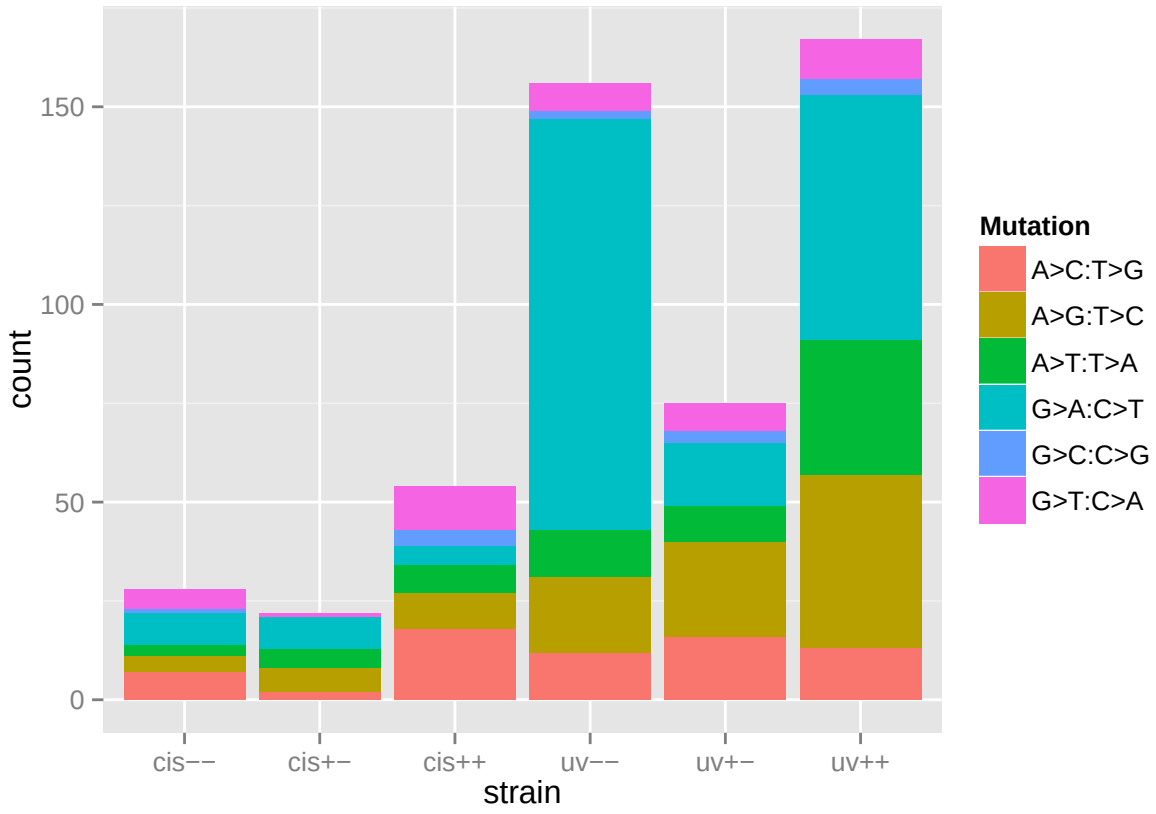
Mutations and Crossovers

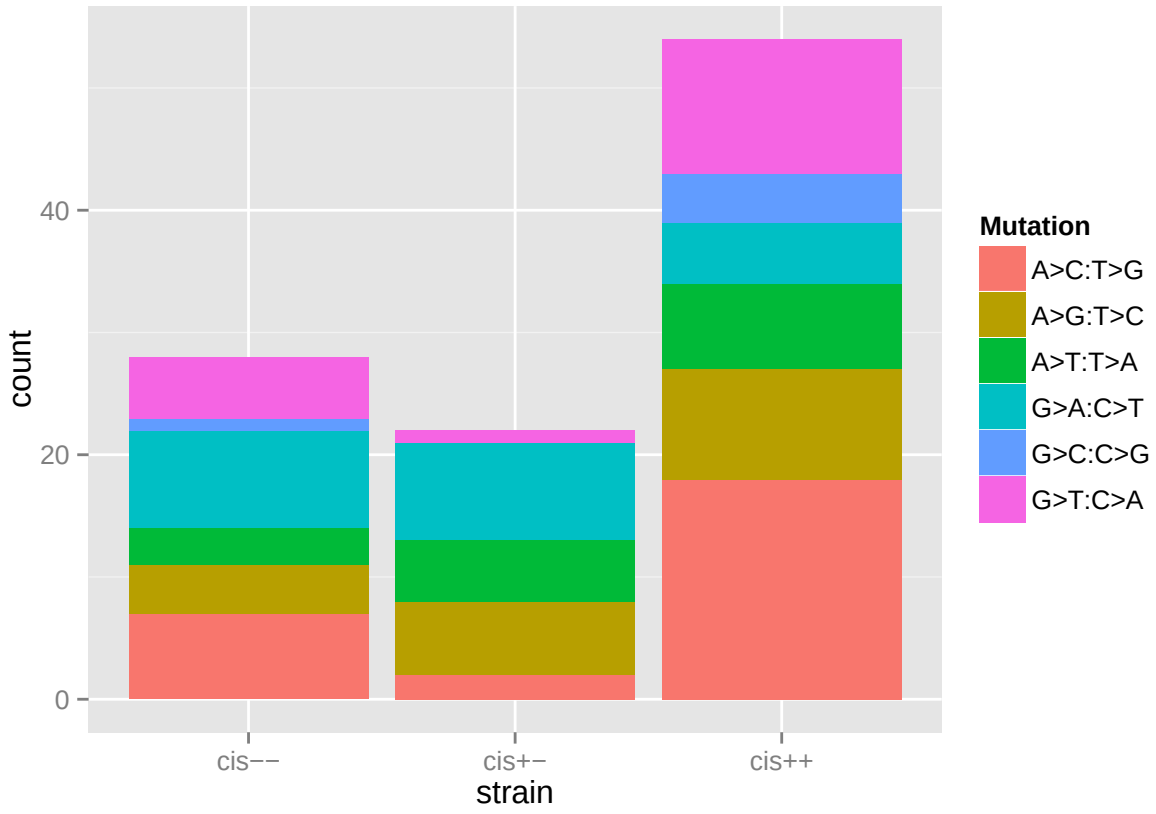
Mitchell Vollger

3/31/2015

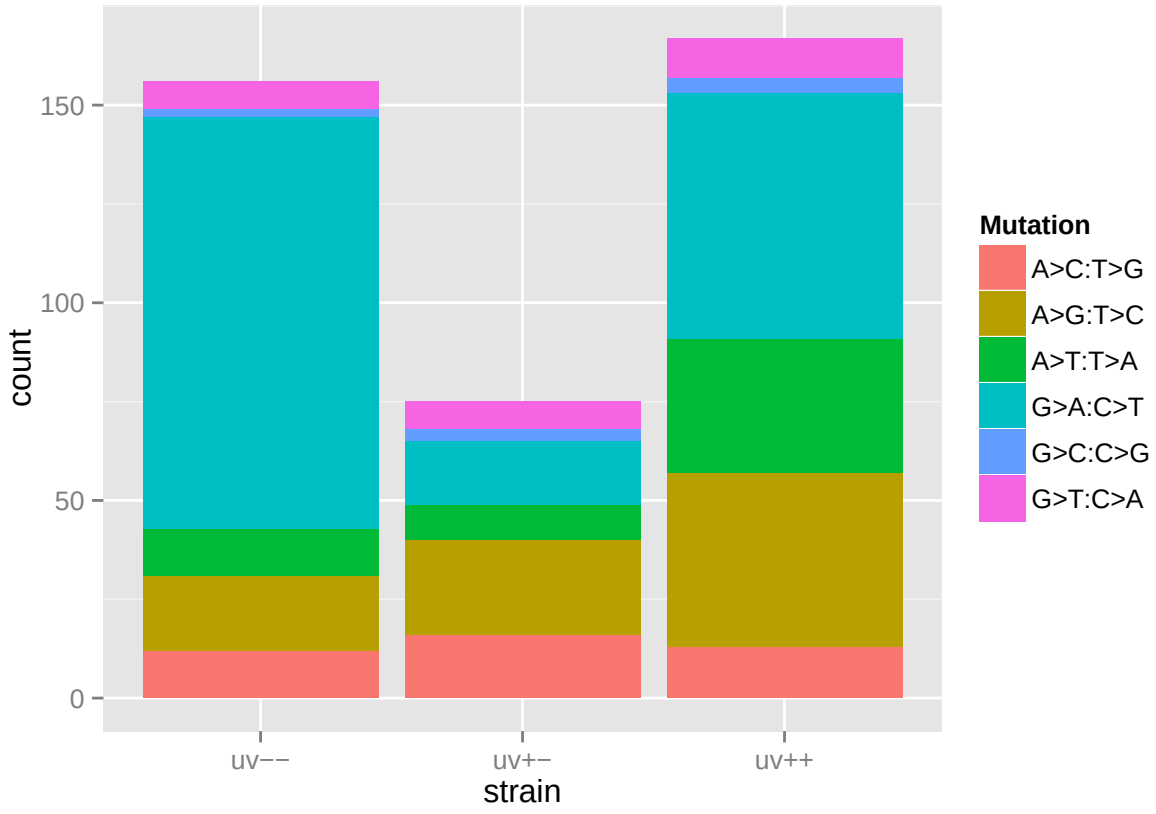
```
pcount
```



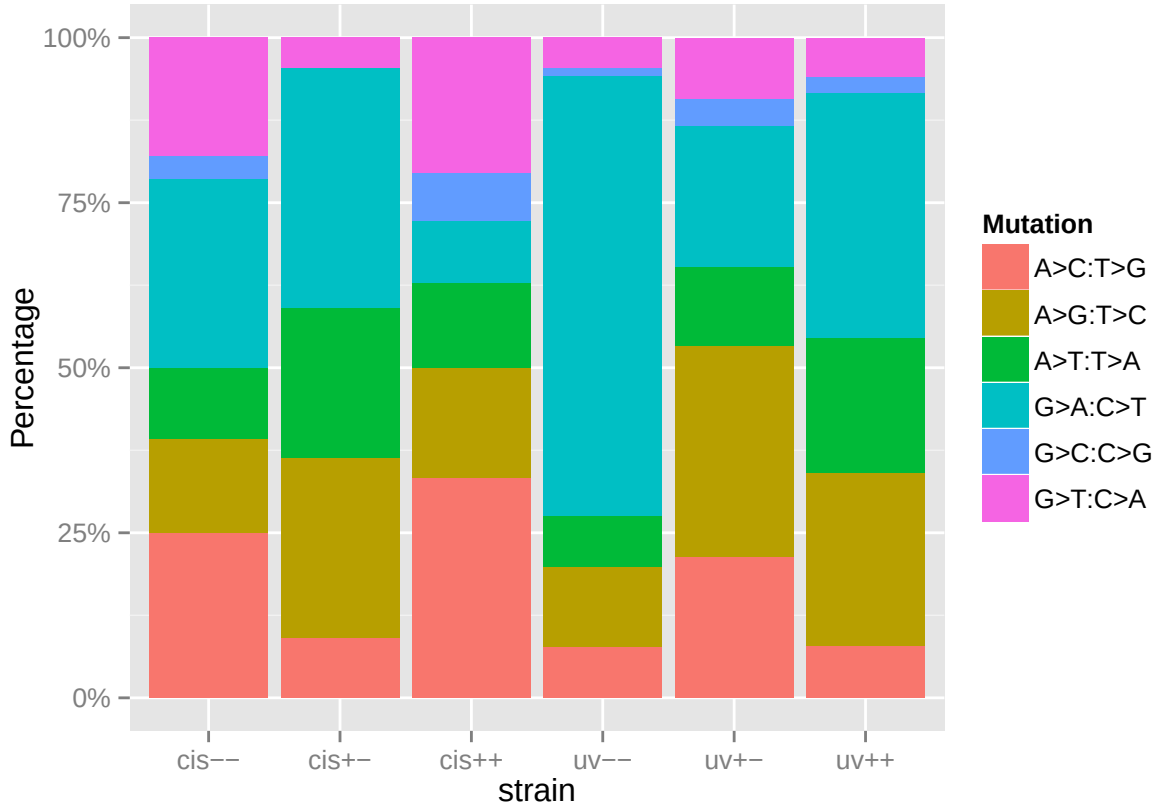

```
pcountcis
```


count
