Heatmap analysis output

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Mon Nov 2 23:33:53 2020

A secondary approach to visualizing the top candidates and their relative abundance.

```
suppressPackageStartupMessages(library(knitr))
```

```
opts_chunk$set(fig.width = 8, fig.height = 10.2)
```

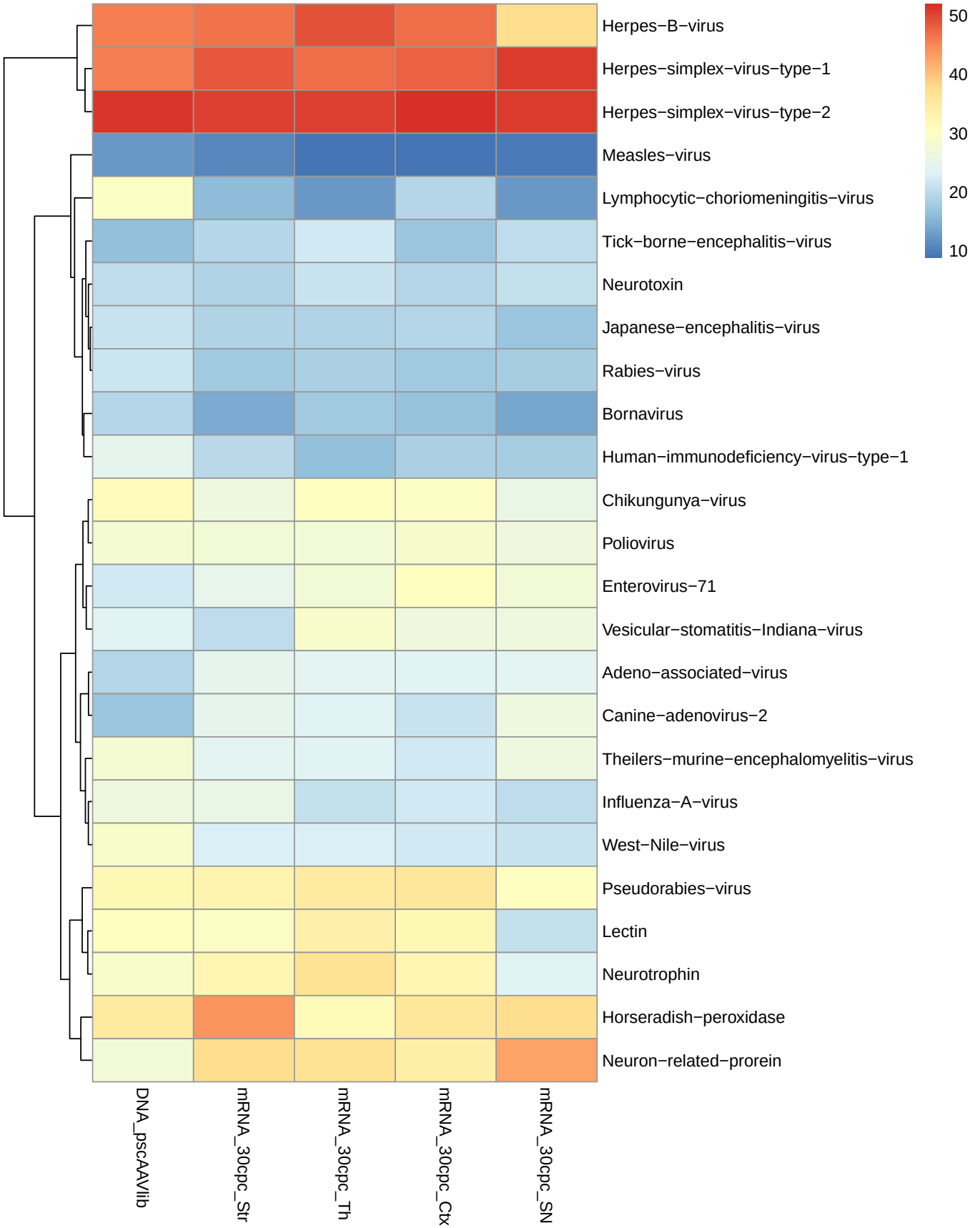
Selection of relevant samples

```
select.samples <- readRDS("data/allSamplesDataTable.RDS")
select.samples$Group[select.samples$Group== "mRNA_3cpc_HEK293T"] <- "mRNA_3cpc_HEK293T"
select.samples$Group[select.samples$Group== "mRNA_30cpc_HEK293T"] <- "mRNA_30cpc_HEK293T"
select.samples <- select.samples[-grep("4wks|mRNA_3cpc_pNeuron_RNA",select.samples$Group),]

select.samples.binCat <- data.table::copy(select.samples)
setkeyv(select.samples.binCat,c("Group","Category"))

select.samples.binCat <- select.samples.binCat[,list(BCcount=length(table(strsplit(paste(t(BC),
                                                    collapse=","), ","))), NormCount=mean(log2(RNAcount+1))
                                                        ), by=key(select.samples.binCat)]

setkey(select.samples.binCat,Group)
ref.table <- select.samples.binCat["DNA_pscAAVlib"]
ref.table[,c("Group","NormCount"):=NULL]
setnames(ref.table,"BCcount","libBC")
setkey(ref.table,"Category")
select.samples.binCat[,totBC:=sum(BCcount), by="Group"]
max.count <- max(select.samples.binCat$totBC)
select.samples.binCat[,BCcountN:=BCcount/totBC*max.count]
length.Table <- unique(select.samples, by=c("Category","GeneName"))
length.Table <- length.Table[,list(seqlength=sum(seqlength)), by="Category"]
setkey(length.Table,"Category")
setkey(select.samples.binCat,"Category")
select.samples.binCat <- select.samples.binCat[length.Table,nomatch=0]
select.samples.binCat <- select.samples.binCat[ref.table,nomatch=0]

select.samples.binCat[,Category:=gsub("/|_|'","-",Category)]
select.samples.binCat[,BCcountNseq:=BCcountN/seqlength]
select.samples.binCat[,refNormBC:=BCcountN/libBC]


select.samples.binGene <- data.table::copy(select.samples)
setkeyv(select.samples.binGene,c("Group","Category","GeneName","seqlength"))
select.samples.binGene <- select.samples.binGene[,list(BCcount=length(table(strsplit(paste(t(BC), collapse="
                                                    NormCount=mean(log2(RNAcount+1))), by=key(select.samp
select.samples.binGene[,GeneName:=gsub("/|_|'","-",GeneName)]
setkey(select.samples.binGene,Group)
ref.table <- select.samples.binGene["DNA_pscAAVlib"]
ref.table[,c("Group","Category","NormCount","seqlength"):=NULL]
setnames(ref.table,"BCcount","libBC")
```

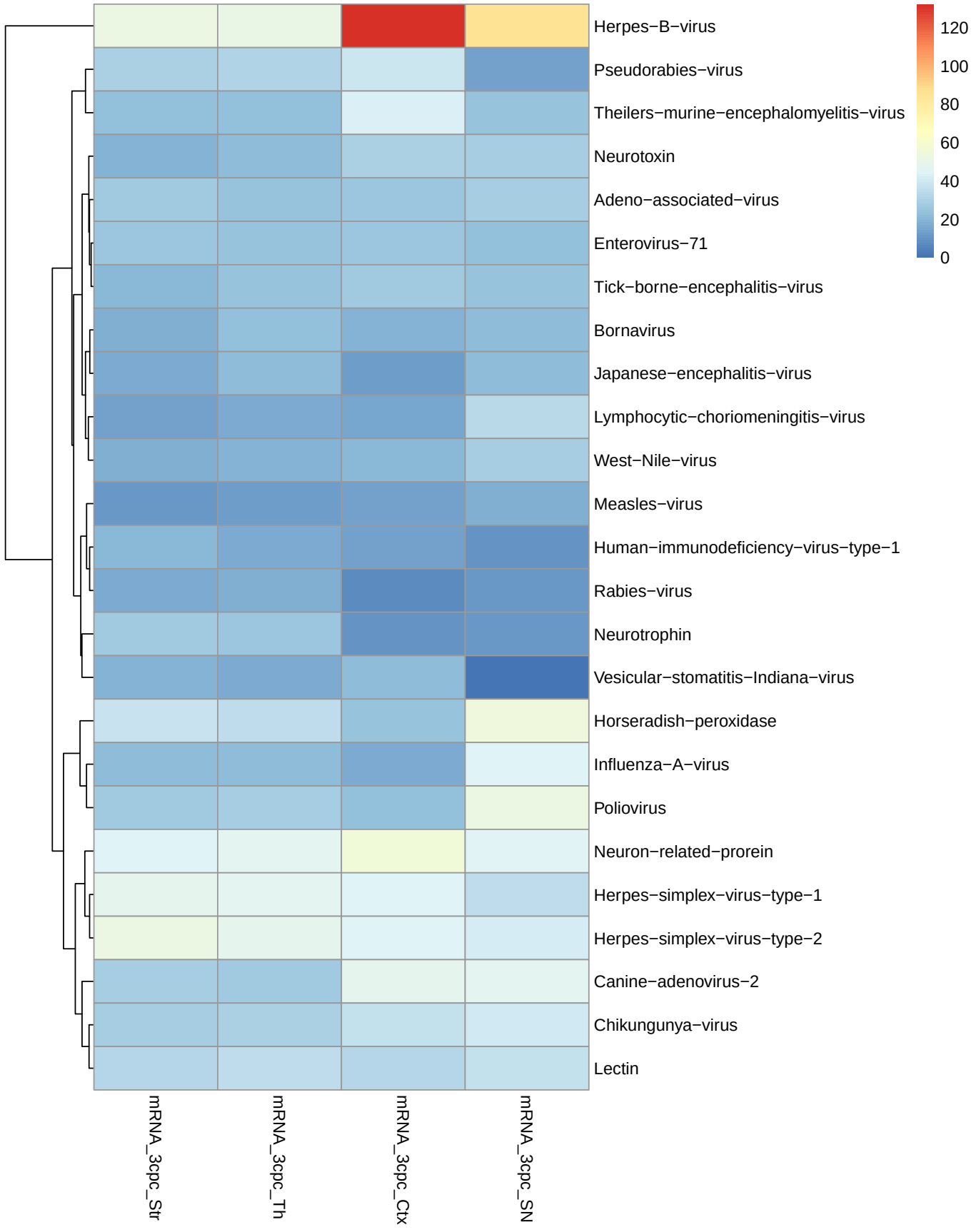
```
setkey(ref.table,"GeneName")
setkey(select.samples.binGene,"GeneName")
select.samples.binGene[,totBC:=sum(BCcount), by="Group"]
select.samples.binGene <- select.samples.binGene[ref.table,nomatch=0]
max.count <- max(select.samples.binGene$totBC)
select.samples.binGene[,BCcountN:=BCcount/totBC*max.count]
select.samples.binGene[,BCcountNseq:=BCcountN/seqlength]
select.samples.binGene[,refNormBC:=BCcountN/libBC]

select.samples.binPos <- data.table::copy(select.samples)
setkeyv(select.samples.binPos,c("Group","structure","Sequence"))
select.samples.binPos <- unique(select.samples.binPos, by=c("Group","structure","Sequence"))
#Due to key, this removes replicates if identical sequence mapped to multiple genes

setkeyv(select.samples.binPos,c("Group","GeneName","AA","seqlength"))
select.samples.binPos <- select.samples.binPos[,list(BCcount=length(table(strsplit(paste(t(BC), collapse=","
                                                    NormCount=mean(log2(RNAcount+1)),
                                                    AnimalCount=length(table(strsplit(paste(t(Animals), col
                                                    LUTnrs=paste(unique(names(table(strsplit(paste(t(LUTnrs
                                                    mainStruct=paste(unique(structure), collapse=","),
                                                    mismatches=median(mismatches)), by=key(select.samples.b
setkey(select.samples.binPos,Group)
ref.table <- select.samples.binPos["DNA_pscAAVlib"]
ref.table[,c("Group","NormCount","AnimalCount","LUTnrs","mainStruct","mismatches","seqlength"):=NULL]
setnames(ref.table,"BCcount","libBC")
setkeyv(ref.table,c("GeneName","AA"))
setkeyv(select.samples.binPos,c("GeneName","AA"))
select.samples.binPos <- select.samples.binPos[ref.table,nomatch=0]
select.samples.binPos[,totBC:=sum(BCcount), by="Group"]
max.count <- max(select.samples.binPos$totBC)
select.samples.binPos[,BCcountN:=BCcount/totBC*max.count]
select.samples.binPos[,libNormBC:=BCcountN/libBC]
select.samples.binPos[,BCcountNanim:=BCcountN+AnimalCount]
select.samples.binPos[,BCcountanim:=BCcount+AnimalCount]
select.samples.binPos[,BCcountNseq:=BCcountN/seqlength]
select.samples.binPos[,NormCountBC:=BCcountNseq*NormCount]


select.samples.binPos[,GeneAA:=paste(GeneName," [",AA,"] - ", mainStruct, sep="")]
```

Plot Heatmaps split by Category

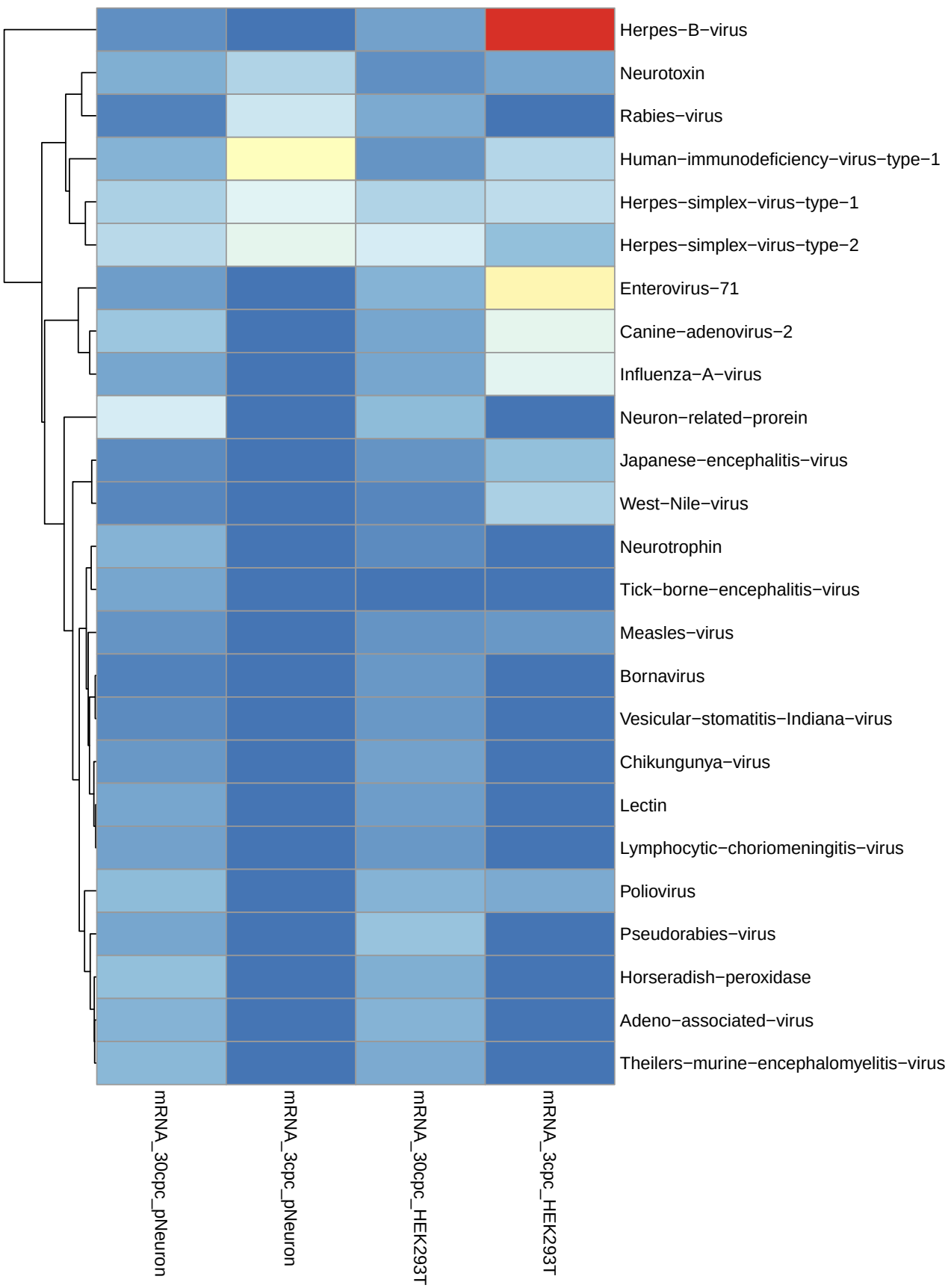
```
plotCategory <- function(select.samples.table,plot.col,sample.select){
  setkey(select.samples.table,Group)
  select.samples.select <- select.samples.table[sample.select]
  eval(parse(text=paste("setorder(select.samples.select,Group, -", plot.col,")", sep="")))
  select.samples.matrix <- acast(select.samples.select, Category~Group, value.var=plot.col)
  #Utilizes reshape 2 to make matrix for heatmap

  select.samples.matrix[is.na(select.samples.matrix)] <- 0
  select.samples.matrix <- select.samples.matrix[,sample.select]
  return(pheatmap(select.samples.matrix, cluster_rows=TRUE, show_rownames=TRUE, cluster_cols=FALSE))
}

plotCategory(select.samples.binCat,"BCcountNseq",c("DNA_pscAAVlib","mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30
```


50
40
30
20
10
Herpes−B−virus
Herpes−simplex−virus−type−1
Herpes−simplex−virus−type−2
Measles−virus
Lymphocytic−choriomeningitis−virus
Tick−borne−encephalitis−virus
Neurotoxin
Japanese−encephalitis−virus
Rabies−virus
Bornavirus
Human−immunodeficiency−virus−type−1
Chikungunya−virus
Poliovirus
Enterovirus−71
Vesicular−stomatitis−Indiana−virus
Adeno−associated−virus
Canine−adenovirus−2
Theilers−murine−encephalomyelitis−virus
Influenza−A−virus
West−Nile−virus
Pseudorabies−virus
Lectin
Neurotrophin
Horseradish−peroxidase
Neuron−related−prorein
DNA_pscAAVlib
mRNA_30cpc_Str
mRNA_30cpc_Th
mRNA_30cpc_Ctx
mRNA_30cpc_SN

