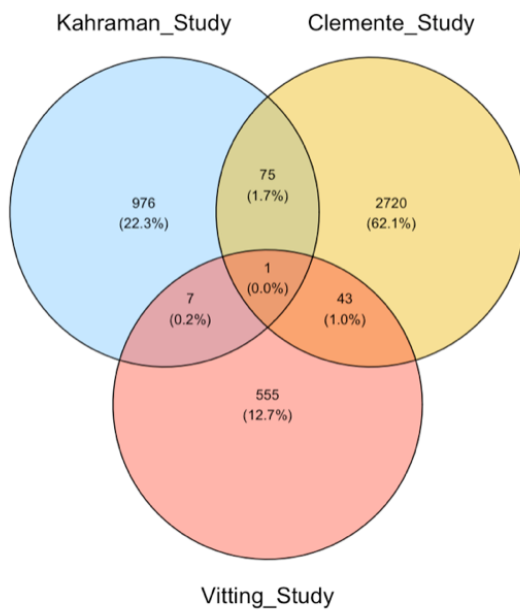
## Prostate Adenocarcinoma (PRAD)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

No common cancer isoform

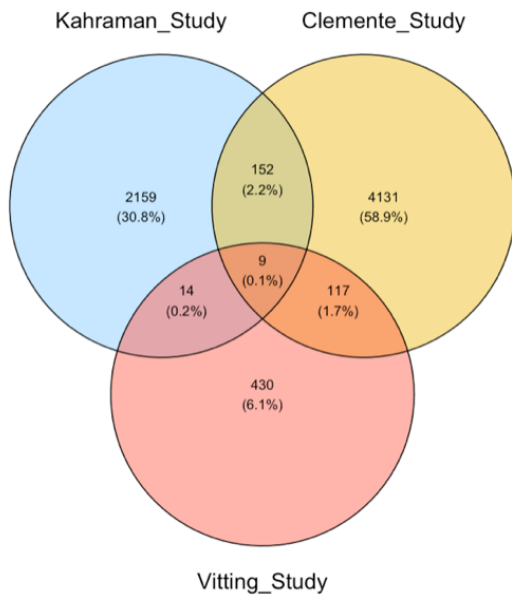
## Thyroid Carcinoma (THCA)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc009xkg

# Kidney Renal Cell Carcinoma, Clear Cell and Papillary (KIRC + KIRP)



**Cancer Isoform Commonly Found in all 3 Studies:**  
**Normal Isoform**

uc001kyy, uc003ake, uc003tvh, uc003ehk, uc002bdc,  
uc001dpy, uc002ykj, uc003akr, uc003eaq