40
20
0
cis−−
cis+−
cis++
strain
Mutation
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

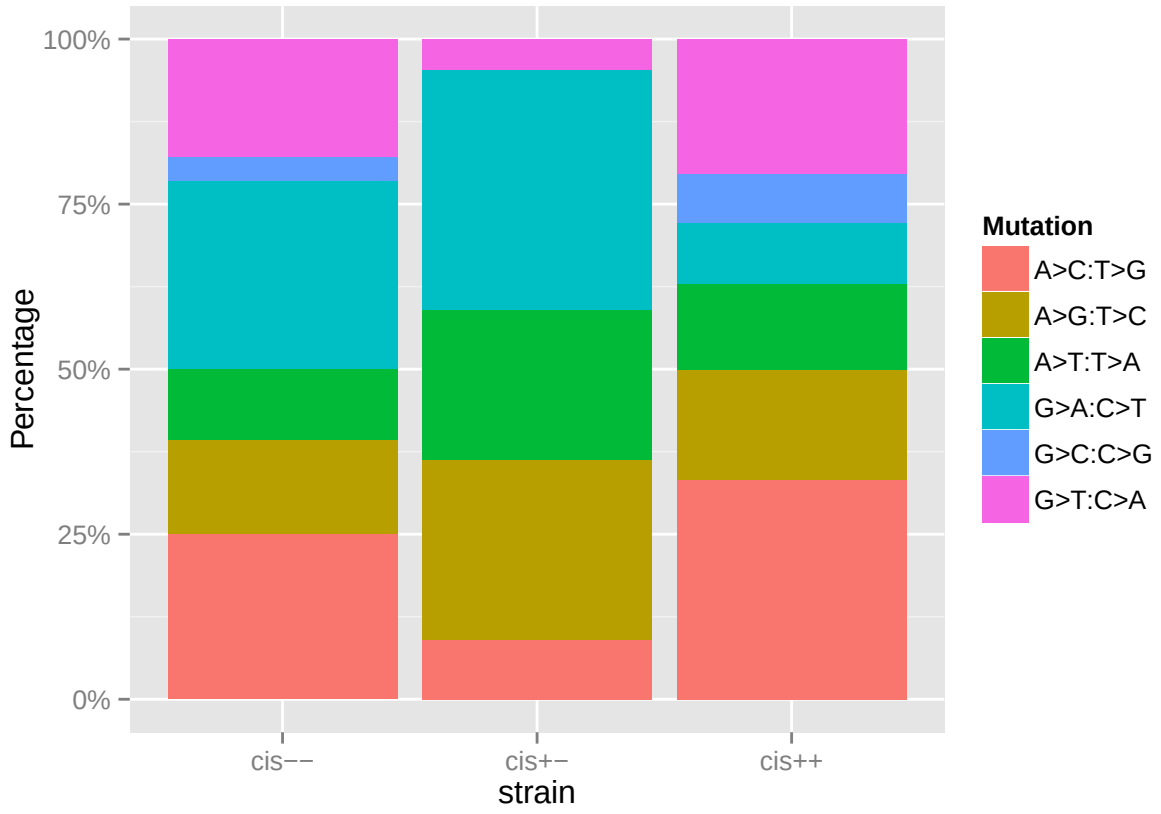
```
pcountuv
```


count
150
100
50
0
uv−−
uv+−
uv++
strain
Mutation
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