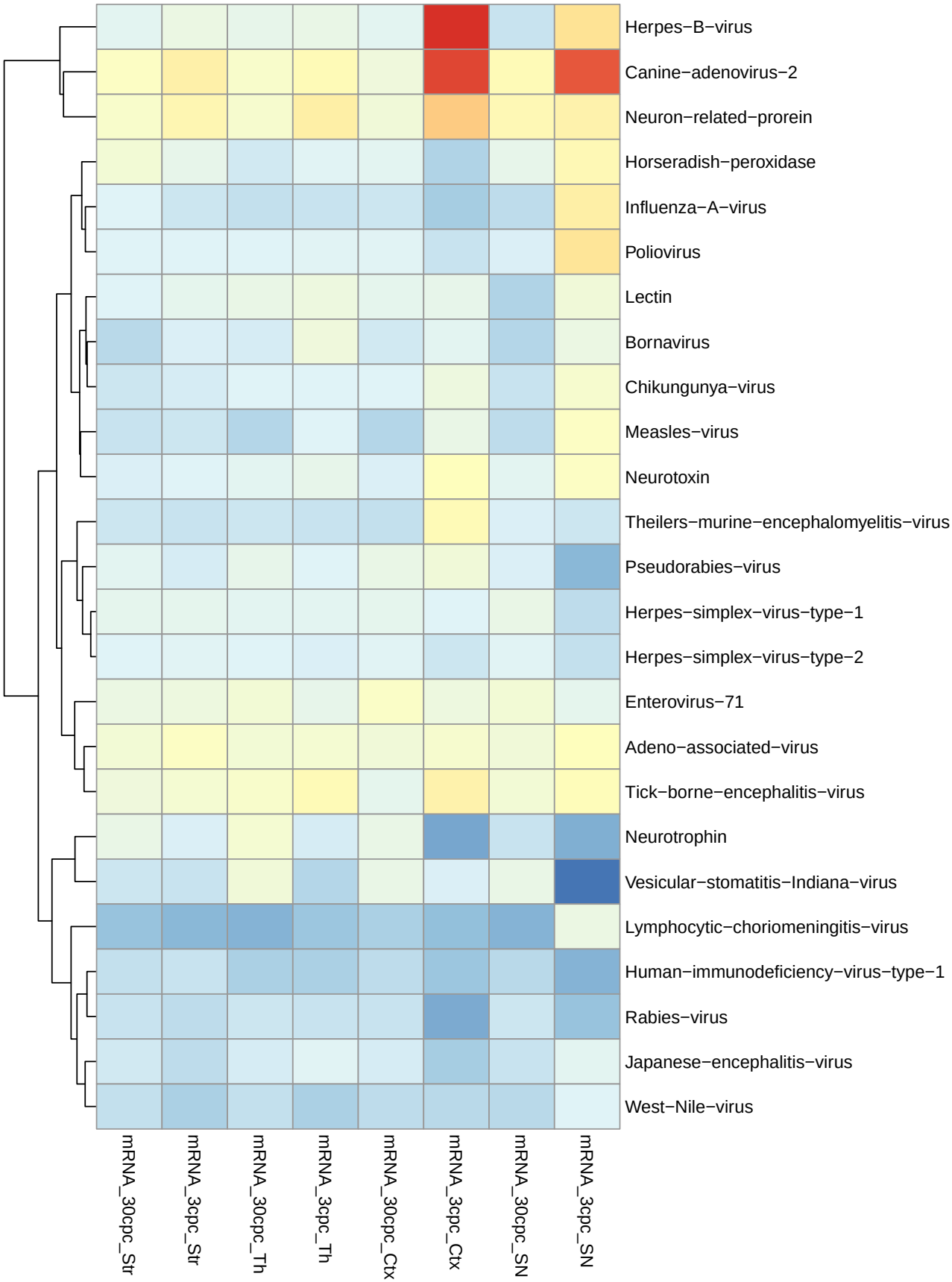
```
plotCategory(select.samples.binCat,"BCcountNseq",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc
```



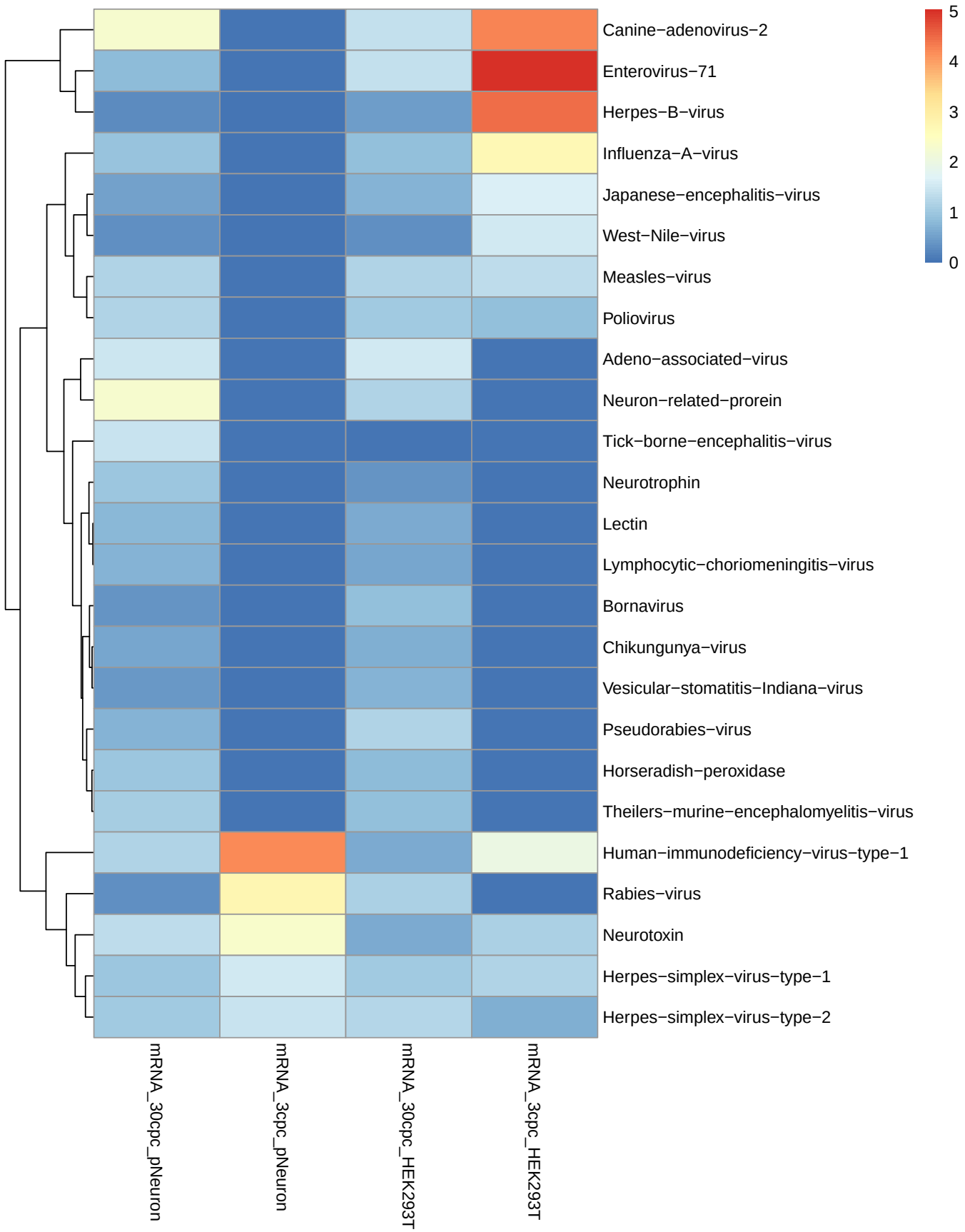
```
plotCategory(select.samples.binCat,"BCcountNseq",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK
```



```
plotCategory(select.samples.binCat,"refNormBC",c("mRNA_30cpc_Str","mRNA_3cpc_Str","mRNA_30cpc_Th","mRNA_3cpc
```

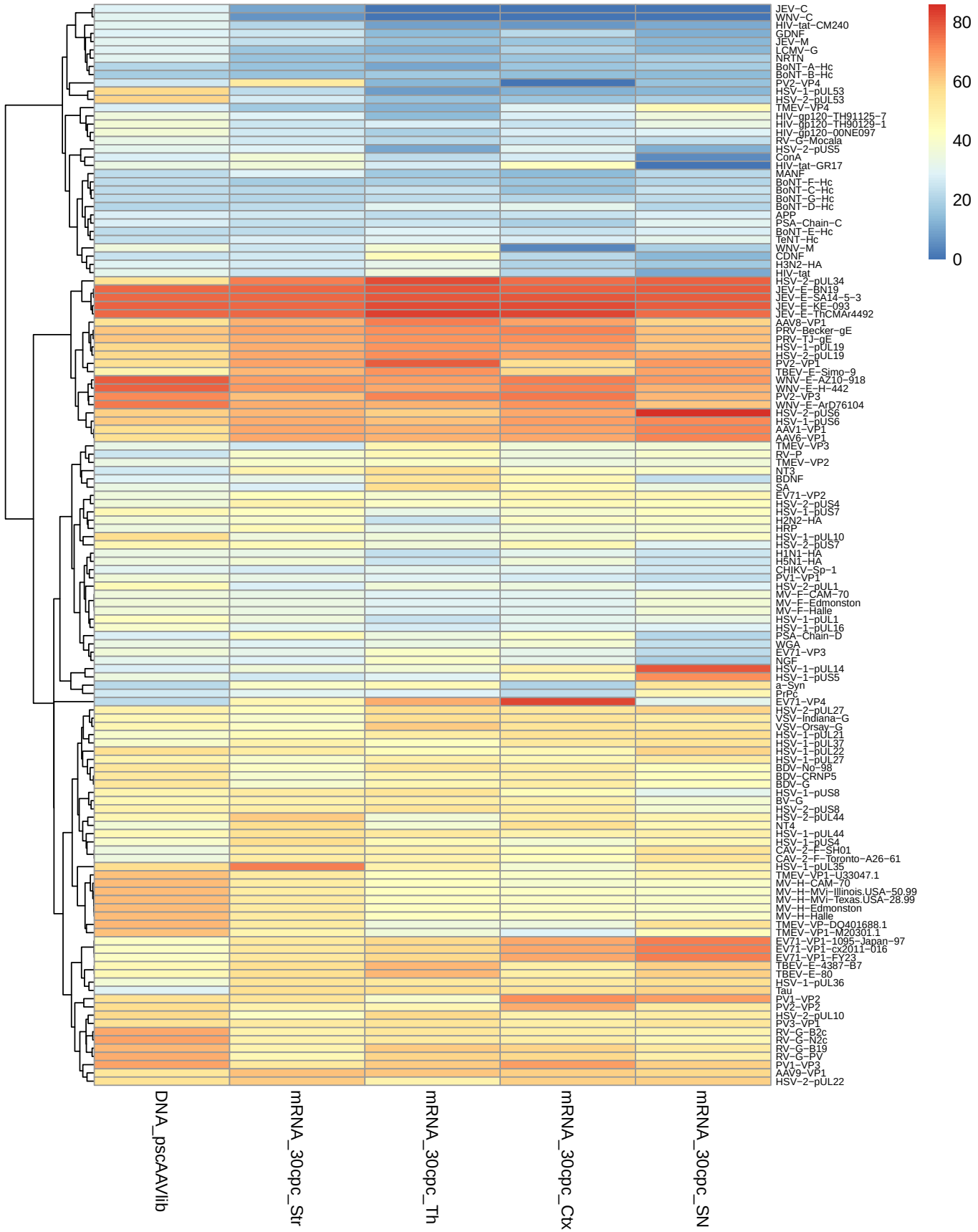


```
plotCategory(select.samples.binCat,"refNormBC",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293
```

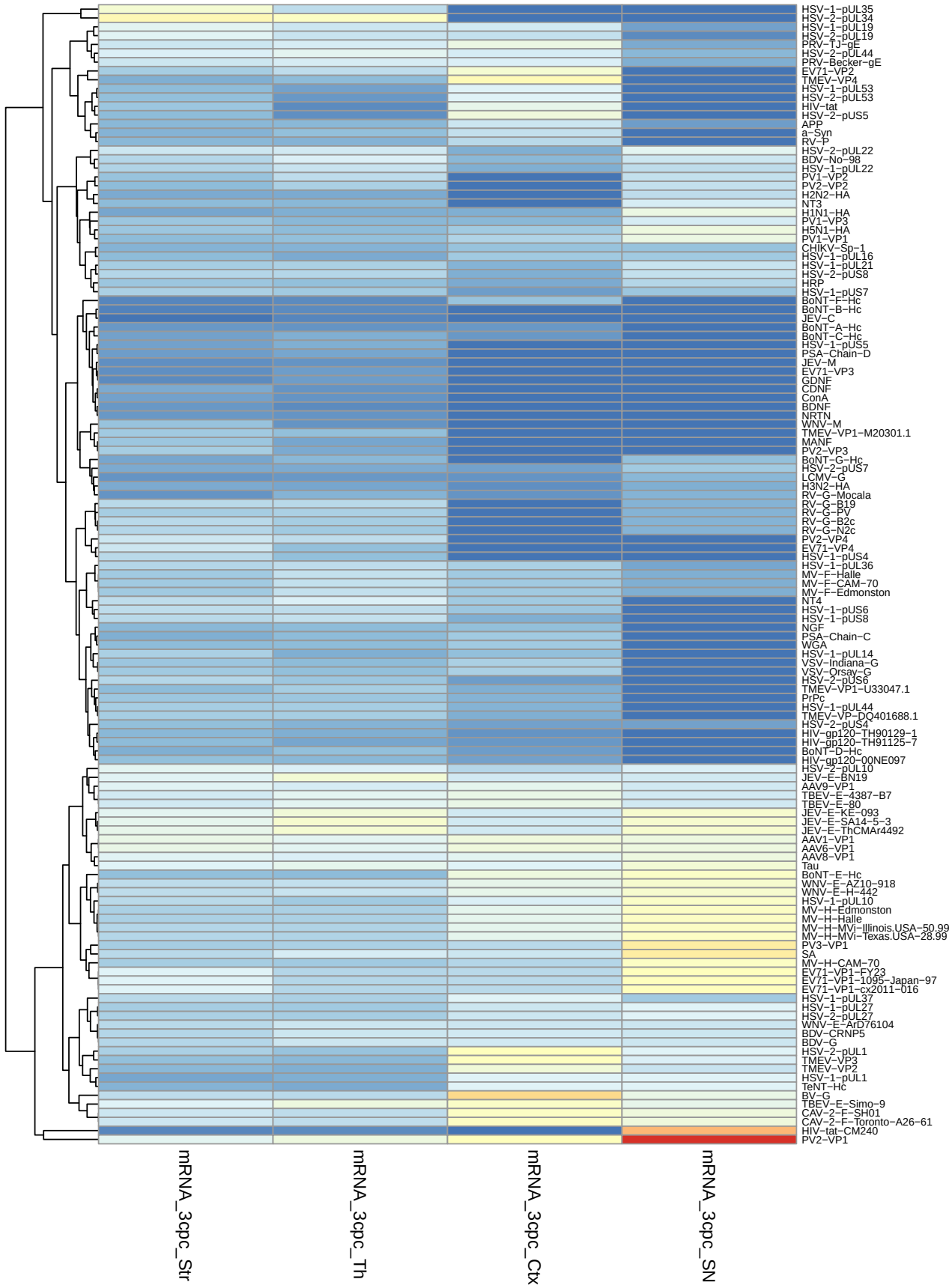


Plot Heatmaps split by GeneName

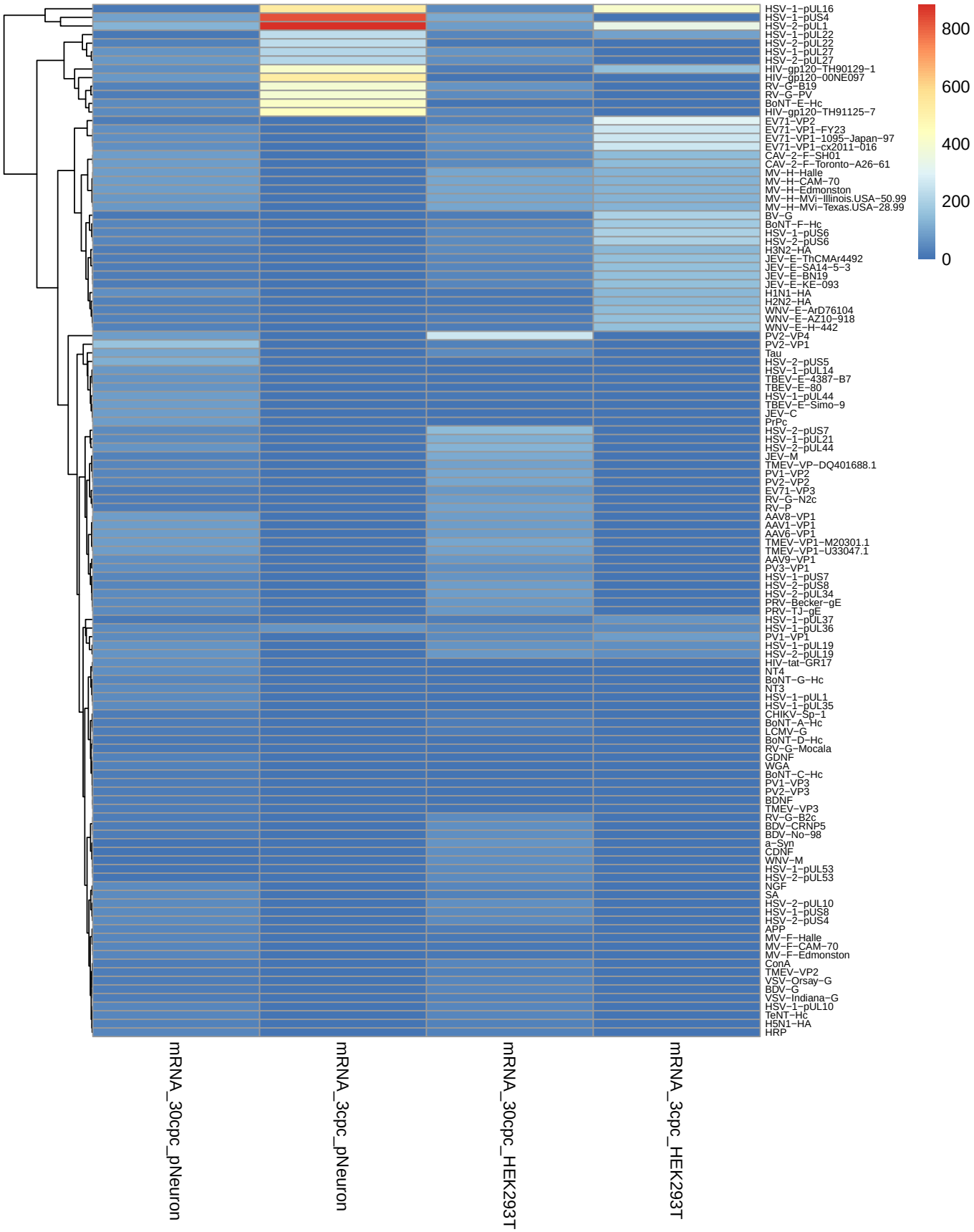
```
plotGene <- function(select.samples.table,plot.col,sample.select){
  setkey(select.samples.table,Group)
  select.samples.select <- select.samples.table[sample.select]
  eval(parse(text=paste("setorder(select.samples.select,Group, -", plot.col,")", sep="")))
  select.samples.matrix <- acast(select.samples.select, GeneName~Group, value.var=plot.col)
  #Utilizes reshape 2 to make matrix for heatmap

  select.samples.matrix[is.na(select.samples.matrix)] <- 0
  select.samples.matrix <- select.samples.matrix[,sample.select]
  return(pheatmap(select.samples.matrix, fontsize_row=5.8, cluster_rows=TRUE, show_rownames=TRUE, cluster_co
}

plotGene(select.samples.binGene,"BCcountNseq",c("DNA_pscAAVlib","mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30cpc
```



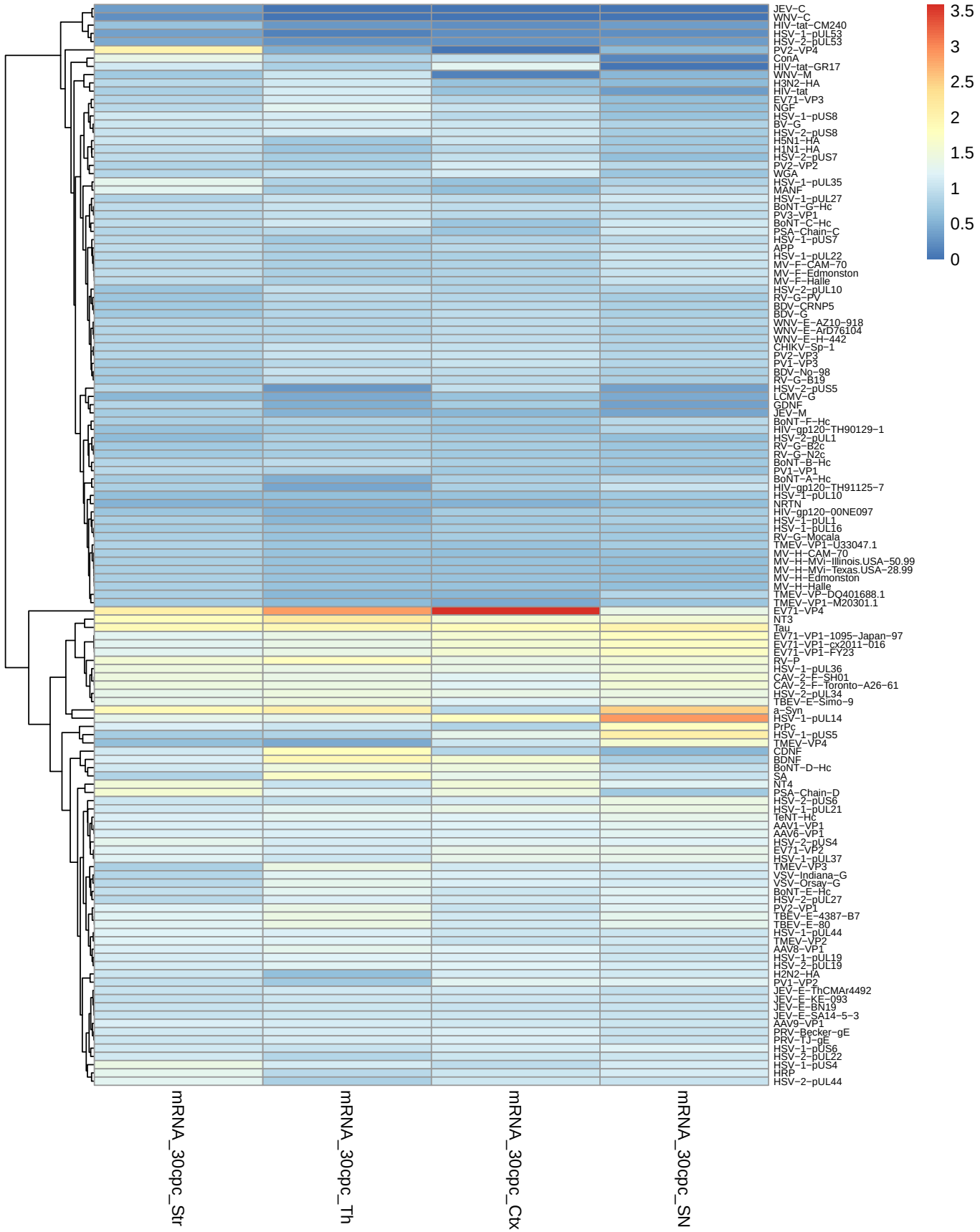

```
plotGene(select.samples.binGene,"BCcountNseq",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc_SN
```



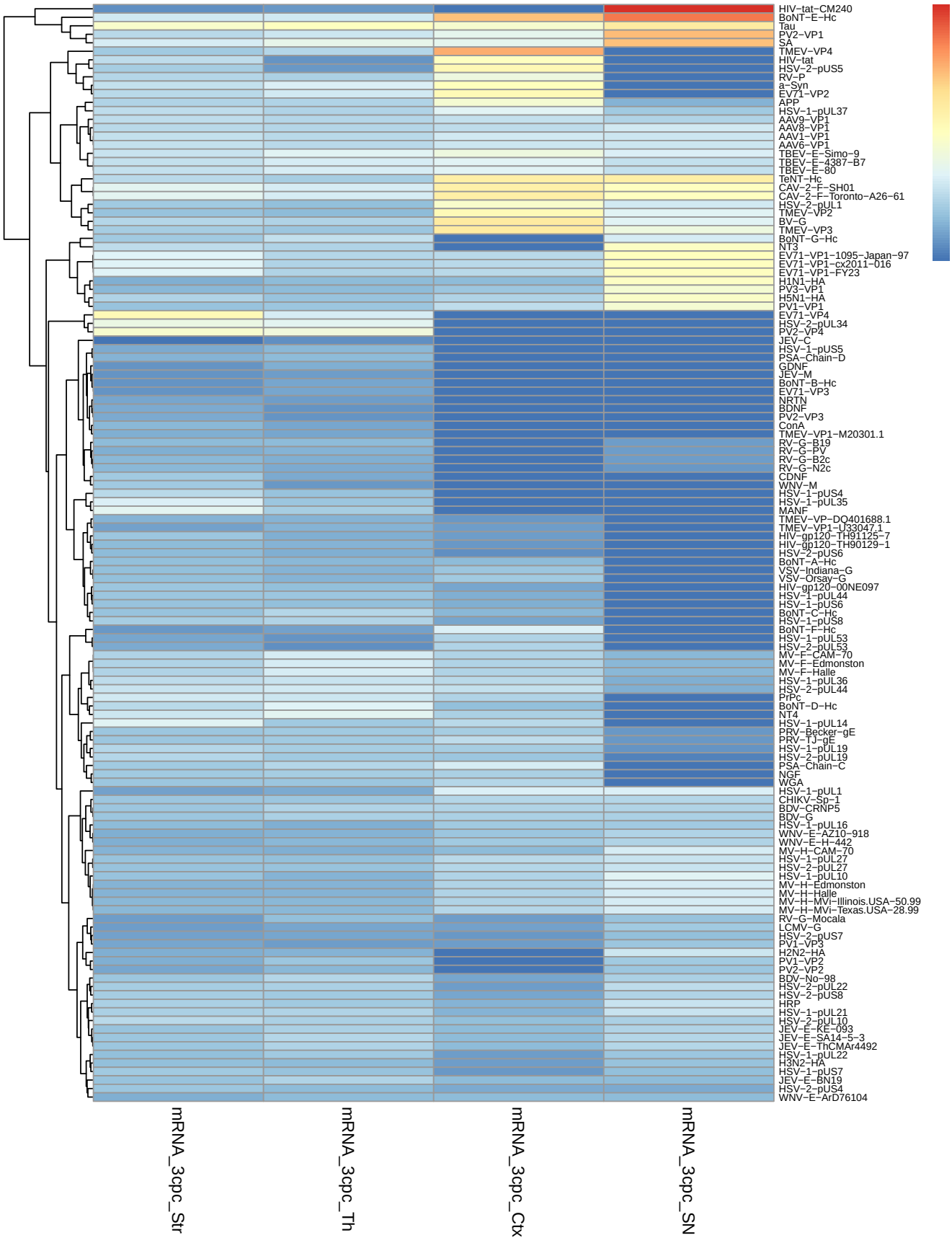

```
plotGene(select.samples.binGene,"BCcountNseq",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293
```



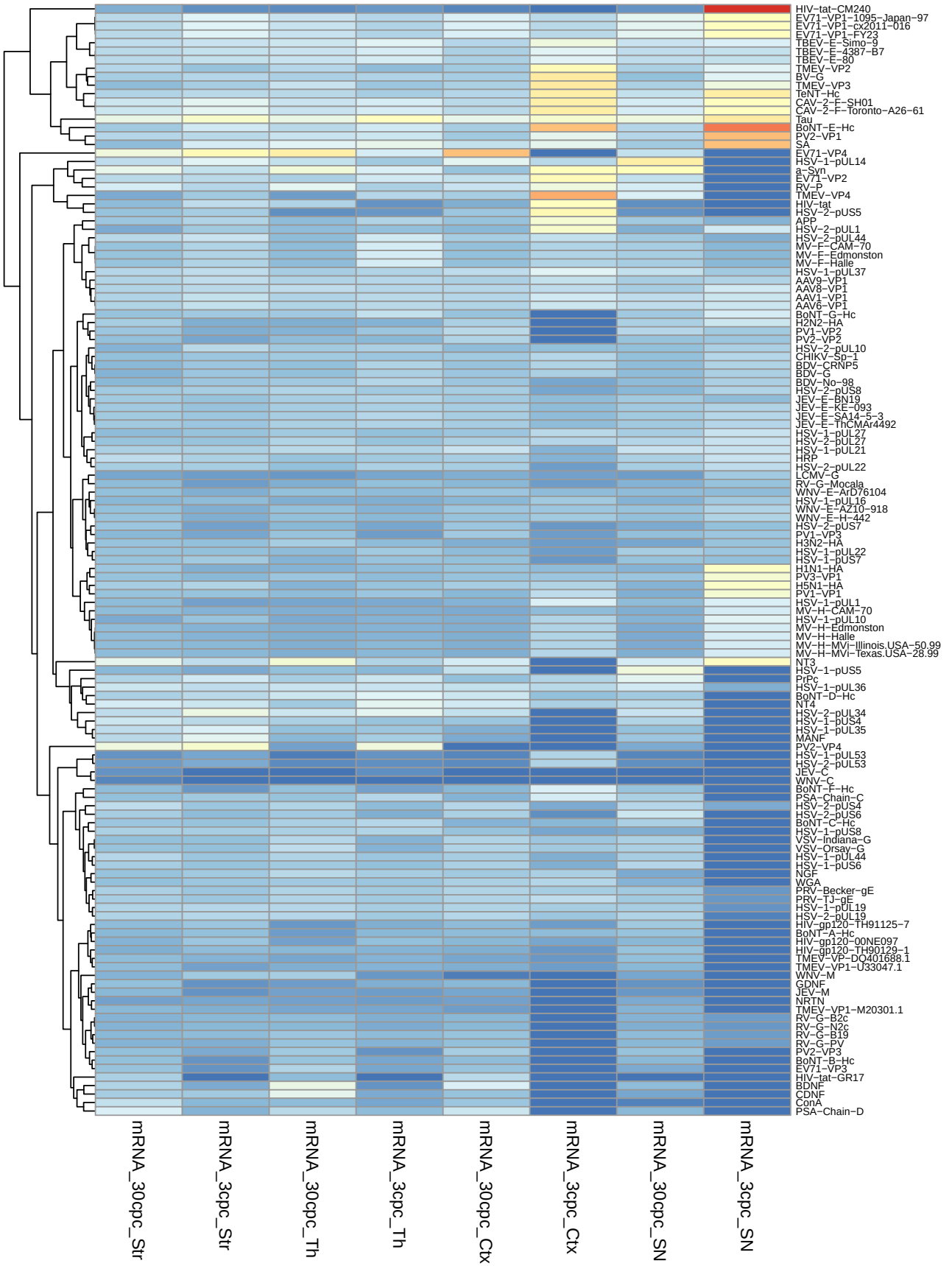

```
plotGene(select.samples.binGene,"refNormBC",c("mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30cpc_Ctx","mRNA_30cpc_
```



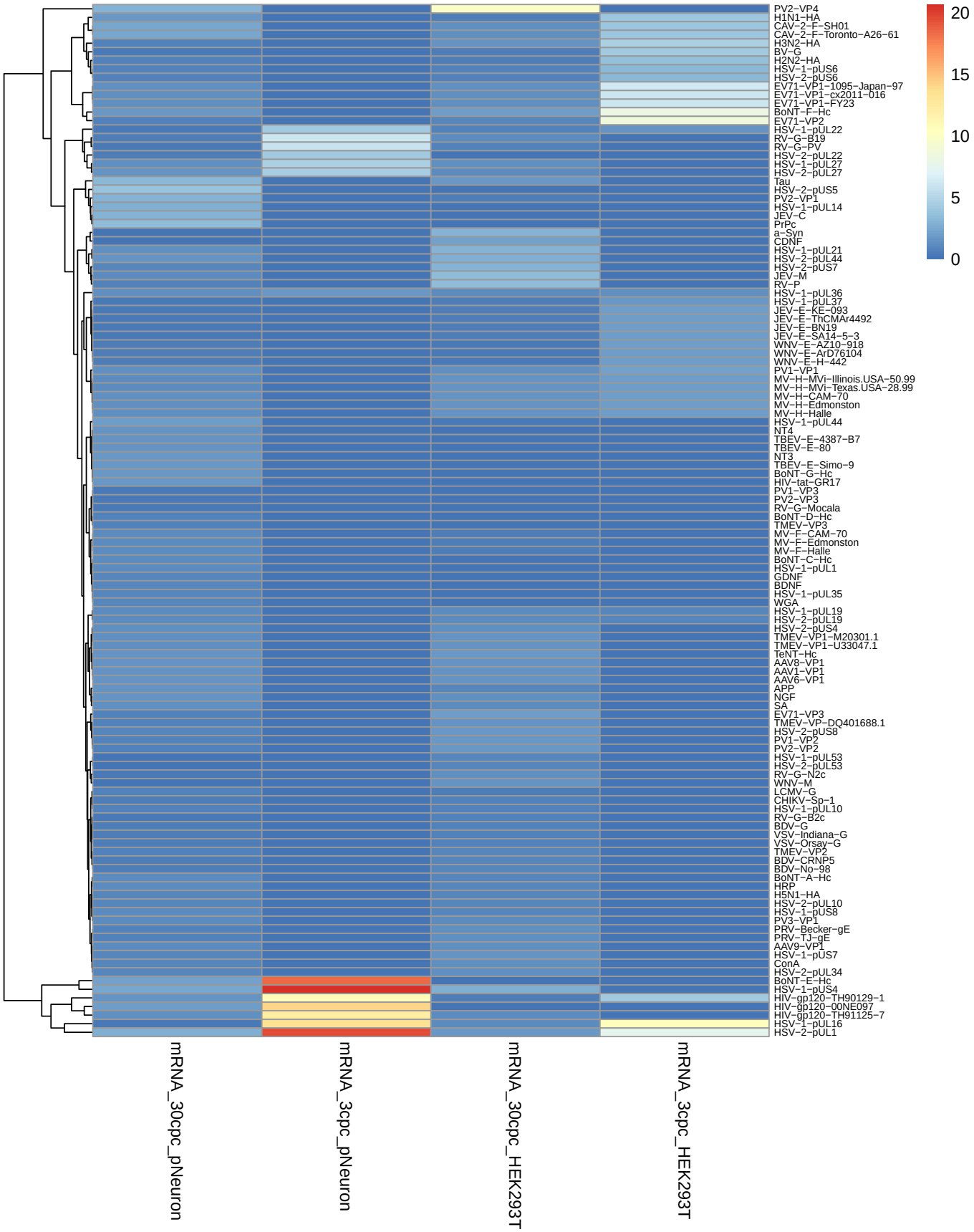

```
plotGene(select.samples.binGene,"refNormBC",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc_SN")
```




```
plotGene(select.samples.binGene,"refNormBC",c("mRNA_30cpc_Str","mRNA_3cpc_Str","mRNA_30cpc_Th","mRNA_3cpc_Th
```




```
plotGene(select.samples.binGene,"refNormBC",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293T",
```


PV2−VP4
H1N1−HA
CAV−2−F−SH01
CAV−2−F−Toronto−A26−61
H3N2−HA
BV−G
H2N2−HA
HSV−1−pUS6
HSV−2−pUS6
EV71−VP1−1095−Japan−97
EV71−VP1−cx2011−016
EV71−VP1−FY23
BoNT−F−Hc
EV71−VP2
HSV−1−pUL22
RV−G−B19
RV−G−PV
HSV−2−pUL22
HSV−1−pUL27
HSV−2−pUL27
Tau
HSV−2−pUS5
PV2−VP1
HSV−1−pUL14
JEV−C
PrPc
a−Syn
CDNF
HSV−1−pUL21
HSV−2−pUL44
HSV−2−pUS7
JEV−M
RV−P
HSV−1−pUL36
HSV−1−pUL37
JEV−E−KE−093
JEV−E−ThCMAr4492
JEV−E−BN19
JEV−E−SA14−5−3
WNV−E−AZ10−918
WNV−E−ArD76104
WNV−E−H−442
PV1−VP1
MV−H−MVi−Illinois.USA−50.99
MV−H−MVi−Texas.USA−28.99
MV−H−CAM−70
MV−H−Edmonston
MV−H−Halle
HSV−1−pUL44
NT4
TBEV−E−4387−B7
TBEV−E−80
NT3
TBEV−E−Simo−9
BoNT−G−Hc
HIV−tat−GR17
PV1−VP3
PV2−VP3
RV−G−Mocala
BoNT−D−Hc
TMEV−VP3
MV−F−CAM−70
MV−F−Edmonston
MV−F−Halle
BoNT−C−Hc
HSV−1−pUL1
GDNF
BDNF
HSV−1−pUL35
WGA
HSV−1−pUL19
HSV−2−pUL19
HSV−2−pUS4
TMEV−VP1−M20301.1
TMEV−VP1−U33047.1
TeNT−Hc
AAV8−VP1
AAV1−VP1
AAV6−VP1
APP
NGF
SA
EV71−VP3
TMEV−VP−DQ401688.1
HSV−2−pUS8
PV1−VP2
PV2−VP2
HSV−1−pUL53
HSV−2−pUL53
RV−G−N2c
WNV−M
LCMV−G
CHIKV−Sp−1
HSV−1−pUL10
RV−G−B2c
BDV−G
VSV−Indiana−G
VSV−Orsay−G
TMEV−VP2
BDV−CRNP5
BDV−No−98
BoNT−A−Hc
HRP
H5N1−HA
HSV−2−pUL10
HSV−1−pUS8
PV3−VP1
PRV−Becker−gE
PRV−TJ−gE
AAV9−VP1
HSV−1−pUS7
ConA
HSV−2−pUL34
BoNT−E−Hc
HSV−1−pUS4
HIV−gp120−TH90129−1
HIV−gp120−00NE097
HIV−gp120−TH91125−7
HSV−1−pUL16
HSV−2−pUL1
20
15
10
5
0
mRNA_30cpc_pNeuron
mRNA_3cpc_pNeuron
mRNA_30cpc_HEK293T
mRNA_3cpc_HEK293T

Selection of top ten fragments per sample

```
setkeyv(select.samples.binPos,c("Group","BCcountNanim","AnimalCount","NormCount"))
setorder(select.samples.binPos,Group,-BCcountanim,-AnimalCount,-BCcount,-NormCount)
setkey(select.samples.binPos,Group)

select.samples.topTwenty <- select.samples.binPos[, head(.SD, 20), by=Group]
select.samples.topTwenty[,c("totBC","seqlength","BCcountN","GeneAA","BCcountNseq"):=NULL]

for (thisGroup in unique(select.samples.topTwenty$Group)){
  out <- select.samples.topTwenty[J(thisGroup)]
  out[,Group:=NULL]
  out[,NormCount:=round(NormCount,digits = 0)]
  setnames(out,c("GeneName","AnimalCount","mismatches","BCcount","NormCount","BCcountNanim"),
           c(thisGroup,"Animal","missM","BCs","nCount","BCsNan"))

  print(knitr::kable(out, format = "latex", booktabs = T) %>%   kable_styling(latex_options = c("striped", "
}
```

DNA_AAVlib_DNAse_30cpc	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
PV1-VP1	45	52	10	1	X10128,X10131,X10134,X62533,X62703,X62705	14aa,22aa	0.00	257	1.741423	448.5456	53	4.512283
HSV-1-pUS6	50	48	9	1	X27376,X27384,X52333,X52337,X83623,X83627	14aa,14aaA5,14aaG4S	0.50	192	2.151662	414.1190	49	9.219518
AAV1-VP1	105	47	11	1	X1081,X1083,X43336,X43337	14aa,22aa	0.75	155	2.609757	405.5124	48	5.799336
PV1-VP2	48	46	11	1	X28147,X28149,X28151,X70599,X71134	14aa,22aa	0.50	177	2.236756	396.9057	47	15.582575
RV-G-B19	260	45	8	1	X11657,X22091,X22093,X22201,X48304,X50970,X50998,X5855,X79594,X82260,X82288	14aa,14aaA5,14aaG4S,22aa	0.00	218	1.776601	388.2991	46	5.817606
HSV-1-pUS6	74	44	9	1	X44094,X56673,X87963	14aa,14aaA5,14aaG4S	0.50	240	1.577885	379.6925	45	8.777525
HSV-1-pUS8	224	44	9	1	X11314,X11315,X15458,X48217,X79507	14aa,14aaA5,14aaG4S,22aa	0.25	200	1.893462	379.6925	45	6.046889
RV-G-B19	414	41	10	1	X10513,X10515,X10517,X3105,X4519,X4660	14aa,22aa	0.50	161	2.191755	353.8725	42	7.071869
PRV-Becker-gE	212	41	9	1	X44646,X44647,X56820,X70037,X88110	14aa,14aaA5,14aaG4S,22aa	1.00	163	2.164862	353.8725	42	5.454322
AAV1-VP1	135	40	9	1	X22798,X22799,X24680,X26462,X27760,X27762	14aa,22aa	0.75	203	1.695891	345.2659	41	4.108790
TBEV-E-4387-B7	371	40	8	1	X16042,X16059,X20526,X49439,X80729,X80734	14aa,14aaA5,14aaG4S,22aa	0.25	146	2.357985	345.2659	41	5.895937
AAV1-VP1	183	39	11	1	X2975,X2977,X8882,X8883	14aa,22aa	1.25	160	2.097870	336.6592	40	4.798179
AAV1-VP1	185	39	9	1	X34104,X34366,X54111,X54190,X62389,X85401,X85480	14aa,14aaA5,14aaG4S,22aa	1.00	137	2.450067	336.6592	40	4.302319
HSV-1-pUL36	29	38	11	1	X47569,X78859,X8923	14aa,14aaA5,14aaG4S	0.25	132	2.477671	328.0526	39	1.128967
AAV1-VP1	188	38	9	1	X13525,X13527,X13528,X48787,X48788,X63531,X80078	14aa,14aaA5,14aaG4S,22aa	0.00	188	1.739641	328.0526	39	4.057544
PV1-VP1	48	38	9	1	X15472,X17177,X17179,X17181,X67276,X7380	14aa,22aa	0.50	155	2.110017	328.0526	39	3.083674
EV71-VP1-1095-Japan-97	45	37	10	1	X26476,X66320	14aa,22aa	1.00	128	2.487859	319.4459	38	10.898943
PV1-VP3	182	37	9	1	X47693,X47694,X78983,X78984,X9392,X9394	14aa,14aaA5,14aaG4S	1.00	150	2.122973	319.4459	38	12.478563
PV1-VP2	50	37	9	1	X26658,X26742,X4445,X46393,X52141,X52162,X77683,X83431,X83452	14aa,14aaA5,14aaG4S	0.00	123	2.588991	319.4459	38	10.275501
HSV-1-pUL35	66	37	8	1	X27445,X27447,X43614,X43615	14aa,22aa	0.75	155	2.054490	319.4459	38	23.969164