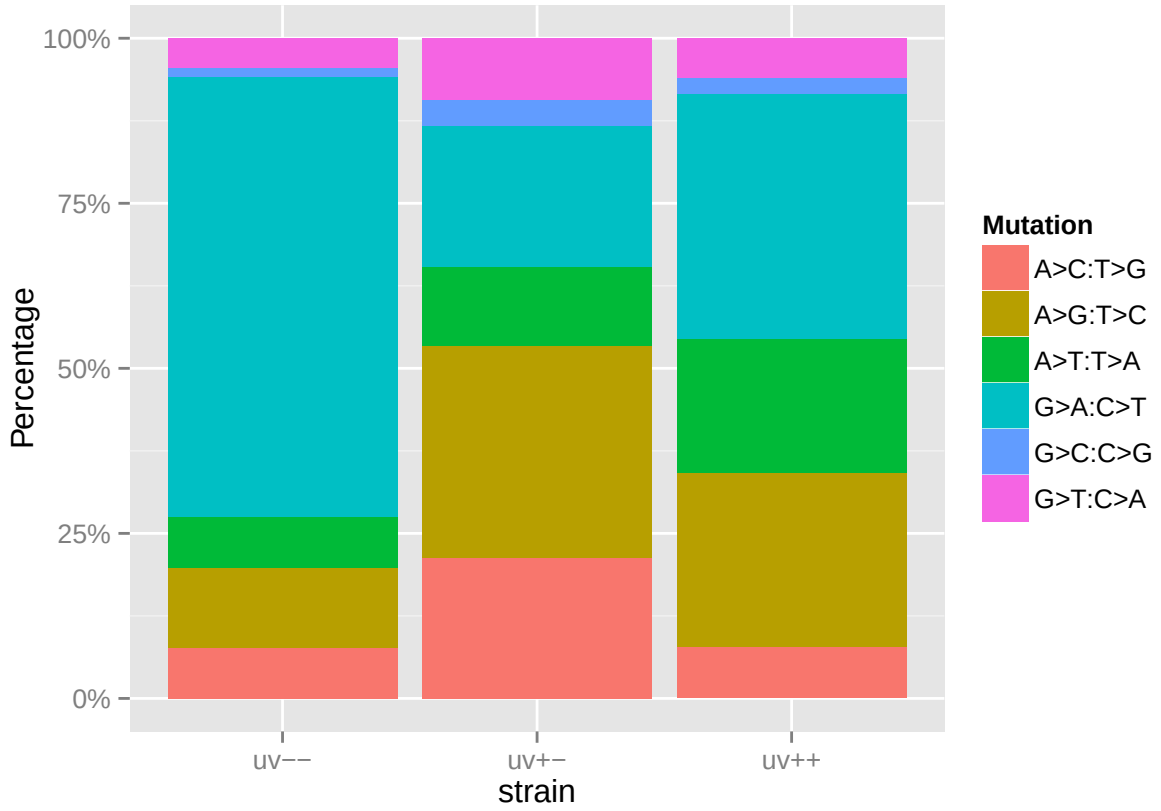
```
p
```


100%
75%
50%
25%
0%
Percentage
cis−−
cis+−
cis++
uv−−
uv+−
uv++
strain
Mutation
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

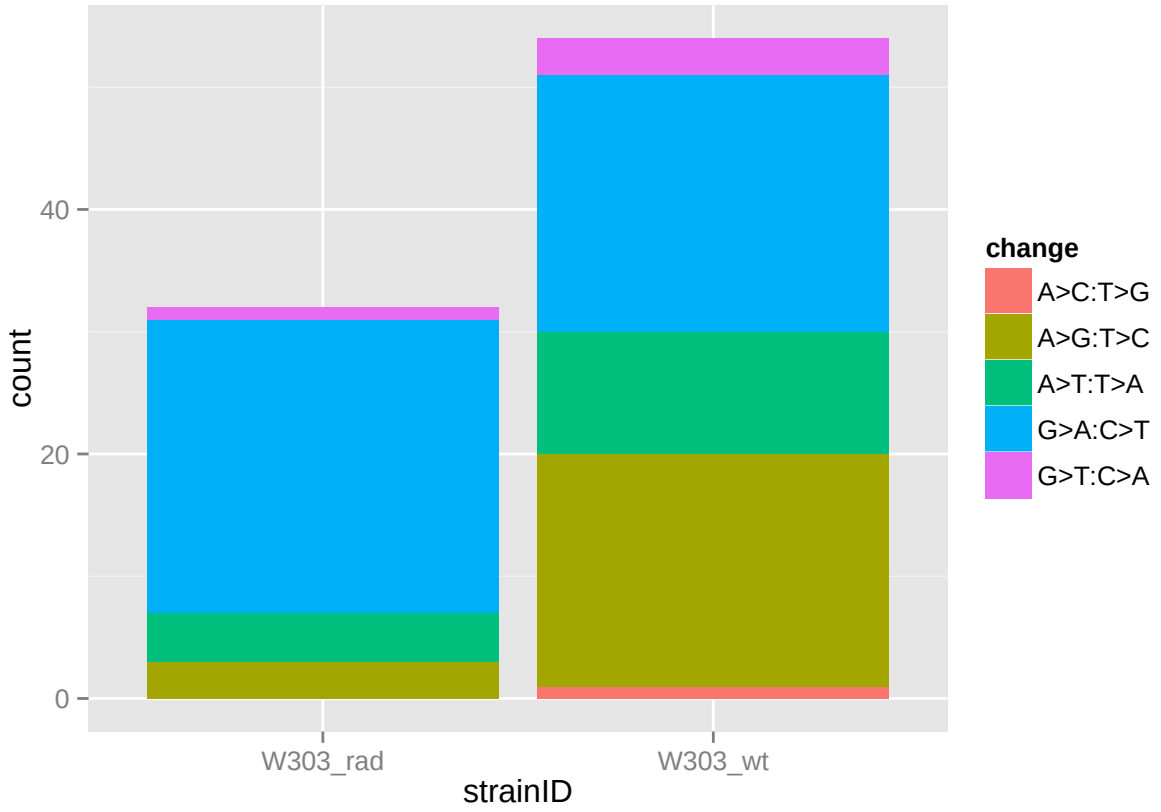
```
pcis
```


100%
75%
50%
25%
0%
Percentage
cis−−
cis+−
cis++
strain
Mutation
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

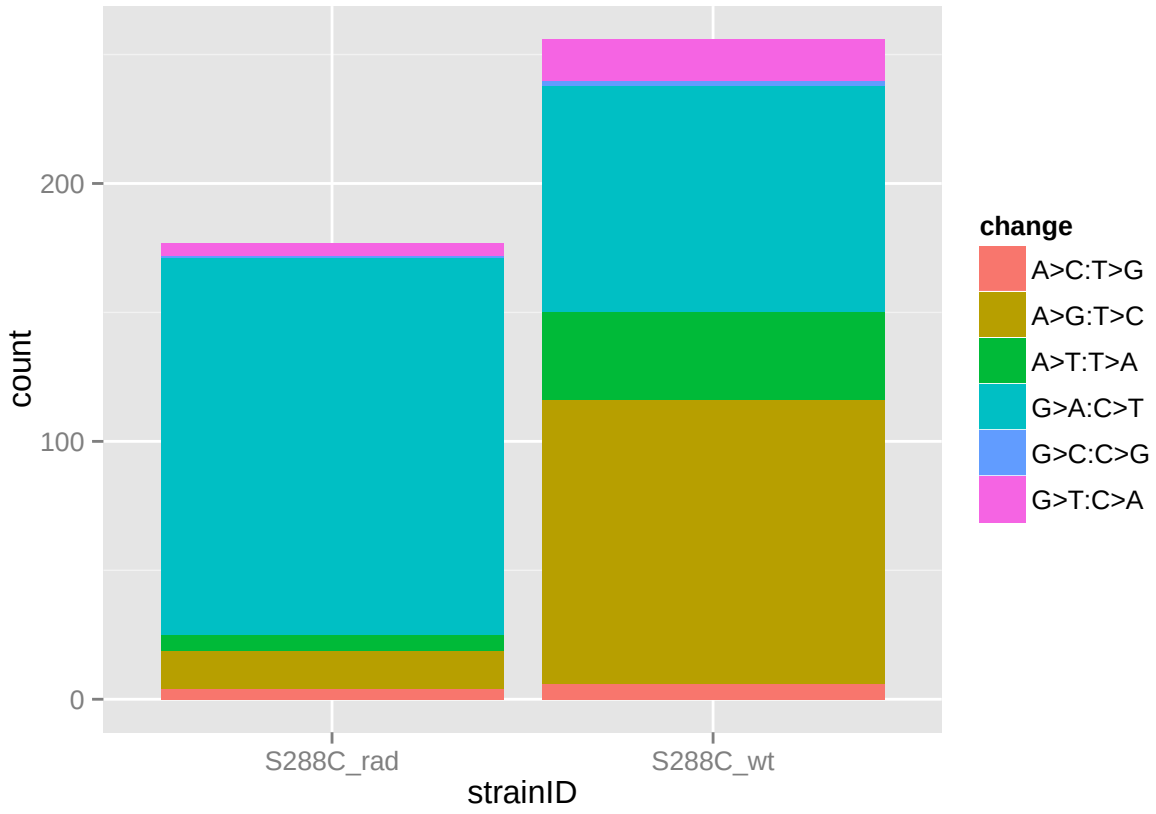
```
puv
```


100%
75%
50%
25%
0%
Percentage
uv−−
uv+−
uv++
strain
Mutation
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

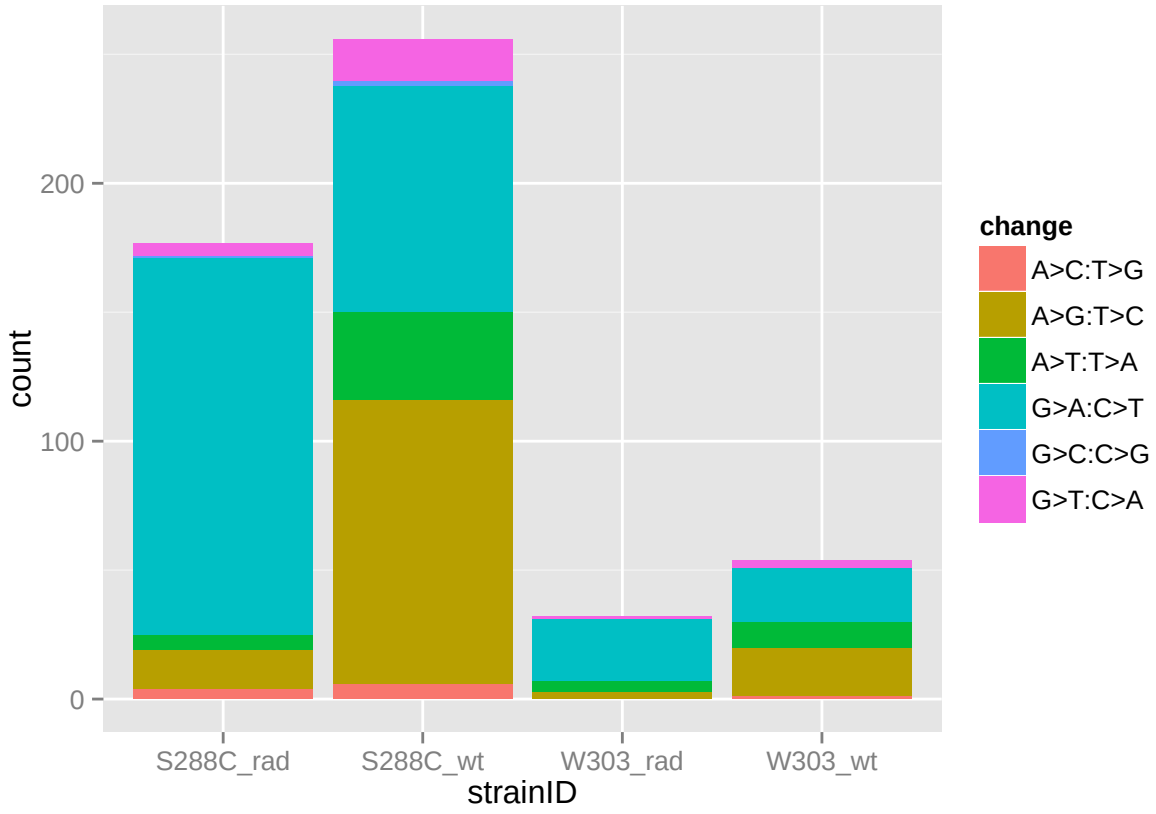
```
pHaploidCountW303
```



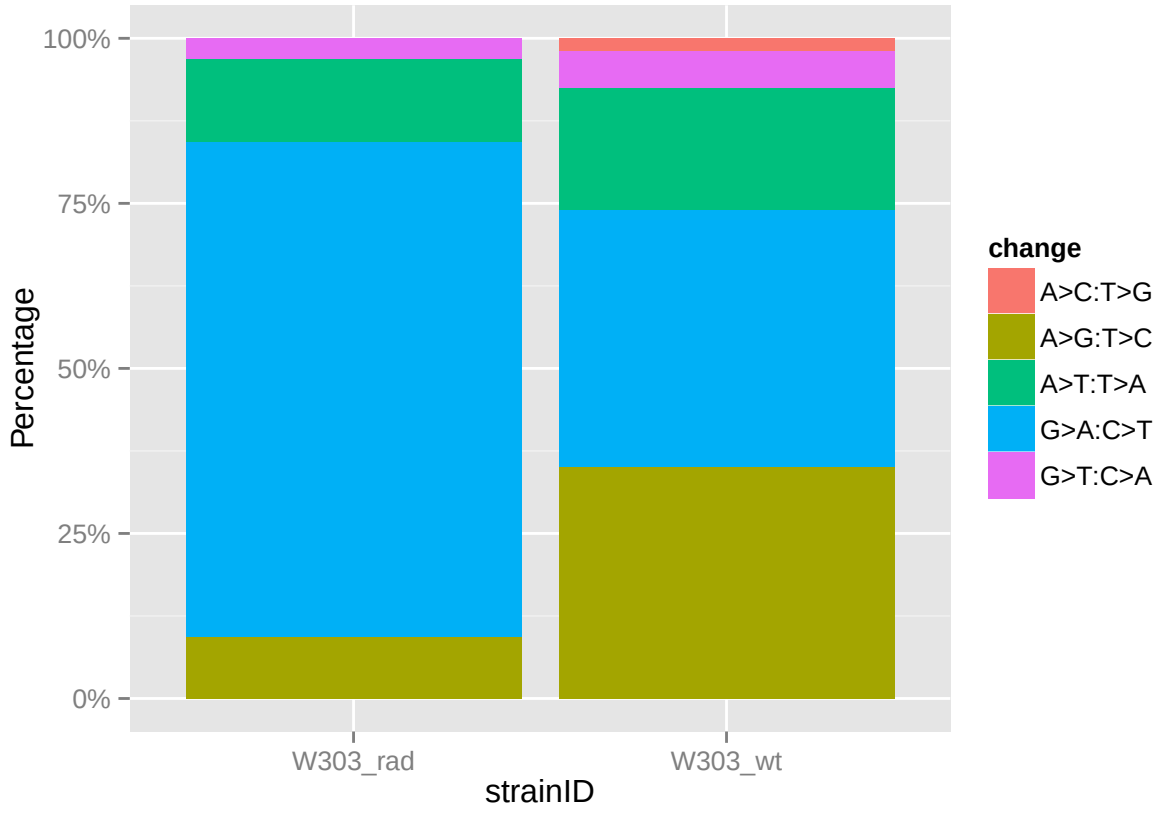

```
pHaploidCountS288C
```



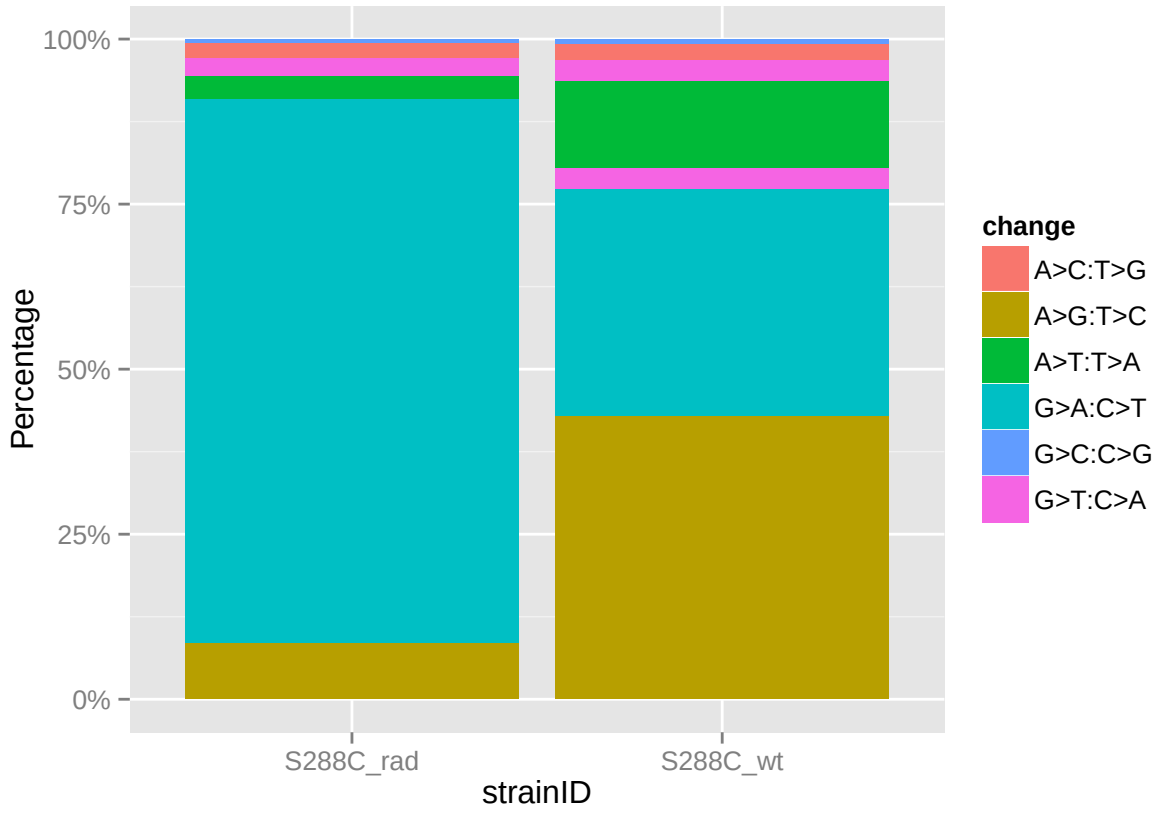

```
pHaploidCount
```



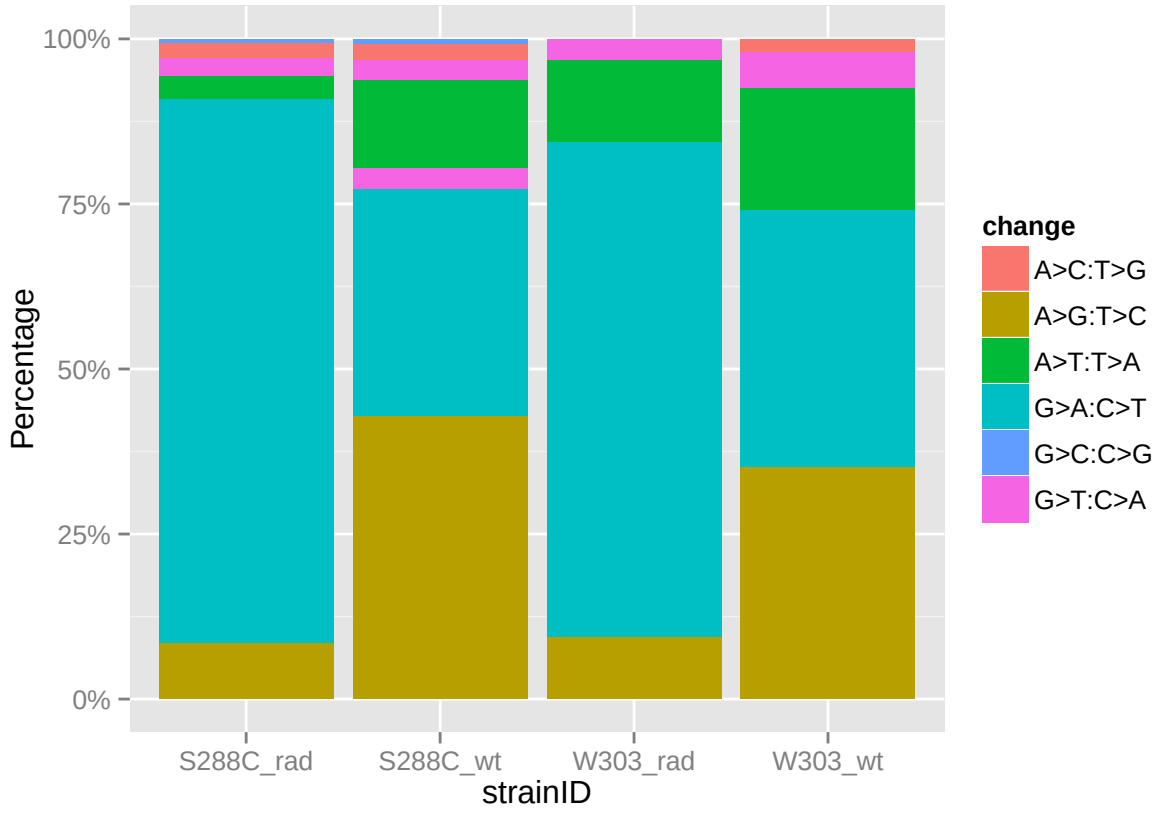
```
pHaploidW303
```




```
pHaploidS288C
```


100%
75%
50%
25%
0%
Percentage
S288C_rad
S288C_wt
strainID
change