DNA_AAVlib_DNAse_3cpc	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
PRV-Becker-gE	520	8	8	1	X63535,X71423	14aa,22aa	0.500	51	11.938934	609.8856	9	8.670051
HSV-1-pUL19	525	7	10	1	X41358,X67637	14aa,22aa	0.125	85	6.267940	533.7749	8	3.908488
RV-G-B19	415	7	9	1	X36134,X55381	14aa,14aaA5	0.375	94	5.667818	533.7749	8	9.916350
PV1-VP1	45	7	9	1	X10128,X10131,X10134,X62533	14aa,22aa	0.000	257	2.073054	533.7749	8	5.006762
RV-G-B19	419	7	9	1	X43232,X43234,X43236,X56461,X87750	14aa,14aaA5,14aaG4S	1.000	114	4.673464	533.7749	8	9.523349
HSV-1-pUL19	347	7	7	1	X19782,X50391,X81681	14aa,14aaA5,14aaG4S	0.500	48	11.099478	533.7749	8	2.690352
JEV-E-BN19	111	7	7	1	X65314,X65402,X65403,X65405	14aa,22aa	0.000	318	1.675393	533.7749	8	7.170432
HSV-1-pUL27	768	7	7	1	X66485,X69178	14aa,22aa	0.375	158	3.371993	533.7749	8	3.931571
JEV-E-BN19	258	6	10	1	X13673,X40166,X40167,X48831	14aa,14aaA5,22aa	0.500	167	2.734516	457.6642	7	9.115102
PV1-VP3	31	6	10	1	X42445,X55890,X87180	14aa,14aaA5,14aaG4S	3.000	172	2.655025	457.6642	7	18.369604
PV1-VP2	45	6	9	1	X44850,X44852,X44854,X73758	14aa,22aa	1.125	65	7.025603	457.6642	7	15.926414
JEV-E-BN19	264	6	9	1	X11410,X11411,X68686	14aa,22aa	0.000	168	2.718239	457.6642	7	8.582088
HSV-1-pUL19	480	6	8	1	X16006,X69165,X69175	14aa,22aa	0.000	166	2.750989	457.6642	7	2.743634
PV1-VP2	245	6	8	1	X75762,X76089,X92126	14aa,14aaG4S	0.500	132	3.459577	457.6642	7	13.486830
HSV-2-pUS6	386	6	8	1	X15597,X49334,X80624	14aa,14aaA5,14aaG4S	0.500	110	4.151493	457.6642	7	9.094880
HSV-2-pUL44	53	6	8	1	X21274,X50763,X82053	14aa,14aaA5,14aaG4S	0.500	78	5.854669	457.6642	7	7.385525
HSV-1-pUL27	789	6	8	1	X31162,X32219,X32221	14aa,22aa	0.500	222	2.057046	457.6642	7	3.839809
H2N2-HA	83	6	7	1	X31101,X53328,X84618	14aa,14aaA5,14aaG4S	1.250	64	7.135378	457.6642	7	5.934004
RV-G-B19	147	6	7	1	X11536,X11539,X11540,X42987	14aa,22aa	1.500	91	5.018288	457.6642	7	6.596094
HSV-2-pUL27	815	6	7	1	X22560,X51088,X82378	14aa,14aaA5,14aaG4S	0.250	86	5.310049	457.6642	7	3.538974

DNA_pscAAVlib	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
MV-H-CAM-70	45	330	9	1	X25967,X25969,X25971,X31089,X31090	14aa,22aa	1.000	330	1	331	331	5.011102
JEV-E-BN19	111	318	9	1	X65314,X65318,X65402,X65403,X65405	14aa,22aa	0.750	318	1	319	319	5.869124
BDV-CRNP5	480	298	9	1	X32251,X32253,X32254,X45052,X45053,X45054	14aa,22aa	0.125	298	1	299	299	5.303787
JEV-E-BN19	446	282	7	1	X27305,X46467,X46488,X4737,X4823,X4825,X52319,X6467,X6469,X77757,X77778,X83609	14aa,14aaA5,14aaG4S,22aa	0.375	282	1	283	283	4.182169
JEV-E-BN19	443	276	8	1	X11093,X11109,X13646,X13647,X48154,X48160,X48822,X65058,X65060,X79444,X79450,X80112	14aa,14aaA5,14aaG4S,22aa	0.750	276	1	277	277	4.306529
HSV-1-pUL10	330	268	9	1	X18706,X18707,X27815,X27816	14aa,22aa	0.375	268	1	269	269	5.352106
JEV-E-BN19	356	264	8	1	X24313,X47175,X47181,X47182,X47183,X7433,X7454,X7457,X7459,X78465,X78471,X78472,X78473	14aa,14aaA5,14aaG4S	0.500	264	1	265	265	4.085481
JEV-E-BN19	117	260	8	1	X4890,X4891,X4892,X63461,X63462,X63463,X63465,X63466,X65584	14aa,22aa	1.000	260	1	261	261	4.323524
JEV-E-BN19	261	258	8	1	X13674,X18847,X18853,X18855,X42671,X42673,X56323,X87613	14aa,14aaA5,14aaG4S,22aa	0.250	258	1	259	259	4.313176
PV1-VP1	45	257	9	1	X10128,X10131,X10134,X62533,X62703,X62705	14aa,22aa	0.250	257	1	258	258	2.355841
JEV-E-BN19	476	257	7	1	X33440,X33441,X33442,X53942,X53943,X64187,X64188,X85232,X85233	14aa,14aaA5,14aaG4S,22aa	0.000	257	1	258	258	3.738289
HSV-1-pUL53	242	254	9	1	X47461,X47502,X78751,X78792,X8534,X8702	14aa,14aaA5,14aaG4S	0.000	254	1	255	255	6.491870
HSV-1-pUL21	330	249	10	1	X26891,X73486	14aa,22aa	0.500	249	1	250	250	4.788844
HSV-1-pUL53	204	248	9	1	X25641,X25650,X67010,X67011	14aa,22aa	0.250	248	1	249	249	6.629787
JEV-E-BN19	114	248	8	1	X2460,X2461,X2462,X2463,X2464,X2466,X33625,X33626,X76518	14aa,22aa	0.500	248	1	249	249	3.986873
JEV-E-BN19	219	247	9	1	X10043,X10045,X10046,X32841,X32842	14aa,22aa	0.000	247	1	248	248	4.391590
HSV-1-pUL22	435	246	9	1	X27548,X27550,X65309,X65310	14aa,22aa	0.750	246	1	247	247	2.713737
HSV-1-pUL53	153	244	10	1	X26286,X26288,X76041,X76042	14aa,22aa	0.250	244	1	245	245	6.878080
BV-G	242	243	9	1	X20105,X20107,X50474,X50475,X81764,X81765	14aa,14aaA5,14aaG4S	0.375	243	1	244	244	5.255451
HSV-1-pUS6	74	240	10	1	X44094,X56673,X87963	14aa,14aaA5,14aaG4S	0.500	240	1	241	241	5.902276

DNA_pscAAVlib_Prep2	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
MV-H-CAM-70	45	291	9	1	X25967,X25969,X25971,X31089,X31090	14aa,22aa	1.000	330	1.0432354	345.2677	292	5.108514
JEV-E-BN19	111	274	9	1	X65314,X65318,X65402,X65403,X65405	14aa,22aa	0.500	318	1.0193579	325.1558	275	5.852906
BDV-CRNP5	480	253	9	1	X32251,X32253,X32254,X45052,X45053,X45054	14aa,22aa	0.125	298	1.0044019	300.3118	254	5.086665
JEV-E-BN19	443	239	8	1	X11093,X11109,X13646,X13647,X48154,X48160,X48822,X65058,X65060,X79444,X79450,X80112	14aa,14aaA5,14aaG4S,22aa	0.750	276	1.0244531	283.7491	240	4.277850
JEV-E-BN19	446	234	7	1	X27305,X46467,X46488,X4737,X4823,X4825,X52319,X6467,X6469,X77757,X77778,X83609	14aa,14aaA5,14aaG4S,22aa	0.500	282	0.9816802	277.8338	235	3.943157
JEV-E-BN19	261	228	8	1	X13674,X18847,X18853,X18855,X42671,X42673,X56323,X87613	14aa,14aaA5,14aaG4S,22aa	0.250	258	1.0454864	270.7355	229	4.447389
JEV-E-BN19	356	226	7	1	X24313,X47175,X47181,X47182,X47183,X7433,X7454,X7457,X7459,X78465,X78471,X78472,X78473	14aa,14aaA5,14aaG4S	0.500	264	1.0127629	268.3694	227	3.883360
JEV-E-BN19	476	217	7	1	X33440,X33441,X33442,X53942,X53943,X64187,X64188,X85232,X85233	14aa,14aaA5,14aaG4S,22aa	0.000	257	0.9989181	257.7219	218	3.650015
JEV-E-BN19	114	216	8	1	X2460,X2461,X2462,X2463,X2464,X2466,X33625,X33626,X76518	14aa,22aa	0.500	248	1.0303988	256.5389	217	3.973154
HSV-1-pUL10	330	215	9	1	X18706,X18707,X27815,X27816	14aa,22aa	0.250	268	0.9490890	255.3558	216	4.866660
HSV-1-pUL53	242	214	8	1	X47461,X47502,X78751,X78792,X8534,X8702	14aa,14aaA5,14aaG4S	0.000	254	0.9967433	254.1728	215	6.319489
JEV-E-BN19	117	214	8	1	X4890,X4891,X4892,X63461,X63462,X63463,X63465,X63466,X65584	14aa,22aa	1.000	260	0.9737415	254.1728	215	4.102998
HSV-1-pUL21	330	213	10	1	X26891,X73486	14aa,22aa	0.500	249	1.0120070	252.9897	214	4.806018
HSV-1-pUL53	153	211	9	1	X26286,X26288,X76041,X76042	14aa,22aa	0.250	244	1.0230477	250.6236	212	6.692693
HSV-1-pUL22	435	211	9	1	X27548,X27550,X65309,X65310	14aa,22aa	0.750	246	1.0147303	250.6236	212	2.682371
PV1-VP1	45	210	8	1	X10128,X10131,X10134,X62533,X62703,X62705	14aa,22aa	0.125	257	0.9666949	249.4406	211	2.176276
MV-H-CAM-70	48	208	8	1	X66820,X67814,X67816,X68038,X68039	14aa,22aa	0.500	239	1.0296004	247.0745	209	3.363335
HSV-1-pUL53	204	204	9	1	X25641,X25650,X67010,X67011	14aa,22aa	0.500	248	0.9731544	242.3423	205	6.249391
HSV-1-pUS6	74	202	9	1	X44094,X56673,X87963	14aa,14aaA5,14aaG4S	0.500	240	0.9957341	239.9762	203	5.667441
TMEV-VP-DQ401688.1	66	202	8	1	X19734,X19735,X31478,X9649,X9682,X9776	14aa,22aa	0.000	239	0.9999004	239.9762	203	7.223805

mRNA_3000cpc_Organoid_MD101	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
APP	636	26	13	1	X64911,X67260	14aa,22aa	0.750	94	10.277394	967.0750	27	16.186464
JEV-E-BN19	261	23	10	1	X13674,X18853,X18855,X42671,X42673,X56323,X87613	14aa,14aaA5,14aaG4S,22aa	0.500	258	3.312422	855.6048	24	17.023404
HSV-1-pUL19	845	20	11	1	X47263,X47264,X7793,X7795,X78554	14aa,14aaA5,14aaG4S	0.500	71	10.466685	744.1346	21	6.026129
HSV-1-pUL36	1536	19	11	1	X14875,X24780	14aa,22aa	1.250	118	5.982863	706.9779	20	2.369262
WNV-E-AZ10-918	156	19	10	1	X62526,X68261,X68262	14aa,22aa	0.750	101	6.989880	706.9779	20	14.706478
APP	638	18	13	1	X39803,X55577,X86867	14aa,14aaA5,14aaG4S	1.000	50	13.376423	669.8212	19	11.646355
H5N1-HA	263	17	13	1	X2967,X46009	14aa,14aaA5	0.875	42	15.039629	632.6644	18	14.220352
APP	639	17	13	1	X13535,X524	14aa,22aa	0.500	59	10.706177	632.6644	18	10.390037
BoNT-B-Hc	380	17	12	1	X21416,X50793,X82083	14aa,14aaA5,14aaG4S	0.500	73	8.652937	632.6644	18	16.046736
PV1-VP1	45	16	10	1	X10131,X10134,X62533,X62703,X62705	14aa,22aa	0.500	257	2.313260	595.5077	17	6.045863
AAV1-VP1	135	16	10	1	X22798,X22799,X24680,X26462,X27760	14aa,22aa	0.750	203	2.928609	595.5077	17	7.718166
HSV-1-pUL27	38	16	9	1	X41585,X56047,X87337	14aa,14aaA5,14aaG4S	0.500	73	8.143941	595.5077	17	5.747097
HSV-1-pUL19	843	15	12	1	X71450,X71451	14aa	0.125	112	4.976348	558.3510	16	4.737268
HSV-1-pUL37	1068	15	11	1	X26767,X35377	14aa,22aa	1.375	82	6.796963	558.3510	16	5.624858
AAV1-VP1	598	15	11	1	X23344,X23345	14aa	0.250	128	4.354304	558.3510	16	8.261770
PV1-VP2	158	15	10	1	X57670,X63750,X88960	14aa,14aaA5,14aaG4S	0.250	106	5.258028	558.3510	16	21.142568
AAV1-VP1	177	15	10	1	X23308,X23310,X26310,X26311	14aa,22aa	0.500	175	3.184863	558.3510	16	7.629899
PV1-VP1	48	15	10	1	X15472,X17177,X17179,X17181,X7380	14aa,22aa	0.500	155	3.595813	558.3510	16	5.543658
HSV-1-pUL19	480	15	10	1	X16006,X68180,X69165,X69175	14aa,22aa	0.375	166	3.357536	558.3510	16	3.858741
JEV-E-BN19	265	15	9	1	X19804,X19805,X39119,X42672,X55390,X86680	14aa,14aaA5,14aaG4S,22aa	0.625	163	3.419331	558.3510	16	10.131876

mRNA_30cpc_Ctx	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL22	750	3	18	3	X23667,X66790	14aa,22aa	1.75	38	52.982901	2016.3502	6	44.338780
HSV-2-pUL10	395	3	8	3	X35006,X54361,X85651	14aa,14aaA5,14aaG4S	0.00	69	29.178989	2016.3502	6	35.700586
HSV-1-pUL21	82	3	6	3	X27483	14aa	0.75	52	38.718274	2016.3502	6	21.020239
HSV-1-pUL27	405	2	8	3	X1574	14aa	0.00	89	15.081275	1345.2335	5	12.133132
HSV-2-pUS4	62	2	8	3	X31351	14aa	0.00	86	15.607366	1345.2335	5	15.137708
CHIKV-Sp-1	1097	2	6	3	X34522	14aa	0.50	72	18.642132	1345.2335	5	6.007387
HSV-1-pUS6	282	2	6	3	X10394	14aa	0.00	94	14.279080	1345.2335	5	19.028474
AAV1-VP1	80	2	5	3	X53462,X84751	14aaA5,14aaG4S	2.50	78	17.208122	1345.2335	5	8.275110
Tau	487	3	10	2	X11521	14aa	0.00	40	50.333756	2015.3502	5	28.165369
AAV1-VP1	151	3	8	2	X25958,X25959	14aa	1.50	74	27.207436	2015.3502	5	22.211347
HSV-1-pUL36	3050	3	6	2	X53113	14aaA5	1.00	45	44.741116	2015.3502	5	3.847667
PV1-VP2	243	3	6	2	X22754,X28523	14aa,22aa	0.50	133	15.137972	2015.3502	5	43.461822
HSV-1-pUL14	107	3	6	2	X23530	14aa	0.00	52	38.718274	2015.3502	5	51.350813
HSV-1-pUL27	669	3	5	2	X42897,X43062	14aa	0.50	221	9.110182	2015.3502	5	10.105887
HSV-1-pUL36	2532	3	4	2	X23791,X41564	14aa,22aa	1.25	71	28.357046	2015.3502	5	2.739083
BoNT-C-Hc	28	1	19	3	X514	14aa	1.00	33	20.336871	674.1167	4	29.469007
HSV-1-pUL27	635	1	19	3	X54552	14aaA5	2.00	107	6.272119	674.1167	4	14.318485
PrPc	120	1	18	3	X44210	14aa	1.50	35	19.174764	674.1167	4	48.421676
PRV-Becker-gE	404	1	18	3	X64633	14aa	3.00	78	8.604061	674.1167	4	21.277188
HSV-2-pUL34	71	1	18	3	X53736	14aaA5	0.50	62	10.824464	674.1167	4	107.828378

mRNA_30cpc_HEK293T	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
MV-H-CAM-70	360	2	17	1	X11283	14aa	0.0	86	199.07874	17121.772	3	471.74128
HSV-2-pUL44	41	2	17	1	X9283	14aa	0.0	79	216.71863	17121.772	3	588.79579
HSV-2-pUL44	42	2	16	1	X69016	14aa	0.0	78	219.49707	17121.772	3	578.98519
EV71-VP1-1095-Japan-97	162	1	19	1	X76120	14aa	0.0	37	231.36178	8561.386	2	557.94961
CAV-2-F-SH01	439	1	19	1	X10467	14aa	0.0	7	1222.91227	8561.386	2	295.67520
EV71-VP2	112	1	18	1	X65579	14aa	0.5	9	951.15399	8561.386	2	621.85245
HSV-1-pUL21	269	1	18	1	X50562	14aaA5	3.0	20	428.01929	8561.386	2	294.15513
APP	420	1	18	1	X66812	22aa	1.5	40	214.00965	8561.386	2	202.36571
VSV-Indiana-G	31	1	18	1	X16997	14aa	1.0	23	372.19069	8561.386	2	303.85356
HSV-1-pUS4	142	1	18	1	X702	14aa	1.0	43	199.07874	8561.386	2	647.64149
HSV-1-pUL19	277	1	18	1	X27468	14aa	0.0	55	155.64338	8561.386	2	111.67377
HSV-1-pUS6	149	1	18	1	X39539	14aa	0.0	70	122.29123	8561.386	2	383.48101
HSV-1-pUL16	39	1	18	1	X42230	22aa	0.5	53	161.51671	8561.386	2	402.85801
HSV-1-pUL19	797	1	17	1	X27258	14aa	1.0	97	88.25140	8561.386	2	108.90576
HSV-2-pUS7	362	1	17	1	X30845	14aa	0.5	66	129.70282	8561.386	2	399.62676
BoNT-F-Hc	64	1	17	1	X917	14aa	1.5	19	450.54662	8561.386	2	355.01623
HSV-1-pUL36	248	1	17	1	X9379	14aa	1.0	33	259.40563	8561.386	2	47.08954
HSV-1-pUL36	2601	1	17	1	X26960	14aa	0.0	25	342.41543	8561.386	2	47.00975
HSV-1-pUL22	677	1	17	1	X2113	14aa	0.0	105	81.52748	8561.386	2	175.25223
HSV-1-pUL53	186	1	17	1	X30100	22aa	0.0	28	305.72807	8561.386	2	434.31612