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

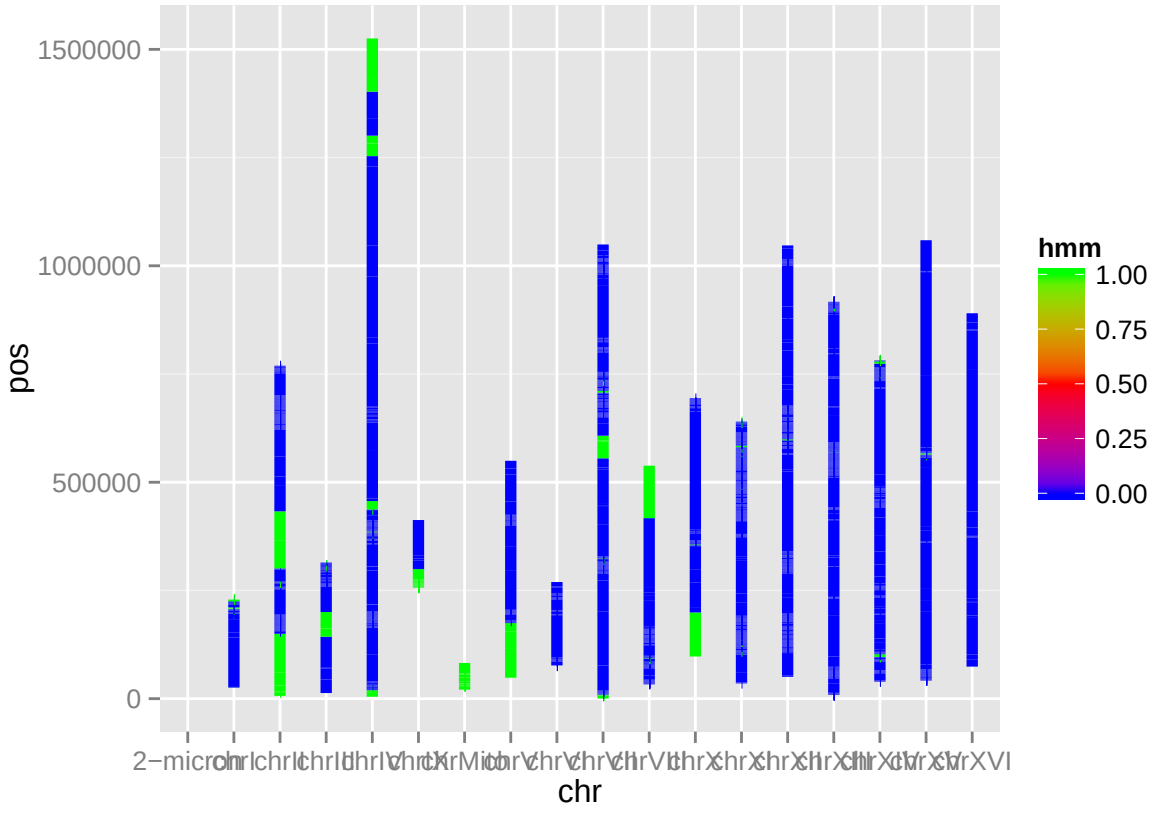
```
pHaploid
```


100%
75%
50%
25%
0%
Percentage
S288C_rad
S288C_wt
W303_rad
W303_wt
strainID
change
A>C:T>G
A>G:T>C
A>T:T>A
G>A:C>T
G>C:C>G
G>T:C>A

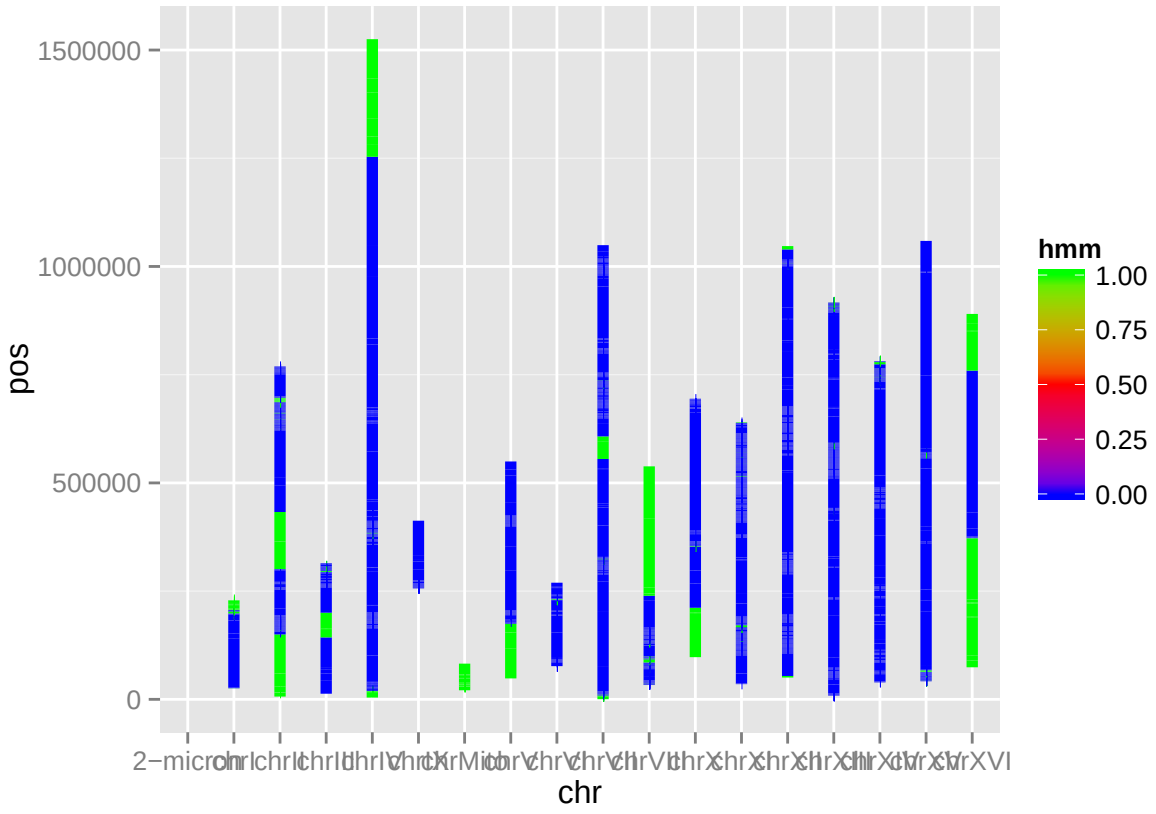
```
load("/home/mitchell/IW/hmm/plotshmm.data")
load("/home/mitchell/IW/hmm/hmmcounts.data")

plotshmm
```

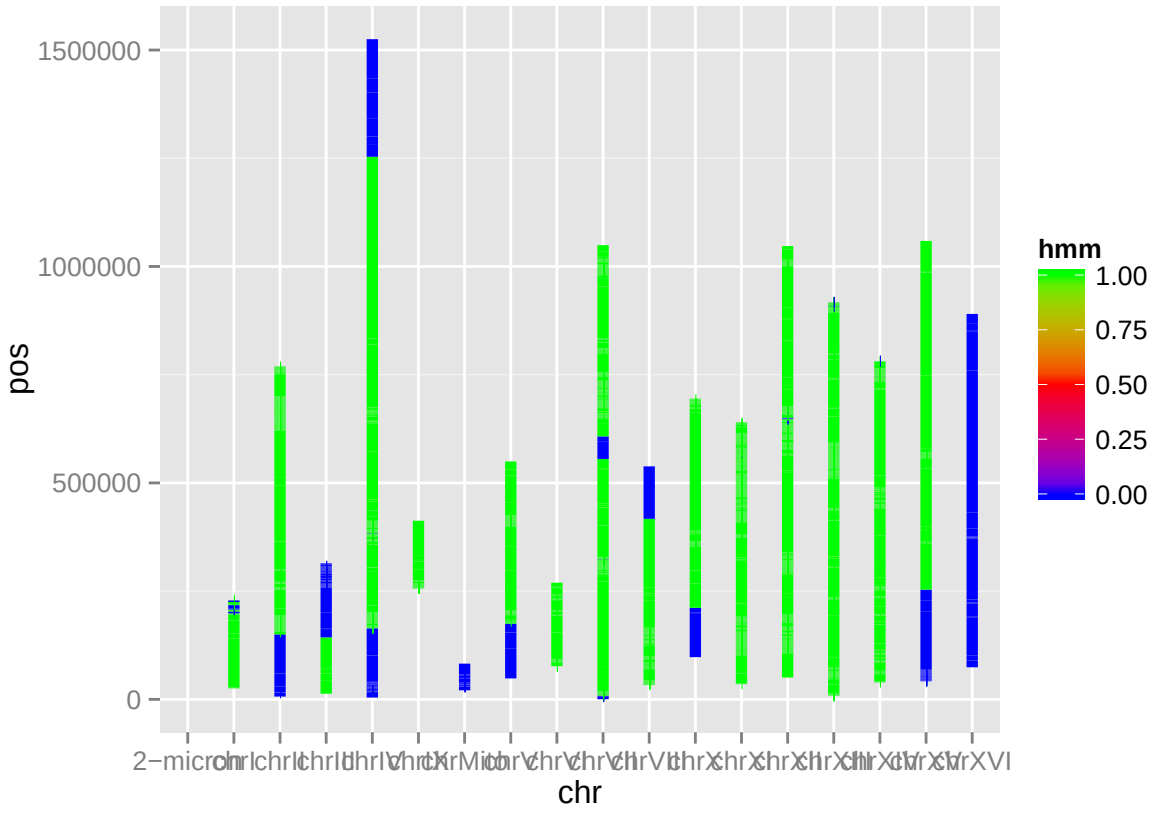
```
## [[1]]
```



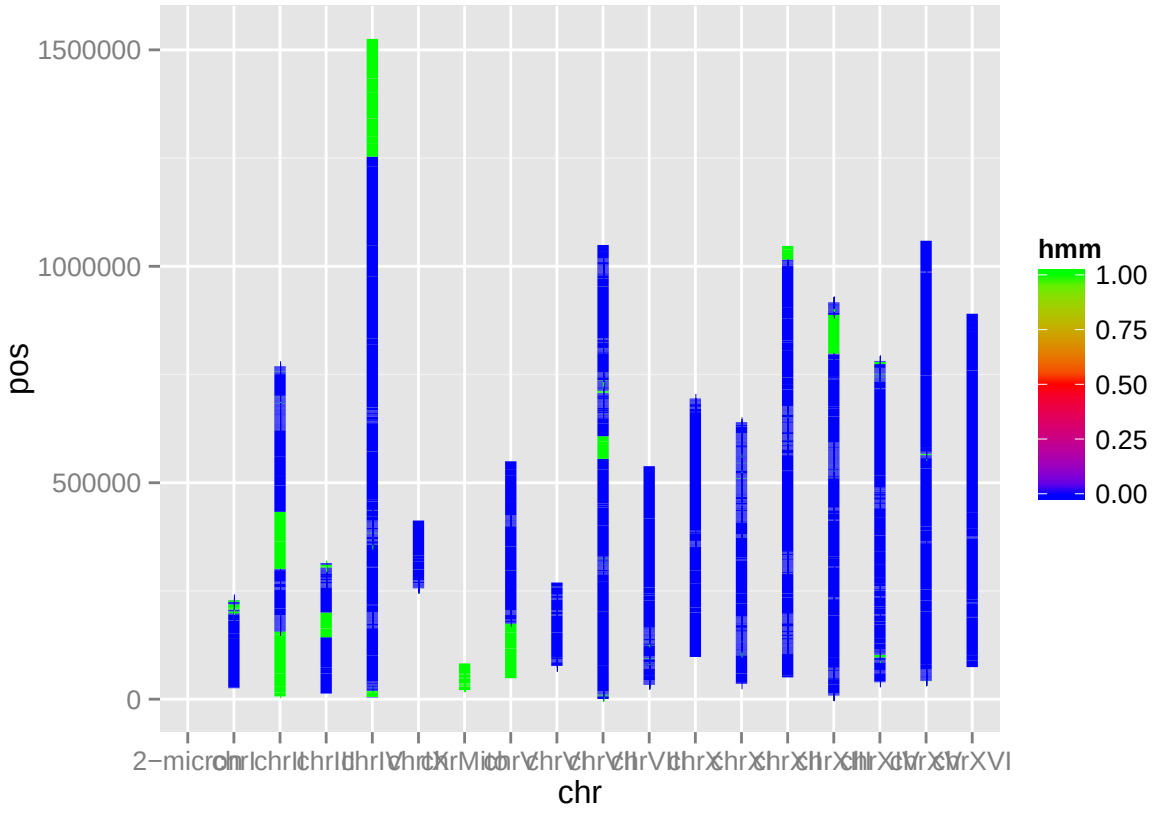

```
##
## [[2]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

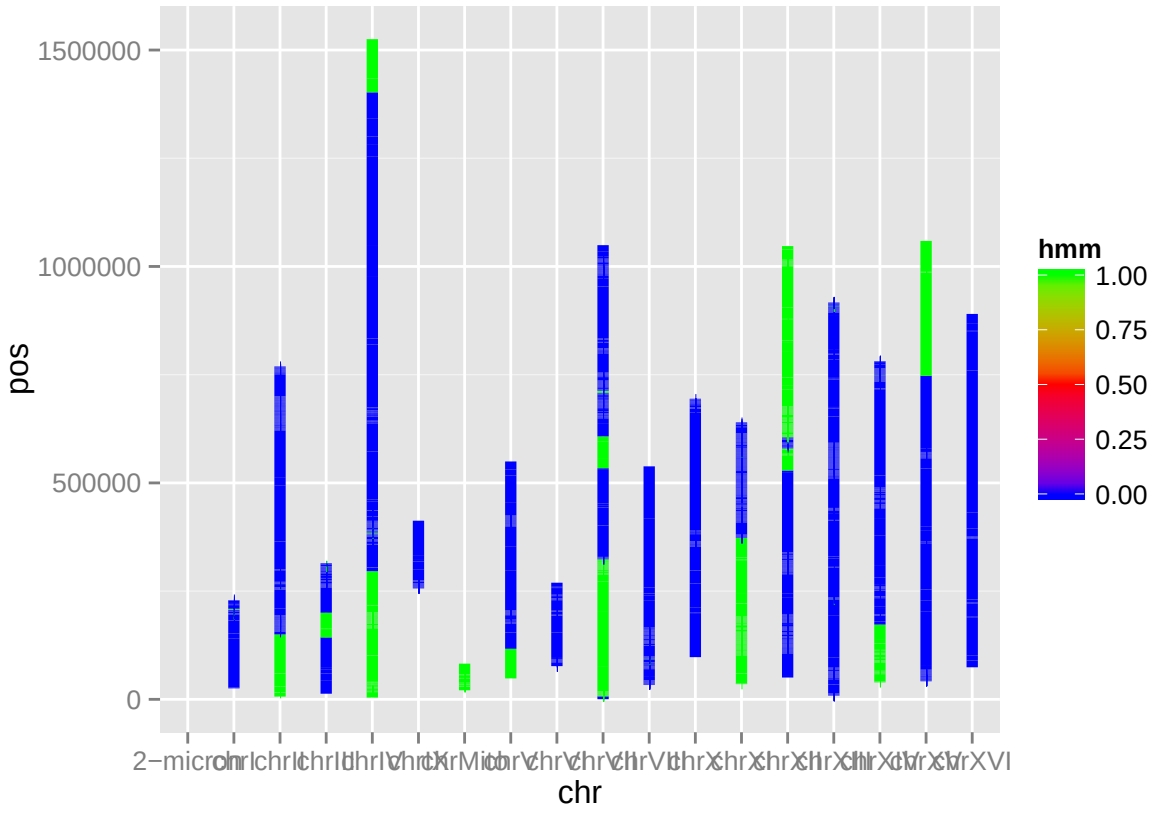
```
##
## [[3]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