mRNA_30cpc_Organoid_MD114	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL19	846	3	2	1	X29937,X29938	14aa	0.25	65	54.00998	3511.649	4	5.332878
APP	638	3	2	1	X39803,X55577,X86867	14aa,14aaA5,14aaG4S	0.50	50	70.21297	3511.649	4	9.088876
PRV-Becker-gE	44	2	16	1	X39286	14aa	4.25	71	32.96384	2341.432	3	64.164229
RV-G-Mocala	201	2	15	1	X10648	14aa	2.50	42	55.72458	2341.432	3	71.559780
JEV-E-BN19	228	2	15	1	X31994	14aa	0.00	141	16.59881	2341.432	3	71.916625
PV1-VP1	156	2	15	1	X5492	22aa	1.00	97	24.12817	2341.432	3	36.616094
H1N1-HA	351	2	15	1	X15254,X63451	14aa,22aa	0.00	179	13.07504	2341.432	3	61.527864
JEV-E-BN19	347	2	11	1	X10877,X66536	14aa	0.25	135	17.33654	2341.432	3	49.342467
VSV-Indiana-G	443	2	9	1	X54514,X85804	14aaA5,14aaG4S	0.50	42	55.72458	2341.432	3	41.314800
JEV-E-BN19	450	2	9	1	X20255,X27306	14aa,22aa	0.50	220	10.63833	2341.432	3	40.080088
TMEV-VP2	101	2	9	1	X58022,X65072	14aa,14aaA5	0.00	91	25.71904	2341.432	3	74.729412
JEV-E-BN19	138	2	8	1	X19292,X62833	14aa,22aa	0.75	187	12.51568	2341.432	3	39.780999
HSV-1-pUL44	462	2	8	1	X54998,X86288	14aaA5,14aaG4S	0.00	89	26.29699	2341.432	3	38.726666
HSV-1-pUL19	1334	2	8	1	X33557,X85263	14aa,14aaG4S	0.50	118	19.83417	2341.432	3	14.313685
HSV-1-pUL22	806	2	8	1	X40211,X43479	14aa	1.50	115	20.35159	2341.432	3	22.968890
MV-H-CAM-70	345	2	8	1	X12062,X22590	14aa	0.25	169	13.84871	2341.432	3	30.287153
HSV-1-pUL19	341	2	4	1	X51855	14aaA5	0.25	70	33.43475	2341.432	3	6.388228
HSV-1-pUL19	715	2	3	1	X7736	14aa	0.50	36	65.01201	2341.432	3	5.673187
HSV-1-pUL37	1077	2	3	1	X20913	14aa	0.50	49	47.76393	2341.432	3	6.941192
PV2-VP1	217	2	3	1	X36211	14aa	1.50	56	41.79344	2341.432	3	25.896872

mRNA_30cpc_SN	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL22	750	3	8	3	X23667,X66790	14aa,22aa	2.00	38	81.116026	3085.409	6	28.906391
HSV-1-pUL27	405	2	8	3	X1574	14aa	0.00	89	23.089206	2057.939	5	18.588749
HSV-1-pUL22	735	2	6	3	X63395,X63396	14aa	0.00	161	12.763598	2057.939	5	14.612065
HSV-1-pUS6	282	2	5	3	X10394	14aa	0.00	94	21.861057	2057.939	5	28.567428
HSV-2-pUL10	395	2	5	3	X35006,X54361	14aa,14aaA5	0.50	69	29.781730	2057.939	5	23.213672
HIV-gp120-00NE097	161	2	5	3	X14423,X66291	14aa,22aa	0.50	85	24.175757	2057.939	5	25.354856
HSV-1-pUL21	309	3	16	2	X27207	14aa	2.25	67	46.006104	3084.409	5	92.449302
HSV-1-pUL19	426	3	6	2	X18063,X28277	14aa,22aa	0.50	118	26.122110	3084.409	5	14.203331
HSV-1-pUL22	443	1	19	3	X74470	14aa	0.00	65	15.807226	1030.470	4	23.418091
HSV-2-pUS4	499	1	19	3	X8569	14aa	0.00	26	39.518064	1030.470	4	27.547765
HSV-1-pUS4	95	1	18	3	X87983	14aaG4S	5.00	48	21.405618	1030.470	4	75.412421
TMEV-VP2	120	1	17	3	X20177	14aa	0.50	69	14.890865	1030.470	4	63.823085
HSV-1-pUS8	401	1	16	3	X57800	14aaA5	0.00	12	85.622472	1030.470	4	29.941945
BoNT-E-Hc	191	1	10	3	X38325	14aa	0.50	25	41.098787	1030.470	4	20.911515
TMEV-VP3	205	1	9	3	X70871	14aa	0.00	49	20.968769	1030.470	4	40.001742
BoNT-C-Hc	28	1	9	3	X514	14aa	1.00	33	31.135444	1030.470	4	20.463110
HSV-1-pUL36	542	1	9	3	X14871	14aa	0.00	62	16.572091	1030.470	4	2.849125
WNV-E-AZ10-918	275	1	9	3	X89055	14aaG4S	1.00	30	34.248989	1030.470	4	17.633194
AAV1-VP1	105	1	8	3	X1081	22aa	1.00	155	6.628837	1030.470	4	11.258440
HSV-1-pUL36	2535	1	8	3	X33526	14aa	0.00	79	13.005945	1030.470	4	2.534846

mRNA_30cpc_Str	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
JEV-E-BN19	261	12	11	3	X13674,X18847,X18855,X42671,X42673	14aa,22aa	0.000	258	5.087215	1315.5014	15	29.813614
HSV-1-pUL19	147	9	11	3	X40382,X40383	22aa	0.500	174	5.657333	987.3760	12	8.130359
HSV-2-pUL10	432	8	14	3	X38890	14aa	0.750	64	13.671889	878.0009	11	26.156802
WNV-M	23	8	14	3	X40365	14aa	0.000	96	9.114593	878.0009	11	70.841700
PV1-VP1	61	8	12	3	X22826,X22827	14aa	0.750	68	12.867660	878.0009	11	11.007272
HSV-1-pUL19	426	8	11	3	X18063,X28276,X28277	14aa,22aa	0.000	118	7.415262	878.0009	11	7.076127
HSV-1-pUL19	417	8	11	3	X1332,X1375,X32520,X32522	14aa,22aa	0.125	181	4.834259	878.0009	11	6.999130
HSV-2-pUS4	62	8	11	3	X31351,X53390	14aa,14aaA5	0.500	86	10.174429	878.0009	11	13.452015
AAV1-VP1	177	8	11	3	X23308,X26310,X26311	14aa,22aa	1.000	175	5.000005	878.0009	11	12.617837
JEV-E-BN19	257	8	10	3	X18848,X18854,X18856,X50148,X81438,X81439	14aa,14aaA5,14aaG4S	0.125	151	5.794708	878.0009	11	17.677601
CAV-2-F-SH01	413	8	10	3	X57923,X57924,X64694,X64696,X89213	14aa,14aaA5,14aaG4S	1.000	134	6.529858	878.0009	11	16.095013
JEV-E-BN19	348	8	10	3	X13624,X13625,X13626,X67130	14aa,22aa	0.000	161	5.434788	878.0009	11	16.945821
Tau	258	7	14	3	X11013	14aa	0.000	125	6.125006	768.6258	10	15.479285
Tau	253	7	13	3	X13281	14aa	0.000	64	11.962903	768.6258	10	14.021056
HSV-1-pUL36	1808	7	12	3	X27290,X83604	14aa,14aaG4S	0.500	90	8.506953	768.6258	10	2.956115
NRTN	42	7	12	3	X27177,X31910	14aa,22aa	2.000	57	13.432031	768.6258	10	53.562000
HSV-1-pUL36	2687	7	12	3	X22900,X51171	14aa,14aaA5	0.875	113	6.775449	768.6258	10	2.896891
MV-H-Edmonston	593	7	12	3	X42886,X56376	14aa,14aaA5	1.500	74	10.346295	768.6258	10	14.334146
AAV1-VP1	593	7	11	3	X10626,X10628,X48025,X48026	14aa,14aaA5	0.000	102	7.506135	768.6258	10	11.859645
HSV-1-pUL19	425	7	11	3	X41345,X41347,X55989	14aa,14aaA5	0.750	119	6.433830	768.6258	10	6.287071

mRNA_30cpc_Th	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL21	82	3	16	3	X27483	14aa	0.75	52	49.68386	2586.561	6	77.23882
HSV-1-pUS6	282	3	14	3	X10394,X22271	14aa,22aa	0.50	94	27.48469	2586.561	6	94.21985
AAV1-VP1	80	3	11	3	X31578,X53462,X84751	14aa,14aaA5,14aaG4S	0.00	78	33.12258	2586.561	6	38.01073
EV71-VP3	23	3	10	3	X47355,X8142	14aa,14aaA5	0.75	81	31.89581	2586.561	6	101.69787
HSV-1-pUL22	750	3	8	3	X23667,X66790	14aa,22aa	1.75	38	67.98845	2586.561	6	23.27791
JEV-E-BN19	261	4	7	2	X13674,X18847,X18855	22aa	0.50	258	13.35174	3446.748	6	49.96518
CHIKV-Sp-1	1097	2	16	3	X34522	14aa	0.50	72	23.92186	1725.374	5	21.64496
HSV-1-pUL27	405	2	16	3	X1574	14aa	0.00	89	19.35252	1725.374	5	29.76532
HRP	250	2	15	3	X63143	14aa	0.00	15	114.82493	1725.374	5	85.48404
PV1-VP1	230	2	14	3	X78705,X8350	14aa,14aaG4S	0.75	111	15.51688	1725.374	5	25.20604
BDNF	158	2	14	3	X84727	14aaG4S	0.50	30	57.41247	1725.374	5	104.78508
HSV-2-pUL10	395	2	11	3	X35006,X54361	14aa,14aaA5	0.50	69	24.96194	1725.374	5	39.82514
AAV1-VP1	105	2	10	3	X1081,X43336	14aa,22aa	1.50	155	11.11209	1725.374	5	23.13752
BDV-CRNP5	416	2	6	3	X46864,X53375	14aaA5	2.25	78	22.08172	1725.374	5	20.44672
AAV1-VP1	151	3	13	2	X25958,X25959	14aa	1.50	74	34.91299	2585.561	5	46.46099
TMEV-VP2	144	3	13	2	X39754	22aa	0.00	84	30.75668	2585.561	5	122.32786
HSV-1-pUL27	669	3	9	2	X42897,X43062	14aa	0.50	221	11.69032	2585.561	5	25.66605
HSV-1-pUL21	301	1	15	3	X42967	14aa	1.50	24	35.88279	864.187	4	24.88240
EV71-VP2	135	1	15	3	X23269	14aa	0.00	30	28.70623	864.187	4	50.98425
TeNT-Hc	37	1	15	3	X1792	14aa	4.50	10	86.11870	864.187	4	28.45111

mRNA_30cpc_Trsp	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL22	750	3	18	9	X23667,X66790	14aa,22aa	2.000	38	32.879658	1258.4270	12	27.517882
HSV-1-pUS6	282	3	14	9	X10394,X22271	14aa,22aa	0.500	94	13.291777	1258.4270	12	45.569059
AAV1-VP1	105	3	13	9	X1081,X43336	14aa,22aa	1.625	155	8.060819	1258.4270	12	21.321745
HSV-2-pUL10	395	3	12	9	X35006,X54361,X85651	14aa,14aaA5,14aaG4S	0.000	69	18.107638	1258.4270	12	32.419507
HSV-1-pUL27	405	2	16	9	X1574	14aa	0.000	89	9.359004	841.9513	11	14.409794
HIV-gp120-00NE097	161	3	17	8	X14423,X66291	14aa,22aa	0.500	85	14.699141	1257.4270	11	54.861739
AAV1-VP1	80	3	11	8	X31578,X53462,X84751	14aa,14aaA5,14aaG4S	0.000	78	16.018295	1257.4270	11	18.972741
BoNT-E-Hc	191	1	11	9	X38325	14aa	0.500	25	16.659027	425.4757	10	10.133423
WNV-E-AZ10-918	275	1	11	9	X89055	14aaG4S	1.000	30	13.882523	425.4757	10	8.976522
HSV-1-pUL21	82	3	16	7	X27483	14aa	0.500	52	24.027443	1256.4270	10	37.356467
EV71-VP3	23	3	10	7	X47355,X8142	14aa,14aaA5	0.750	81	15.425025	1256.4270	10	49.189623
HSV-1-pUL21	309	4	16	6	X27207	14aa	3.000	67	24.864219	1671.9027	10	50.017120
BoNT-C-Hc	28	1	19	8	X514	14aa	1.000	33	12.620475	424.4757	9	18.289289
JEV-E-BN19	11	1	19	8	X53668	14aaA5	2.500	64	6.507432	424.4757	9	16.080169
HSV-2-pUL10	422	1	19	8	X21500	14aa	1.000	27	15.425025	424.4757	9	16.639139
HSV-1-pUL36	2535	1	18	8	X33526	14aa	0.000	79	5.271844	424.4757	9	2.406478
HSV-1-pUS8	401	1	16	8	X57800	14aaA5	0.000	12	34.706306	424.4757	9	12.315262
TMEV-VP3	205	1	11	8	X70871	14aa	0.000	49	8.499504	424.4757	9	19.555277
HSV-1-pUL36	542	1	11	8	X14871	14aa	0.000	62	6.717350	424.4757	9	1.399352
HSV-1-pUL22	763	1	10	8	X19117	14aa	0.000	16	26.029730	424.4757	9	4.817026

mRNA_30cpc_pNeuron	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL19	280	3	16	1	X24236,X24237	14aa	1.125	49	316.18153	15493.895	4	183.97115
Tau	637	2	18	1	X3376	14aa	0.000	23	449.06942	10329.597	3	269.52387
PV1-VP1	54	2	17	1	X42345	22aa	0.000	74	139.57563	10329.597	3	178.42901
HSV-1-pUL36	1536	2	17	1	X24780	14aa	0.250	118	87.53048	10329.597	3	54.72572
TMEV-VP1-U33047.1	140	2	17	1	X40822	14aa	1.500	31	333.18054	10329.597	3	620.35027
HSV-2-pUL27	45	2	17	1	X40487	14aa	1.500	29	356.15851	10329.597	3	189.15716
CAV-2-F-SH01	170	2	17	1	X5663	14aa	1.500	58	178.07925	10329.597	3	315.20872
HSV-1-pUL36	1436	2	16	1	X42917	14aa	0.250	52	198.62686	10329.597	3	54.14117
HSV-1-pUL44	192	2	16	1	X22235,X22239	14aa	0.250	139	74.30645	10329.597	3	328.94945
HSV-1-pUL19	845	2	16	1	X47263,X7795	14aa,14aaA5	0.250	71	145.47319	10329.597	3	120.31234
HSV-1-pUL36	1785	2	16	1	X27098,X66496	14aa,22aa	1.000	76	135.90259	10329.597	3	52.69179
HSV-1-pUL36	443	2	16	1	X57048,X61275	14aa,14aaA5	0.000	93	111.06018	10329.597	3	52.52656
HSV-1-pUL27	582	2	16	1	X24296	14aa	2.250	119	86.79493	10329.597	3	181.26319
HSV-2-pUL1	192	2	16	1	X40601	14aa	0.500	93	111.06018	10329.597	3	717.24237
HSV-1-pUL44	279	2	16	1	X17514,X19211	14aa	0.500	180	57.38109	10329.597	3	314.35618
EV71-VP1-1095-Japan-97	282	2	15	1	X39846,X71238	14aa,22aa	2.750	38	271.80518	10329.597	3	531.89115
HSV-1-pUL36	2978	2	15	1	X1454	14aa	2.000	70	147.55138	10329.597	3	49.07228
HSV-1-pUL27	584	1	18	1	X41804	14aa	0.000	60	86.07164	5165.298	2	100.41016
MV-H-CAM-70	168	1	17	1	X38148	14aa	1.000	47	109.87869	5165.298	2	144.89540
HRP	26	1	17	1	X67516	14aa	0.000	42	122.95948	5165.298	2	288.91031

mRNA_3cpc_Ctx	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL37	591	1	15	3	X12949	22aa	0.00	103	70.47161	7261.576	4	97.87880
TBEV-E-4387-B7	154	2	6	2	X8898	14aa	0.00	38	382.03032	14519.152	4	186.68262
PRV-Becker-gE	212	2	5	2	X44646,X44647	14aa	1.50	163	89.06228	14519.152	4	132.25746
MV-H-Edmonston	593	2	5	2	X42886,X56376	14aa,14aaA5	0.75	74	196.17773	14519.152	4	119.96689
AAV1-VP1	181	1	21	2	X62390	14aa	0.00	126	57.60775	7260.576	3	204.41553
HRP	250	1	20	2	X63143	14aa	0.00	15	483.90507	7260.576	3	473.16660
HSV-1-pUL22	763	1	11	2	X19117	14aa	0.00	16	453.66100	7260.576	3	91.32239
CHIKV-Sp-1	1058	1	10	2	X59889	14aaA5	0.00	24	302.44067	7260.576	3	57.01605
CAV-2-F-SH01	466	1	9	2	X9572	14aa	4.50	11	659.87055	7260.576	3	122.41824
BDV-CRNP5	217	1	8	2	X75606	14aa	0.00	44	164.96764	7260.576	3	119.96012
BoNT-E-Hc	191	1	8	2	X38325	14aa	0.50	25	290.34304	7260.576	3	122.54268
HSV-1-pUL37	1077	1	7	2	X20913	14aa	0.50	49	148.13420	7260.576	3	47.63378
CHIKV-Sp-1	989	1	7	2	X75537	14aa	0.00	54	134.41807	7260.576	3	41.57775
EV71-VP1-1095-Japan-97	27	1	7	2	X28941	14aa	1.00	125	58.06861	7260.576	3	171.66519
JEV-E-BN19	257	1	7	2	X18848	14aa	1.00	151	48.07004	7260.576	3	101.96912
HSV-1-pUL14	173	1	7	2	X51822	14aaA5	1.00	41	177.03844	7260.576	3	223.29233
HSV-1-pUL44	450	1	7	2	X26530	14aa	0.00	177	41.00890	7260.576	3	95.69671
CAV-2-F-SH01	129	1	7	2	X38436	14aa	0.00	28	259.23486	7260.576	3	87.97024
TMEV-VP3	205	1	7	2	X70871	14aa	0.00	49	148.13420	7260.576	3	205.51669
APP	600	1	6	2	X29756	14aa	0.50	79	91.88071	7260.576	3	60.12635

mRNA_3cpc_HEK293T	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
H1N1-HA	84	1	22	1	X73886	14aa	0.0	121	650.8723	78756.55	2	3108.2285
PV1-VP1	773	1	21	1	X58768	14aaA5	1.0	48	1640.7406	78756.55	2	1741.0733
HSV-1-pUL36	1603	1	21	1	X3867	14aa	0.0	80	984.4444	78756.55	2	531.2299
H3N2-HA	213	1	21	1	X10222	22aa	0.0	25	3150.2220	78756.55	2	2942.5758
HSV-1-pUL19	796	1	21	1	X42219	14aa	0.0	37	2128.5284	78756.55	2	1210.8852
HSV-1-pUL22	625	1	21	1	X39331	14aa	0.5	12	6562.9625	78756.55	2	1970.5861
CAV-2-F-SH01	403	1	21	1	X66190	14aa	0.0	27	2916.8722	78756.55	2	3019.5000
EV71-VP1-1095-Japan-97	162	1	7	1	X76120	14aa	0.0	37	2128.5284	78756.55	2	1743.8533
EV71-VP2	112	1	7	1	X65579	14aa	0.5	9	8750.6167	78756.55	2	2039.0726
HIV-gp120-TH90129-1	473	1	6	1	X37851	14aa	1.0	61	1291.0746	78756.55	2	1001.3075
HSV-1-pUL16	24	1	6	1	X23855	22aa	0.5	36	2187.6542	78756.55	2	1301.9681
BV-G	113	1	6	1	X27539	14aa	3.5	31	2540.5016	78756.55	2	1114.8185
BoNT-F-Hc	64	1	6	1	X917	14aa	1.5	19	4145.0289	78756.55	2	1056.0032
HSV-1-pUL16	39	1	6	1	X42230	22aa	0.5	53	1485.9538	78756.55	2	1180.5719
HSV-1-pUL36	2209	1	6	1	X38260	14aa	0.0	19	4145.0289	78756.55	2	140.4188
HSV-1-pUL37	904	1	6	1	X76395	14aa	3.0	16	4922.2219	78756.55	2	392.1223
HSV-1-pUS6	149	1	6	1	X39539	14aa	0.0	70	1125.0793	78756.55	2	1117.6480
HSV-2-pUL1	65	1	6	1	X56056	14aaA5	1.5	76	1036.2572	78756.55	2	1965.8630
JEV-E-BN19	261	1	6	1	X13674	22aa	0.0	258	305.2541	78756.55	2	880.7066
MV-H-CAM-70	362	1	6	1	X27592	14aa	1.0	129	610.5081	78756.55	2	713.7007