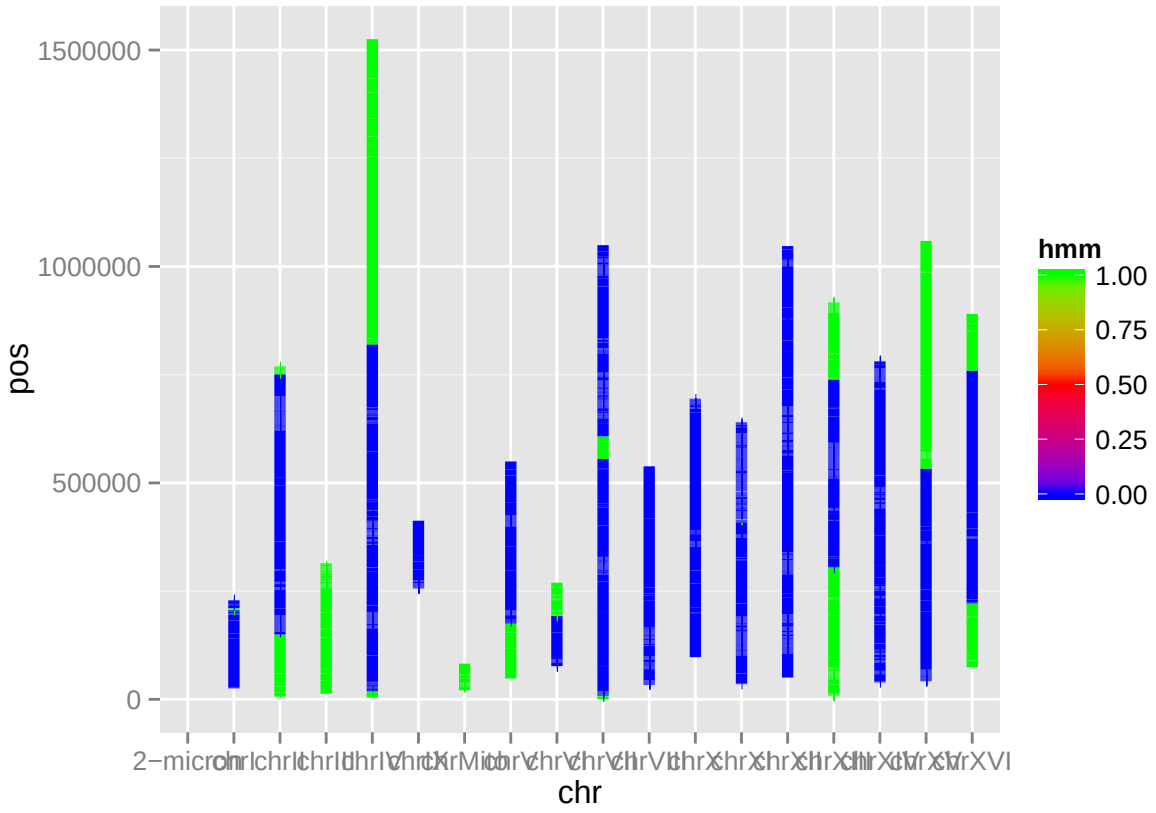
```
##
## [[4]]
```



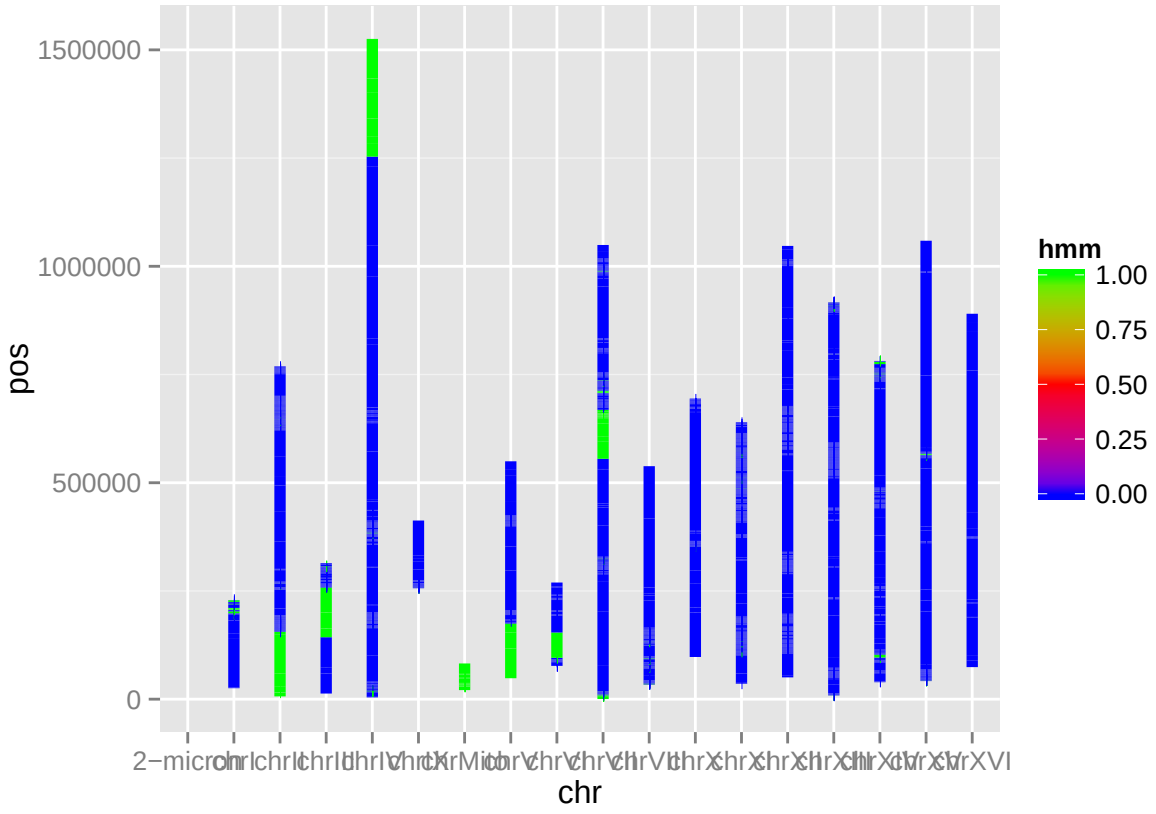

```
##
## [[5]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

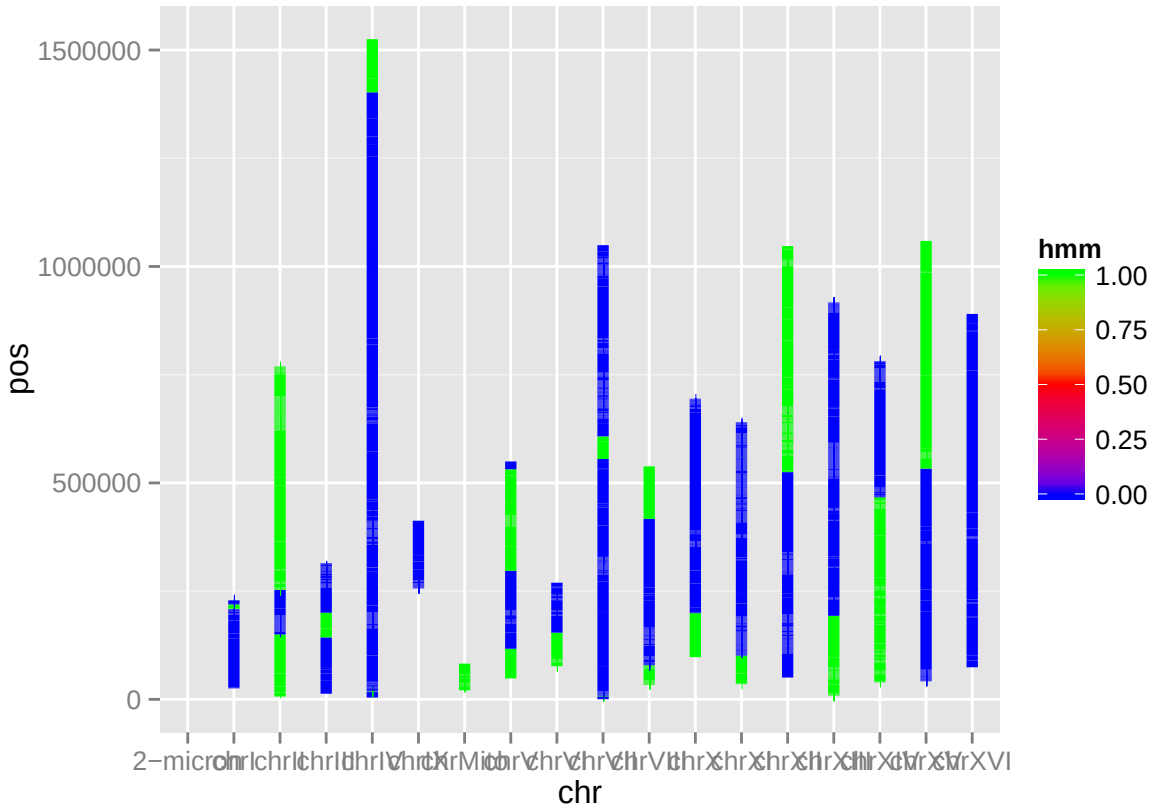
```
##
## [[6]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