mRNA_3cpc_SN	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL37	591	1	23	2	X12949	22aa	0.0	103	156.04428	16074.56	3	332.83350
BoNT-E-Hc	191	1	9	2	X38325	14aa	0.5	25	642.90245	16074.56	3	298.36860
BV-G	309	2	7	1	X25013	14aa	0.5	67	479.77795	32146.12	3	572.51186
CAV-2-F-SH01	108	2	7	1	X14027	14aa	0.0	39	824.23391	32146.12	3	388.70721
Tau	275	1	23	1	X74747	14aa	0.0	54	297.64002	16073.56	2	530.01476
CAV-2-F-SH01	466	1	10	1	X9572	14aa	4.5	11	1461.14193	16073.56	2	281.83419
BDV-CRNP5	217	1	9	1	X75606	14aa	0.0	44	365.28548	16073.56	2	272.96014
HSV-1-pUL22	763	1	8	1	X19117	14aa	0.0	16	1004.53508	16073.56	2	162.42583
SA	119	1	8	1	X45740	14aaA5	0.0	20	803.62806	16073.56	2	527.83188
HSV-1-pUL36	777	1	8	1	X38951	14aa	0.5	45	357.16803	16073.56	2	41.15277
HSV-1-pUL37	1007	1	8	1	X62663	14aa	1.5	47	341.96939	16073.56	2	111.75018
CHIKV-Sp-1	1058	1	8	1	X59889	14aaA5	0.0	24	669.69005	16073.56	2	97.18630
HSV-1-pUL27	405	1	7	1	X1574	14aa	0.0	89	180.59058	16073.56	2	131.48141
HSV-1-pUL27	216	1	7	1	X10448	14aa	0.0	47	341.96939	16073.56	2	128.47929
HSV-1-pUL22	75	1	7	1	X22100	14aa	0.0	189	85.04001	16073.56	2	125.70365
JEV-E-BN19	257	1	7	1	X18848	14aa	1.0	151	106.44080	16073.56	2	210.67931
PV3-VP1	592	1	7	1	X8366	14aa	0.5	49	328.01145	16073.56	2	119.97683
EV71-VP1-1095-Japan-97	27	1	6	1	X28941	14aa	1.0	125	128.58049	16073.56	2	337.46484
TeNT-Hc	183	1	6	1	X35108	14aa	1.5	25	642.90245	16073.56	2	221.74128
AAV1-VP1	135	1	6	1	X24680	14aa	0.5	203	79.17518	16073.56	2	127.25363

mRNA_3cpc_Str	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
BV-G	309	3	17	4	X25013	14aa	0.50	67	42.486360	2850.586	7	125.80159
PV1-VP1	699	3	15	4	X1614,X27075	14aa,22aa	0.50	69	41.254872	2850.586	7	44.16907
BDV-CRNP5	416	3	11	4	X46864,X53375	14aaA5	2.25	78	36.494694	2850.586	7	60.70734
CAV-2-F-SH01	129	2	17	4	X38436	14aa	0.00	28	67.775861	1901.724	6	58.43162
H3N2-HA	374	2	15	4	X71740	14aa	1.00	46	41.254872	1901.724	6	51.34549
HSV-1-pUL37	386	2	15	4	X32561	14aa	0.00	54	35.143039	1901.724	6	25.73255
CAV-2-F-SH01	108	2	15	4	X14027	14aa	0.00	39	48.659592	1901.724	6	53.17105
TBEV-E-4387-B7	154	2	15	4	X8898	14aa	0.00	38	49.940108	1901.724	6	57.91372
Tau	258	2	15	4	X11013	14aa	0.00	125	15.181793	1901.724	6	40.20350
HSV-1-pUL19	369	2	14	4	X27734	14aa	1.00	73	25.996220	1901.724	6	19.99388
Tau	282	2	14	4	X7067	14aa	0.00	69	27.503248	1901.724	6	40.00351
HSV-2-pUL53	90	2	13	4	X42274,X71435	14aa,22aa	0.50	76	24.970054	1901.724	6	75.38412
PRV-Becker-gE	89	2	10	4	X23396,X26959	14aa,22aa	1.00	62	30.608453	1901.724	6	34.27447
PV2-VP1	23	2	9	4	X2154,X77095	14aa,14aaG4S	2.50	58	32.719381	1901.724	6	56.63004
BV-G	305	3	13	3	X27393,X83630	14aa,14aaG4S	1.50	50	56.931723	2849.586	6	95.56911
AAV1-VP1	151	3	13	3	X25958,X25959	14aa	1.50	74	38.467380	2849.586	6	49.63898
HSV-2-pUL1	192	1	18	4	X40601	14aa	0.00	93	10.202818	952.862	5	74.48166
EV71-VP1-1095-Japan-97	27	1	17	4	X28941	14aa	1.00	125	7.590896	952.862	5	54.85021
JEV-E-BN19	257	1	17	4	X18848	14aa	1.00	151	6.283855	952.862	5	32.22186
HSV-1-pUL44	450	1	17	4	X26530	14aa	0.00	177	5.360803	952.862	5	30.79601

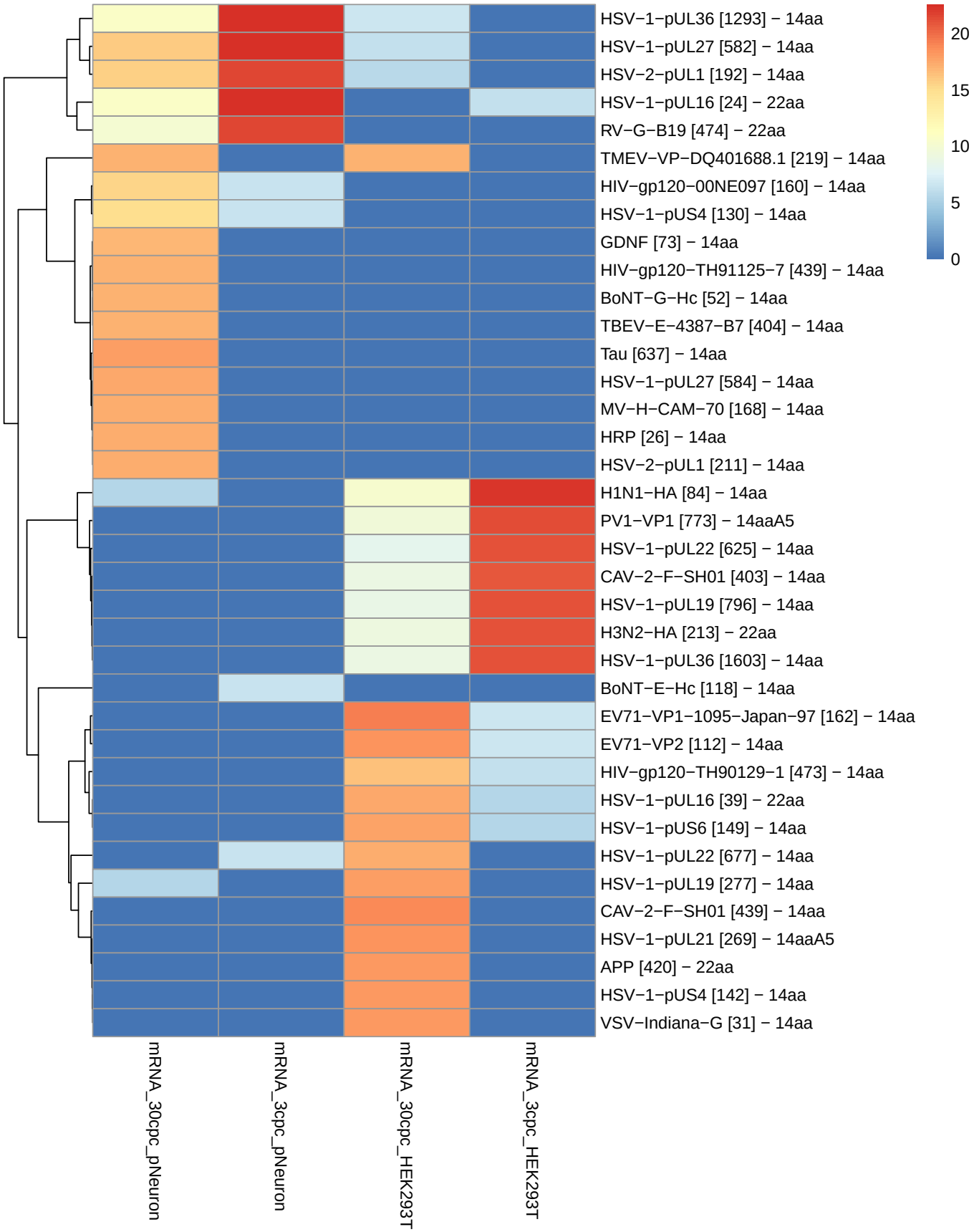
mRNA_3cpc_Th	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
BV-G	309	3	8	4	X25013	14aa	0.50	67	51.630570	3463.248	7	68.213008
BDV-CRNP5	416	3	7	4	X46864,X53375	14aaA5	2.25	78	44.349336	3463.248	7	51.137002
HRP	250	2	12	4	X63143	14aa	0.00	15	153.744363	2310.165	6	88.087917
HSV-1-pUL37	386	2	8	4	X32561	14aa	0.00	54	42.706767	2310.165	6	16.653756
CAV-2-F-SH01	129	2	8	4	X38436	14aa	0.00	28	82.363052	2310.165	6	34.227806
H3N2-HA	374	2	6	4	X71740	14aa	1.00	46	50.134031	2310.165	6	26.226153
BV-G	238	2	6	4	X24363	14aa	0.50	38	60.688564	2310.165	6	35.574917
PRV-Becker-gE	89	2	6	4	X23396,X26959	14aa,22aa	1.00	62	37.196217	2310.165	6	24.330485
AAV1-VP1	151	3	9	3	X25958,X25959	14aa	1.50	74	46.746597	3462.248	6	40.889089
BV-G	305	3	5	3	X27393,X83630	14aa,14aaG4S	1.50	50	69.184963	3462.248	6	46.437578
HSV-1-pUL22	763	1	21	4	X19117	14aa	0.00	16	72.067670	1157.083	5	29.331747
BoNT-E-Hc	191	1	21	4	X38325	14aa	0.50	25	46.123309	1157.083	5	51.140344
HSV-1-pUL36	777	1	21	4	X38951	14aa	0.50	45	25.624060	1157.083	5	7.612828
CHIKV-Sp-1	1058	1	20	4	X59889	14aaA5	0.00	24	48.045113	1157.083	5	18.858813
BDV-CRNP5	217	1	20	4	X75606	14aa	0.00	44	26.206426	1157.083	5	46.329015
TMEV-VP3	205	1	20	4	X70871	14aa	0.00	49	23.532301	1157.083	5	97.152619
HSV-1-pUL37	591	1	14	4	X12949	22aa	0.00	103	11.194978	1157.083	5	13.887116
AAV1-VP1	181	1	12	4	X62390	14aa	0.00	126	9.151450	1157.083	5	19.515816
HSV-1-pUL37	1077	1	8	4	X20913	14aa	0.50	49	23.532301	1157.083	5	8.422147
HSV-1-pUL22	75	1	8	4	X22100	14aa	0.00	189	6.100967	1157.083	5	10.484942

mRNA_3cpc_Trsp	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HRP	250	2	20	7	X63143	14aa	0.000	15	93.132949	1403.9942	9	92.122506
HSV-1-pUL37	591	1	23	7	X12949	22aa	0.000	103	6.781525	705.4971	8	14.467853
BoNT-E-Hc	191	1	11	7	X38325	14aa	0.500	25	27.939885	705.4971	8	16.150794
HSV-1-pUL22	763	1	11	6	X19117	14aa	0.000	16	43.656070	704.4971	7	9.360886
HSV-1-pUL27	405	2	16	5	X1574	14aa	0.000	89	15.696564	1401.9942	7	24.189104
PV2-VP1	23	2	11	5	X2154,X77095	14aa,14aaG4S	2.500	58	24.086108	1401.9942	7	49.907794
BDV-CRNP5	416	2	7	5	X46864,X53375	14aaA5	2.250	78	17.910183	1401.9942	7	20.738697
AAV1-VP1	151	3	17	4	X25958,X25959	14aa	1.500	74	28.317451	2099.4914	7	47.629837
PV1-VP1	230	3	15	4	X42697,X78705,X8350	14aa,14aaG4S	1.000	111	18.878301	2099.4914	7	32.191790
AAV1-VP1	105	3	12	4	X1081,X43336	14aa,22aa	1.625	155	13.519299	2099.4914	7	34.152504
PRV-Becker-gE	212	3	6	4	X44646,X44647	14aa	1.000	163	12.855775	2099.4914	7	22.079647
AAV1-VP1	181	1	21	5	X62390	14aa	0.000	126	5.543628	703.4971	6	19.671536
CHIKV-Sp-1	1058	1	11	5	X59889	14aaA5	0.000	24	29.104047	703.4971	6	5.876900
TMEV-VP3	205	1	10	5	X70871	14aa	0.000	49	14.255043	703.4971	6	29.543729
EV71-VP1-1095-Japan-97	27	1	8	5	X28941	14aa	1.000	125	5.587977	703.4971	6	18.502195
VSV-Indiana-G	355	2	13	4	X27778	14aa	0.500	27	51.740527	1400.9942	6	35.037071
JEV-E-BN19	257	2	11	4	X18848,X50146	14aa,14aaA5	0.500	151	9.251618	1400.9942	6	29.953649
HSV-1-pUL19	426	2	9	4	X18063	14aa	0.000	118	11.838934	1400.9942	6	9.514032
HSV-2-pUL44	143	2	7	4	X43146	14aa	2.000	54	25.870264	1400.9942	6	20.209166
HSV-1-pUL21	82	3	16	3	X27483	14aa	0.750	52	40.297911	2098.4914	6	62.647361

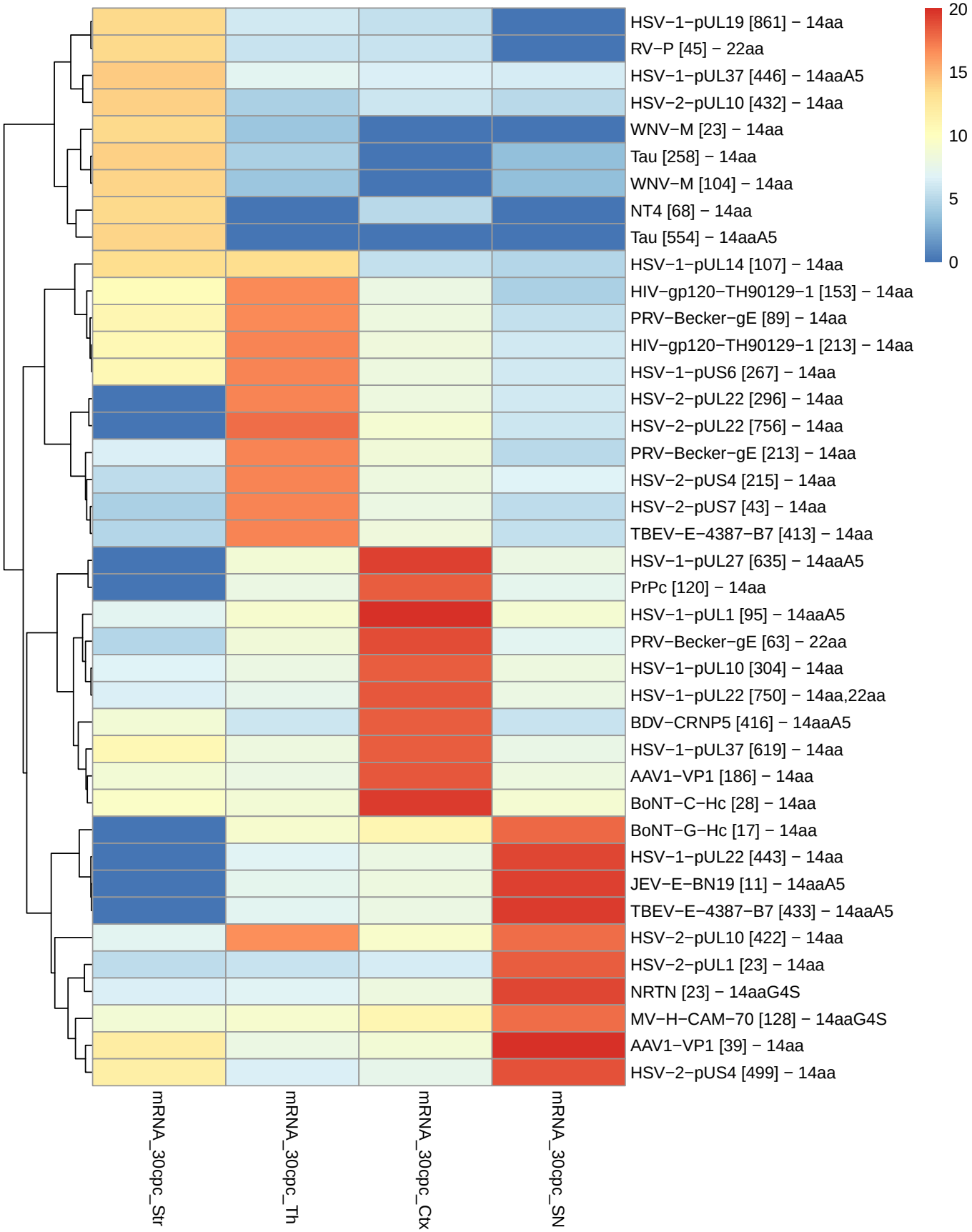
mRNA_3cpc_pNeuron	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
HSV-1-pUL36	1293	1	23	1	X62972	14aa	0.0	48	3646.090	175013.3	2	1257.936
HSV-1-pUL27	582	1	23	1	X24296	14aa	3.5	119	1470.692	175013.3	2	4362.388
HSV-1-pUL16	24	1	22	1	X23855	22aa	0.5	36	4861.454	175013.3	2	10516.187
RV-G-B19	474	1	22	1	X27641	22aa	0.0	32	5469.135	175013.3	2	7487.317
HSV-2-pUL1	192	1	21	1	X40601	14aa	0.0	93	1881.853	175013.3	2	16793.112
BoNT-E-Hc	118	1	6	1	X70106	14aa	0.0	18	9722.907	175013.3	2	2399.516
HIV-gp120-00NE097	160	1	6	1	X69282	14aa	1.5	44	3977.553	175013.3	2	2989.874
HSV-1-pUL22	677	1	6	1	X2113	14aa	0.0	105	1666.784	175013.3	2	1348.654
HSV-1-pUS4	130	1	6	1	X20542	14aa	1.0	33	5303.404	175013.3	2	4728.754

mRNA_All	AA	BCs	nCount	Animal	LUTnrs	mainStruct	missM	libBC	libNormBC	BCsNan	BCcountanim	NormCountBC
JEV-E-BN19	261	35	13	11	X13674,X18847,X18853,X18855,X42671,X42673,X56323,X87613	14aa,14aaA5,14aaG4S,22aa	0.375	258	3.332364	870.7499	46	22.431828
AAV1-VP1	177	30	12	11	X23308,X23310,X26310,X26311	14aa,22aa	0.250	175	4.211020	747.9285	41	12.222503
HSV-1-pUL37	591	14	19	24	X12949,X24308	14aa,22aa	0.000	103	3.338835	367.9000	38	5.915183
AAV1-VP1	105	20	14	17	X1081,X1083,X43336,X43337	14aa,22aa	1.000	155	3.169585	508.2857	37	9.319309
JEV-E-BN19	257	19	12	17	X18848,X18854,X18856,X50146,X50148,X50149,X81436,X81438,X81439	14aa,14aaA5,14aaG4S	0.500	151	3.090870	483.7214	36	10.759719
PRV-Becker-gE	212	21	12	15	X44646,X44647,X56820,X70037,X88110	14aa,14aaA5,14aaG4S,22aa	2.000	163	3.164724	530.8500	36	10.637803
HSV-1-pUL19	845	22	13	14	X47263,X47264,X7793,X7795,X78554	14aa,14aaA5,14aaG4S	0.500	71	7.611468	554.4142	36	5.241758
TMEV-VP3	205	10	20	25	X70871	14aa	0.000	49	5.013119	270.6428	35	20.967089
HSV-1-pUL19	152	22	12	13	X57715,X57716,X63903,X63905,X89005	14aa,14aaA5,14aaG4S	1.000	111	4.868597	553.4142	35	4.822076
HSV-1-pUL22	75	15	10	19	X22100,X22218,X62933,X65516	14aa,22aa	1.375	189	1.949546	387.4643	34	4.388703
HSV-1-pUL19	426	17	13	17	X18062,X18063,X28276,X28277	14aa,22aa	0.000	118	3.538922	434.5928	34	4.047916
HSV-1-pUL44	450	15	14	18	X26342,X26530,X52108,X83398	14aa,14aaA5,14aaG4S	0.000	177	2.081719	386.4643	33	9.774913
HSV-1-pUL19	425	21	13	12	X41345,X41347,X55989,X87279	14aa,14aaA5,14aaG4S	0.250	119	4.334874	527.8500	33	4.954384
BDV-CRNP5	416	12	12	20	X46864,X53375,X78154,X84665	14aaA5,14aaG4S	0.500	78	3.779121	314.7714	32	7.297642
Tau	258	17	16	15	X11013	14aa	0.000	125	3.340743	432.5928	32	9.899875
MV-H-Edmonston	593	17	13	15	X42886,X56376,X87666	14aa,14aaA5,14aaG4S	0.500	74	5.643146	432.5928	32	8.925765
AAV1-VP1	151	13	18	18	X25958,X25959	14aa	1.500	74	4.315347	337.3357	31	7.945049
AAV1-VP1	594	19	13	12	X10606,X10607,X1625,X2938	14aa,22aa	1.000	127	3.674972	478.7214	31	8.164698
AAV1-VP1	135	19	11	12	X22798,X22799,X24680,X26462,X27760	14aa,22aa	0.500	203	2.299120	478.7214	31	7.194136
EV71-VP1-1095-Japan-97	27	11	11	19	X28893,X28941,X66392,X66394	14aa,22aa	0.750	125	2.161657	289.2071	30	10.239038

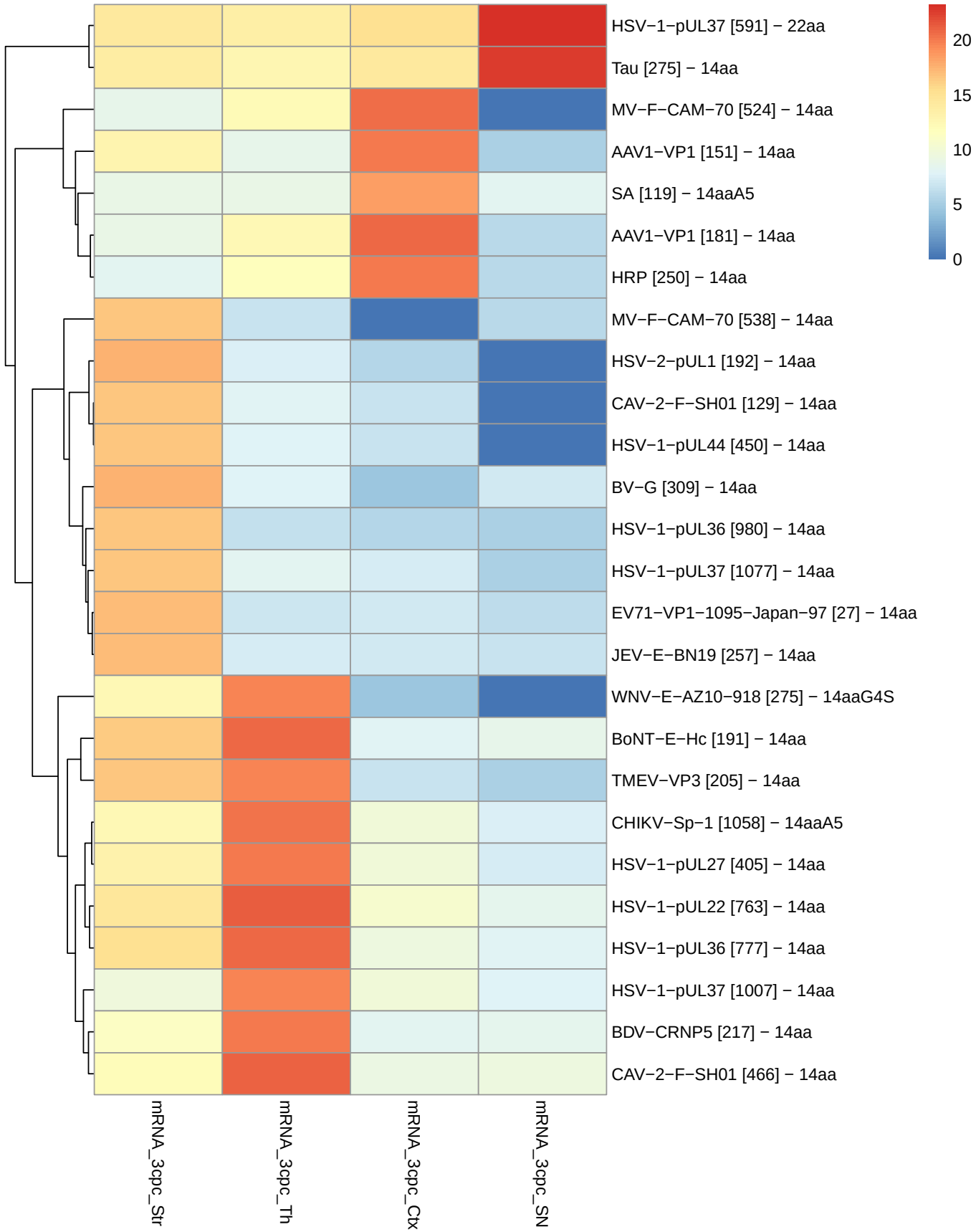
```r
plotPos <- function(select.samples.table,plot.col,sample.select){
  setkeyv(select.samples.table,"Group")
  select.samples.select <- select.samples.table[J(sample.select)]
  eval(parse(text=paste("setorder(select.samples.select,Group, -", plot.col,",-AnimalCount,-NormCount)", sep
  select.samples.topTen <- select.samples.select[, head(.SD, 10), by=Group]
  select.samples.out <- select.samples.select[select.samples.select$GeneAA %in% select.samples.topTen$GeneAA
  select.samples.out <- acast(select.samples.out, GeneAA~Group, value.var=plot.col) #Utilizes reshape 2 to r
  select.samples.out[is.na(select.samples.out)] <- 0
  select.samples.out <- select.samples.out[,sample.select]
  return(pheatmap(select.samples.out, cluster_rows=TRUE, show_rownames=TRUE, cluster_cols=FALSE))
}

plotPos(select.samples.binPos,"NormCount",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293T","m
```



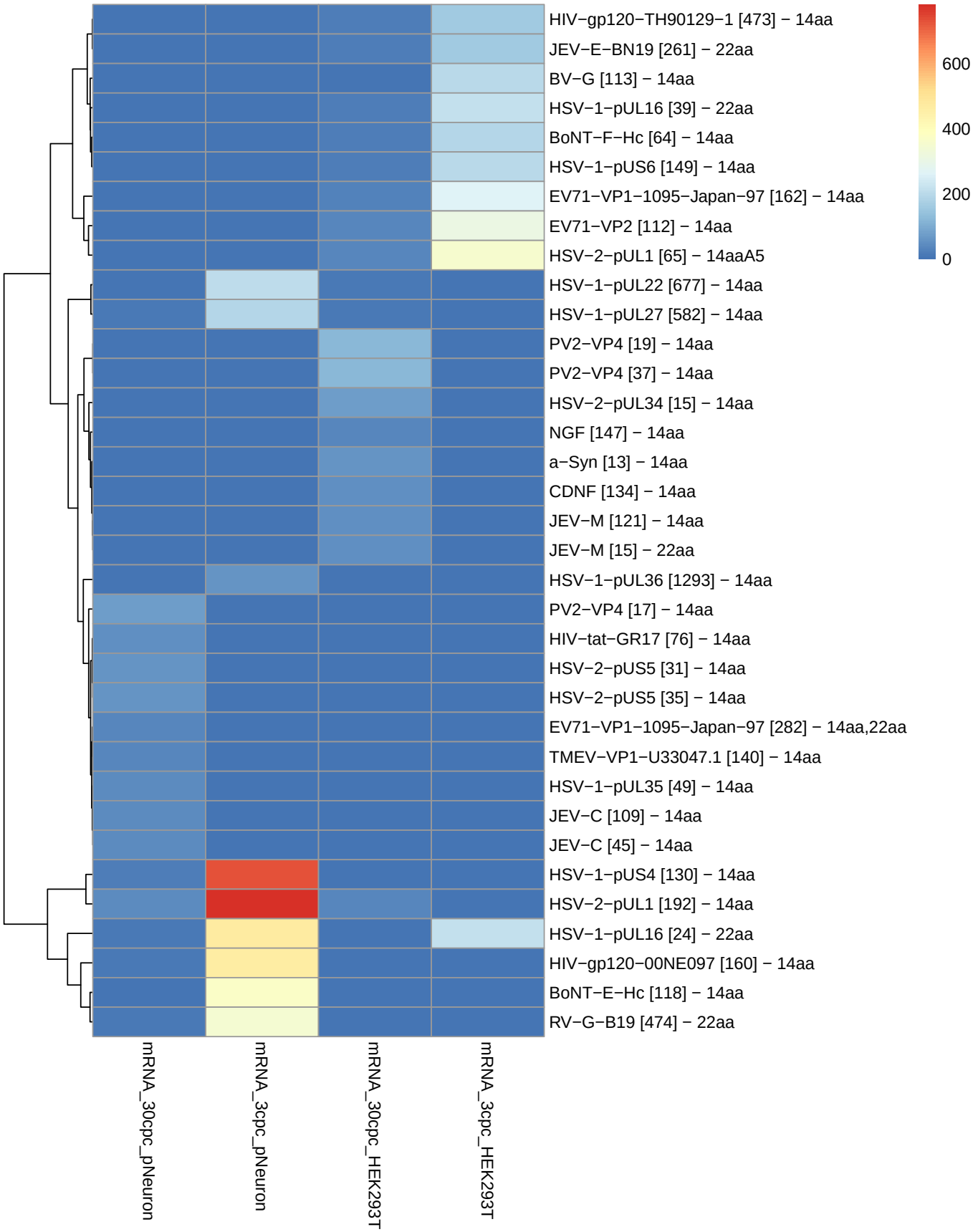

```
plotPos(select.samples.binPos,"NormCount",c("mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30cpc_Ctx","mRNA_30cpc_SI
```



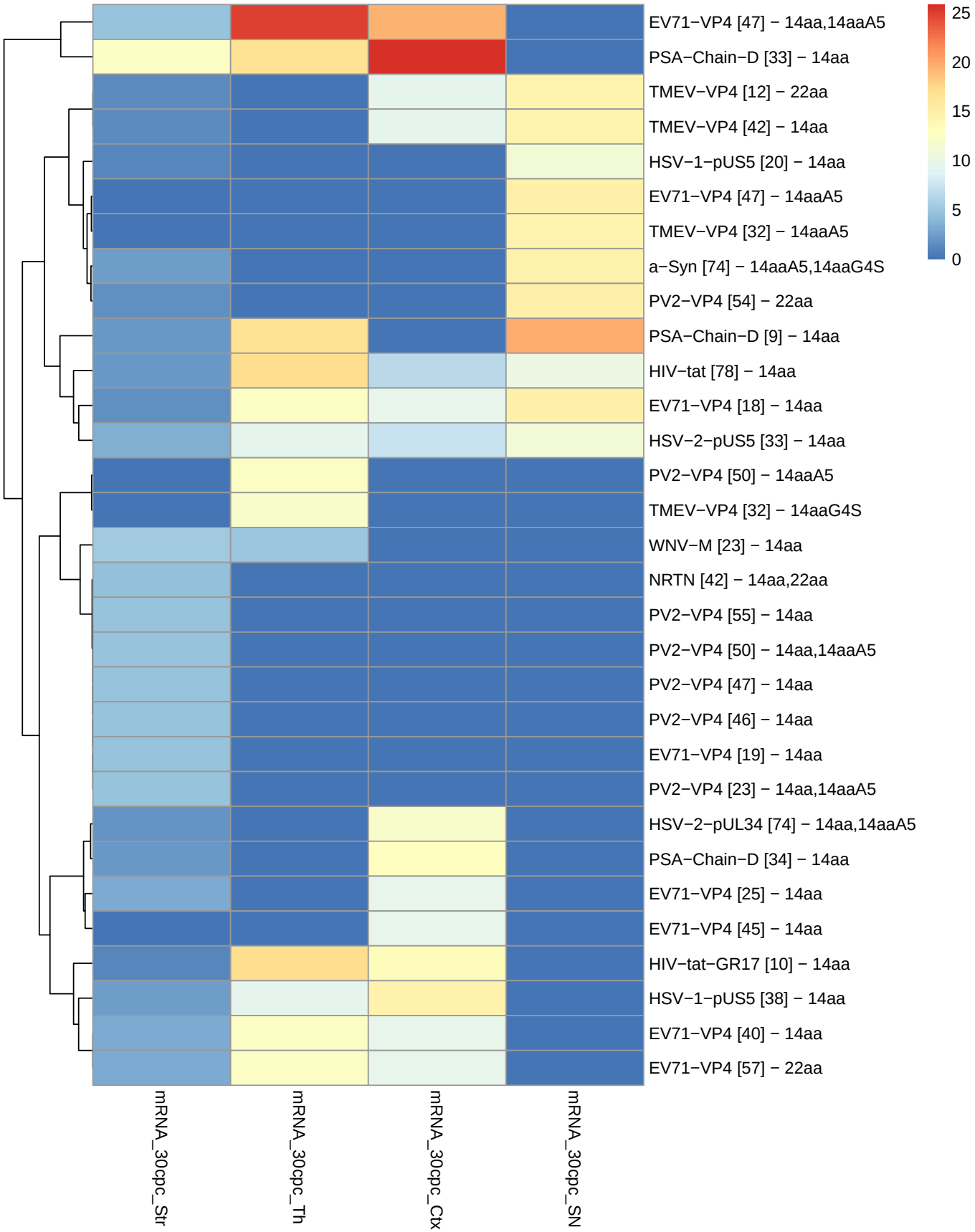

```
plotPos(select.samples.binPos,"NormCount",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc_SN"))
```



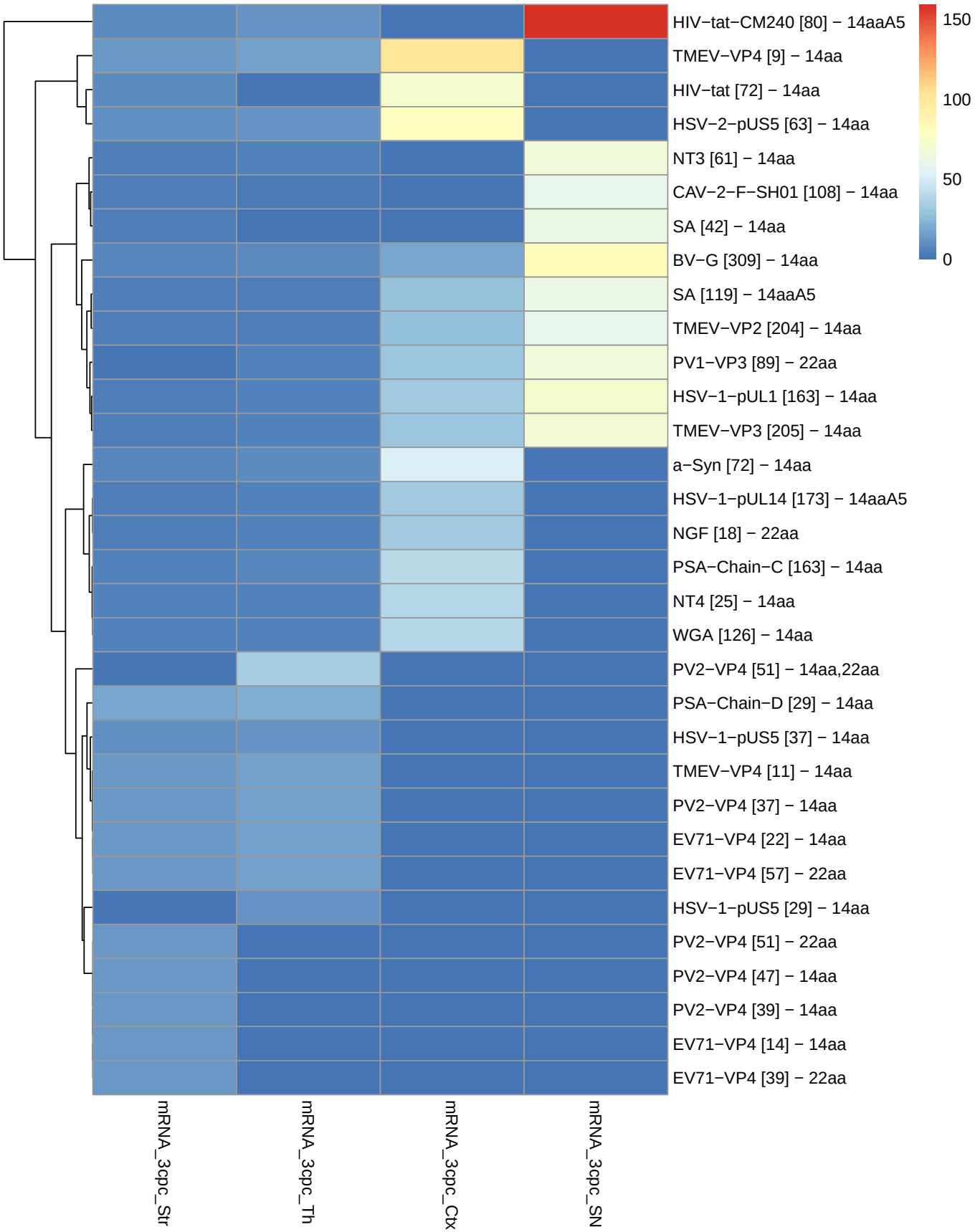

```
plotPos(select.samples.binPos,"BCcountNseq",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293T"
```



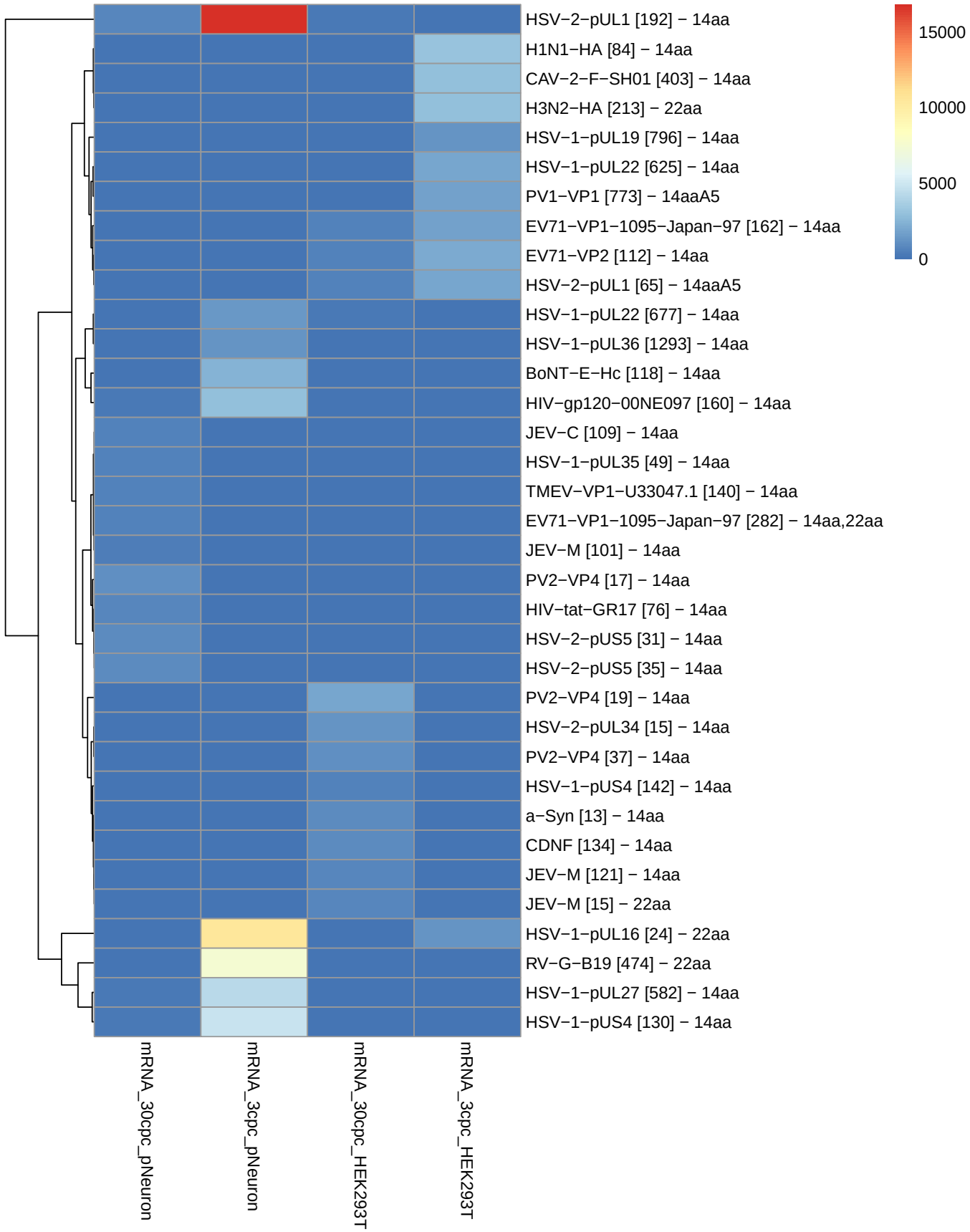

```
plotPos(select.samples.binPos,"BCcountNseq",c("mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30cpc_Ctx","mRNA_30cpc_
```



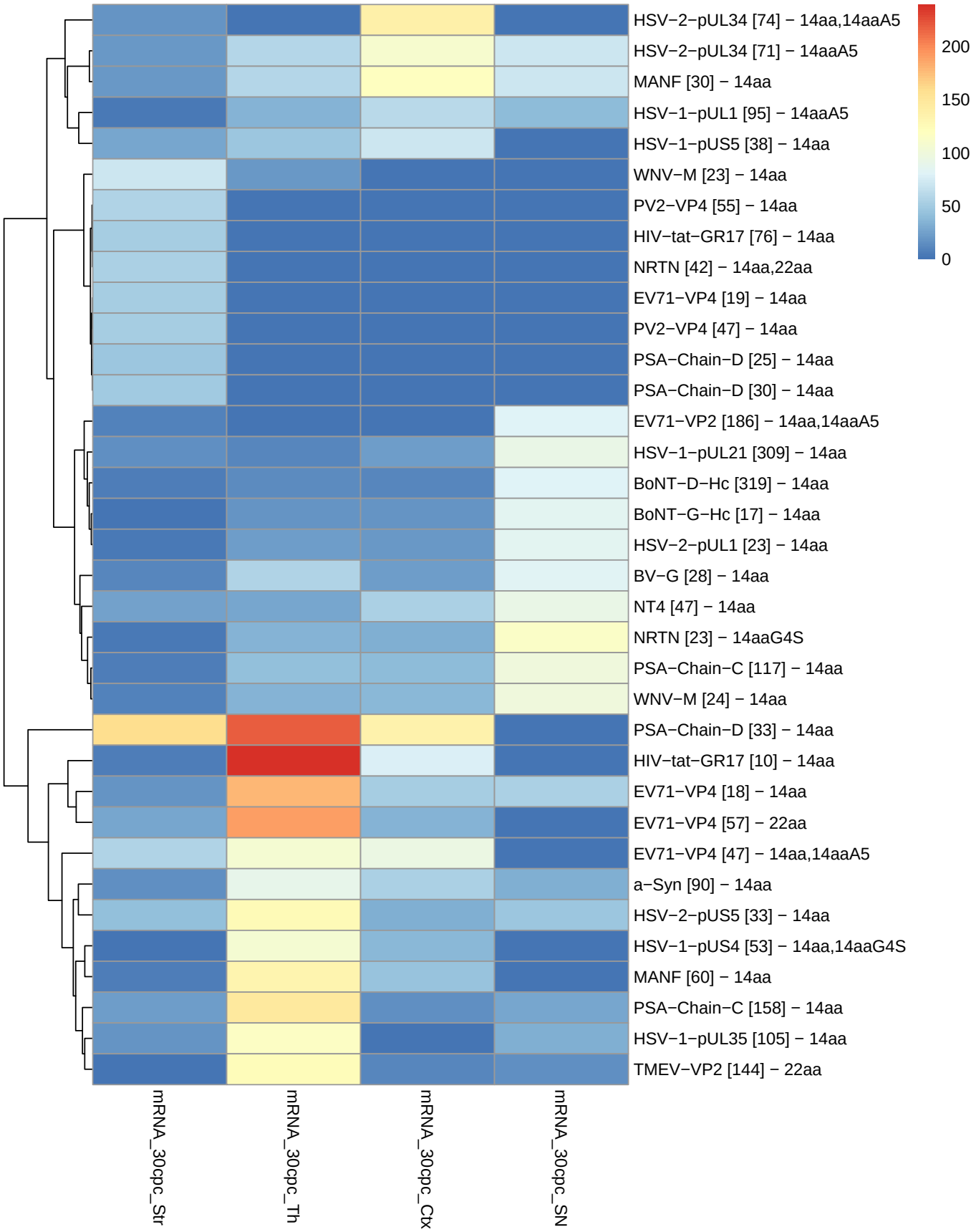

```
plotPos(select.samples.binPos,"BCcountNseq",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc_SN"))
```



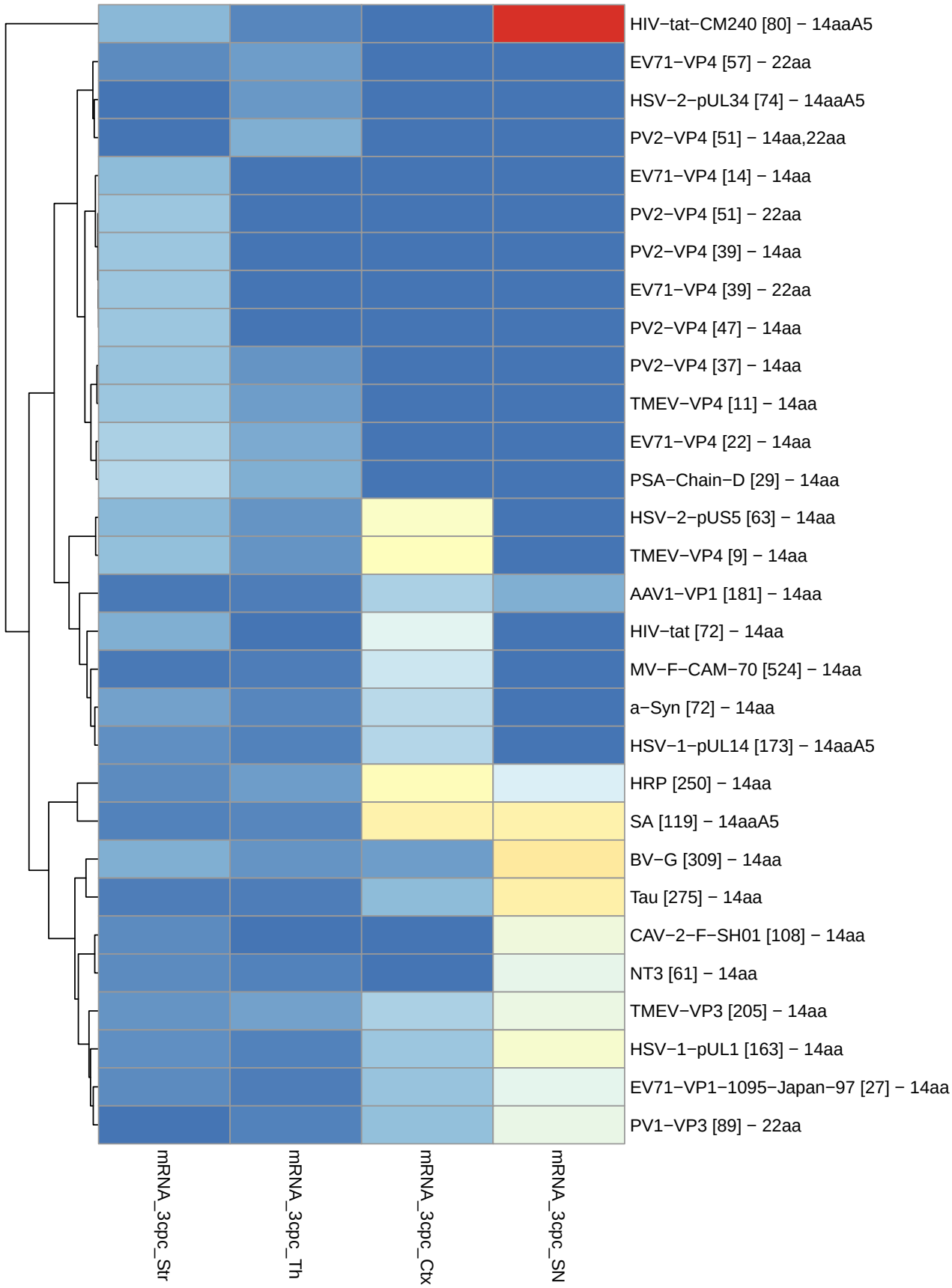

```
plotPos(select.samples.binPos,"NormCountBC",c("mRNA_30cpc_pNeuron","mRNA_3cpc_pNeuron","mRNA_30cpc_HEK293T"
```




```
plotPos(select.samples.binPos,"NormCountBC",c("mRNA_30cpc_Str","mRNA_30cpc_Th","mRNA_30cpc_Ctx","mRNA_30cpc_
```




```
plotPos(select.samples.binPos,"NormCountBC",c("mRNA_3cpc_Str","mRNA_3cpc_Th","mRNA_3cpc_Ctx","mRNA_3cpc_SN"
```




```
devtools::session_info()
```

```
## Session info -------------------------------------------------------------
```

```
##  setting  value
##  version  R version 3.4.2 (2017-09-28)
##  system   x86_64, linux-gnu
##  ui       X11
##  language (EN)
##  collate  en_US.UTF-8
##  tz       UTC
##  date     2020-11-02
```

```
## Packages -------------------------------------------------------------------
```

```
##  package               * version  date       source
##  acepack                 1.4.1    2016-10-29 CRAN (R 3.4.2)
##  annotate                1.54.0   2017-11-29 Bioconductor
##  AnnotationDbi           1.38.2   2017-11-29 Bioconductor
##  AnnotationFilter        1.0.0    2017-11-29 Bioconductor
##  AnnotationHub           2.8.3    2017-11-29 Bioconductor
##  backports               1.1.1    2017-09-25 CRAN (R 3.4.2)
##  base                  * 3.4.2    2017-10-06 local
##  base64enc               0.1-3    2015-07-28 CRAN (R 3.4.2)
##  Biobase               * 2.36.2   2017-11-29 Bioconductor
##  BiocGenerics          * 0.22.1   2017-11-29 Bioconductor
##  BiocInstaller           1.26.1   2017-10-10 Bioconductor
##  BiocParallel            1.10.1   2017-11-29 Bioconductor
##  biomaRt                 2.32.1   2017-11-29 Bioconductor
##  Biostrings            * 2.44.2   2017-11-29 Bioconductor
##  biovizBase              1.24.0   2017-11-29 Bioconductor
##  bit                     1.1-12   2014-04-09 CRAN (R 3.4.2)
##  bit64                   0.9-7    2017-05-08 CRAN (R 3.4.2)
##  bitops                  1.0-6    2013-08-17 CRAN (R 3.4.2)
##  blob                    1.1.0    2017-06-17 CRAN (R 3.4.2)
##  BSgenome                1.44.2   2017-11-29 Bioconductor
##  checkmate               1.8.4    2017-09-25 CRAN (R 3.4.2)
##  cluster                 2.0.6    2017-03-16 CRAN (R 3.4.2)
##  codetools               0.2-15   2016-10-05 CRAN (R 3.4.2)
##  colorspace              1.3-2    2016-12-14 CRAN (R 3.4.2)
##  compiler                3.4.2    2017-10-06 local
##  curl                    2.8.1    2017-07-21 CRAN (R 3.4.2)
##  data.table            * 1.10.4-2 2017-10-12 url
##  datasets              * 3.4.2    2017-10-06 local
##  DBI                     0.7      2017-06-18 CRAN (R 3.4.2)
##  DelayedArray          * 0.2.7    2017-11-29 Bioconductor
##  DESeq2                * 1.16.1   2017-11-29 Bioconductor
##  devtools              * 1.13.3   2017-08-02 CRAN (R 3.4.2)
##  dichromat               2.0-0    2013-01-24 CRAN (R 3.4.2)
##  digest                  0.6.12   2017-01-27 CRAN (R 3.4.2)
##  doParallel            * 1.0.11   2017-09-28 CRAN (R 3.4.2)
##  ensembldb               2.0.4    2017-11-29 Bioconductor
##  evaluate                0.10.1   2017-06-24 CRAN (R 3.4.2)
##  foreach               * 1.4.3    2015-10-13 CRAN (R 3.4.2)
##  foreign                 0.8-69   2017-06-21 CRAN (R 3.4.2)
##  formatR               * 1.5      2017-04-25 CRAN (R 3.4.2)
##  Formula                 1.2-2    2017-07-10 CRAN (R 3.4.2)
##  genefilter              1.58.1   2017-11-29 Bioconductor
##  geneplotter             1.54.0   2017-11-29 Bioconductor
##  GenomeInfoDb          * 1.12.3   2017-11-29 Bioconductor
##  GenomeInfoDbData        0.99.0   2017-11-29 Bioconductor
##  GenomicAlignments     * 1.12.2   2017-11-29 Bioconductor
```

```
##  GenomicFeatures          1.28.5   2017-11-29 Bioconductor
##  GenomicRanges          * 1.28.6   2017-11-29 Bioconductor
##  GGally                   1.3.2    2017-08-02 CRAN (R 3.4.2)
##  ggbio                  * 1.24.1   2017-11-29 Bioconductor
##  ggplot2                * 2.2.1    2016-12-30 CRAN (R 3.4.2)
##  graph                    1.54.0   2017-11-29 Bioconductor
##  graphics               * 3.4.2    2017-10-06 local
##  grDevices              * 3.4.2    2017-10-06 local
##  grid                   * 3.4.2    2017-10-06 local
##  gridExtra                2.3      2017-09-09 CRAN (R 3.4.2)
##  gtable                   0.2.0    2016-02-26 CRAN (R 3.4.2)
##  Hmisc                    4.0-3    2017-05-02 CRAN (R 3.4.2)
##  hms                      0.3      2016-11-22 CRAN (R 3.4.2)
##  htmlTable                1.9      2017-01-26 CRAN (R 3.4.2)
##  htmltools                0.3.6    2017-04-28 CRAN (R 3.4.2)
##  htmlwidgets              0.9      2017-07-10 CRAN (R 3.4.2)
##  httpuv                   1.3.5    2017-07-04 CRAN (R 3.4.2)
##  httr                     1.3.1    2017-08-20 CRAN (R 3.4.2)
##  interactiveDisplayBase   1.14.0   2017-11-29 Bioconductor
##  IRanges                * 2.10.5   2017-11-29 Bioconductor
##  iterators              * 1.0.8    2015-10-13 CRAN (R 3.4.2)
##  kableExtra             * 0.5.2    2017-09-15 url
##  knitr                  * 1.17     2017-08-10 CRAN (R 3.4.2)
##  lattice                  0.20-35  2017-03-25 CRAN (R 3.4.2)
##  latticeExtra             0.6-28   2016-02-09 CRAN (R 3.4.2)
##  lazyeval                 0.2.0    2016-06-12 CRAN (R 3.4.2)
##  locfit                   1.5-9.1  2013-04-20 CRAN (R 3.4.2)
##  magrittr                 1.5      2014-11-22 CRAN (R 3.4.2)
##  Matrix                   1.2-11   2017-08-21 url
##  matrixStats            * 0.52.2   2017-04-14 CRAN (R 3.4.2)
##  memoise                  1.1.0    2017-04-21 CRAN (R 3.4.2)
##  methods                * 3.4.2    2017-10-06 local
##  mime                     0.5      2016-07-07 CRAN (R 3.4.2)
##  munsell                  0.4.3    2016-02-13 CRAN (R 3.4.2)
##  nnet                     7.3-12   2016-02-02 CRAN (R 3.4.2)
##  OrganismDbi              1.18.1   2017-11-29 Bioconductor
##  parallel               * 3.4.2    2017-10-06 local
##  pheatmap               * 1.0.8    2015-12-11 CRAN (R 3.4.2)
##  plyr                   * 1.8.4    2016-06-08 CRAN (R 3.4.2)
##  ProtGenerics             1.8.0    2017-11-29 Bioconductor
##  R6                       2.2.2    2017-06-17 CRAN (R 3.4.2)
##  RBGL                     1.52.0   2017-11-29 Bioconductor
##  RColorBrewer             1.1-2    2014-12-07 CRAN (R 3.4.2)
##  Rcpp                     0.12.13  2017-09-28 url
##  RCurl                    1.95-4.8 2016-03-01 CRAN (R 3.4.2)
##  readr                    1.1.1    2017-05-16 CRAN (R 3.4.2)
##  reshape                  0.8.7    2017-08-06 CRAN (R 3.4.2)
##  reshape2               * 1.4.2    2016-10-22 CRAN (R 3.4.2)
##  rlang                    0.1.2    2017-08-09 CRAN (R 3.4.2)
##  rmarkdown                1.6      2017-06-15 url
##  rpart                    4.1-11   2017-04-21 CRAN (R 3.4.2)
##  rprojroot                1.2      2017-01-16 CRAN (R 3.4.2)
##  Rsamtools              * 1.28.0   2017-11-29 Bioconductor
##  RSQLite                  2.0      2017-06-19 CRAN (R 3.4.2)
##  rtracklayer              1.36.6   2017-11-29 Bioconductor
##  rvest                    0.3.2    2016-06-17 CRAN (R 3.4.2)
##  S4Vectors              * 0.14.7   2017-11-29 Bioconductor
```

```
##  scales                   0.5.0    2017-08-24 CRAN (R 3.4.2)
##  shiny                    1.0.5    2017-08-23 CRAN (R 3.4.2)
##  splines                  3.4.2    2017-10-06 local
##  stats                  * 3.4.2    2017-10-06 local
##  stats4                 * 3.4.2    2017-10-06 local
##  stringi                  1.1.5    2017-04-07 url
##  stringr                  1.2.0    2017-02-18 CRAN (R 3.4.2)
##  SummarizedExperiment   * 1.6.5    2017-11-29 Bioconductor
##  survival                 2.41-3   2017-04-04 CRAN (R 3.4.2)
##  tibble                   1.3.4    2017-08-22 CRAN (R 3.4.2)
##  tools                    3.4.2    2017-10-06 local
##  utils                  * 3.4.2    2017-10-06 local
##  VariantAnnotation        1.22.3   2017-11-29 Bioconductor
##  withr                    2.0.0    2017-07-28 url
##  XML                      3.98-1.9 2017-06-19 CRAN (R 3.4.2)
##  xml2                     1.1.1    2017-01-24 CRAN (R 3.4.2)
##  xtable                   1.8-2    2016-02-05 CRAN (R 3.4.2)
##  XVector                * 0.16.0   2017-11-29 Bioconductor
##  yaml                     2.1.14   2016-11-12 CRAN (R 3.4.2)
##  zlibbioc                 1.22.0   2017-11-29 Bioconductor
```