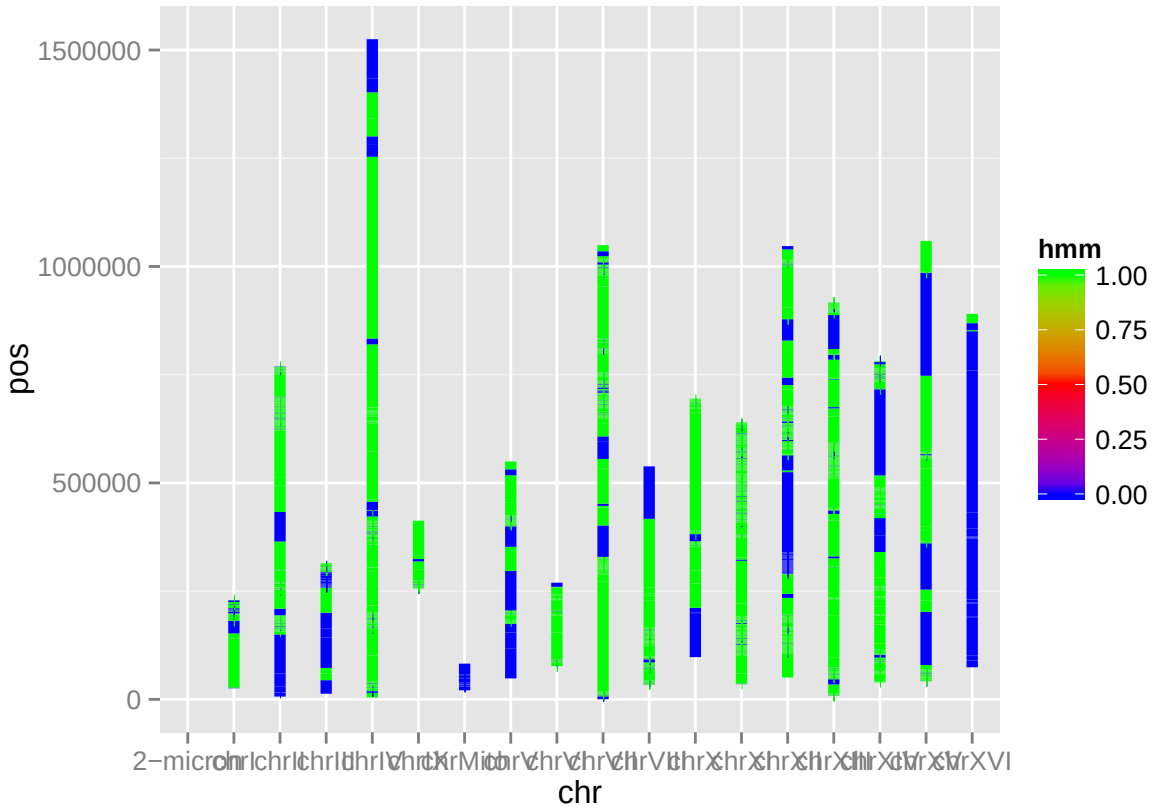
```
##
## [[7]]
```


1500000
1000000
500000
0
pos
2−micron
chrI
chrII
chrIII
chrIV
chrIX
chrMito
chrV
chrVI
chrVII
chrVIII
chrX
chrXI
chrXII
chrXIII
chrXIV
chrXV
chrXVI
chr
hmm
1.00
0.75
0.50
0.25
0.00

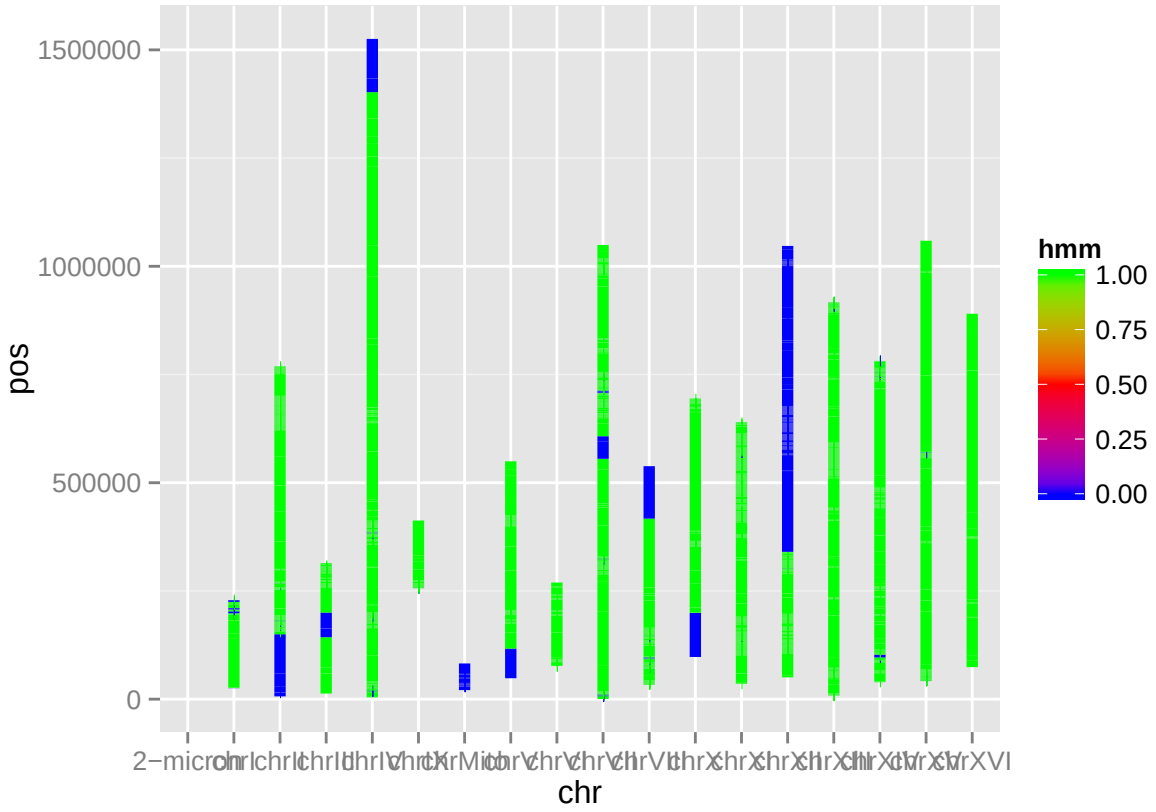
```
##
## [[8]]
```


1500000
1000000
500000
0
pos
2−micron
chrI
chrII
chrIII
chrIV
chrV
chrVI
chrVII
chrVIII
chrIX
chrX
chrXI
chrXII
chrXIII
chrXIV
chrXV
chrXVI
chr
hmm
1.00
0.75
0.50
0.25
0.00

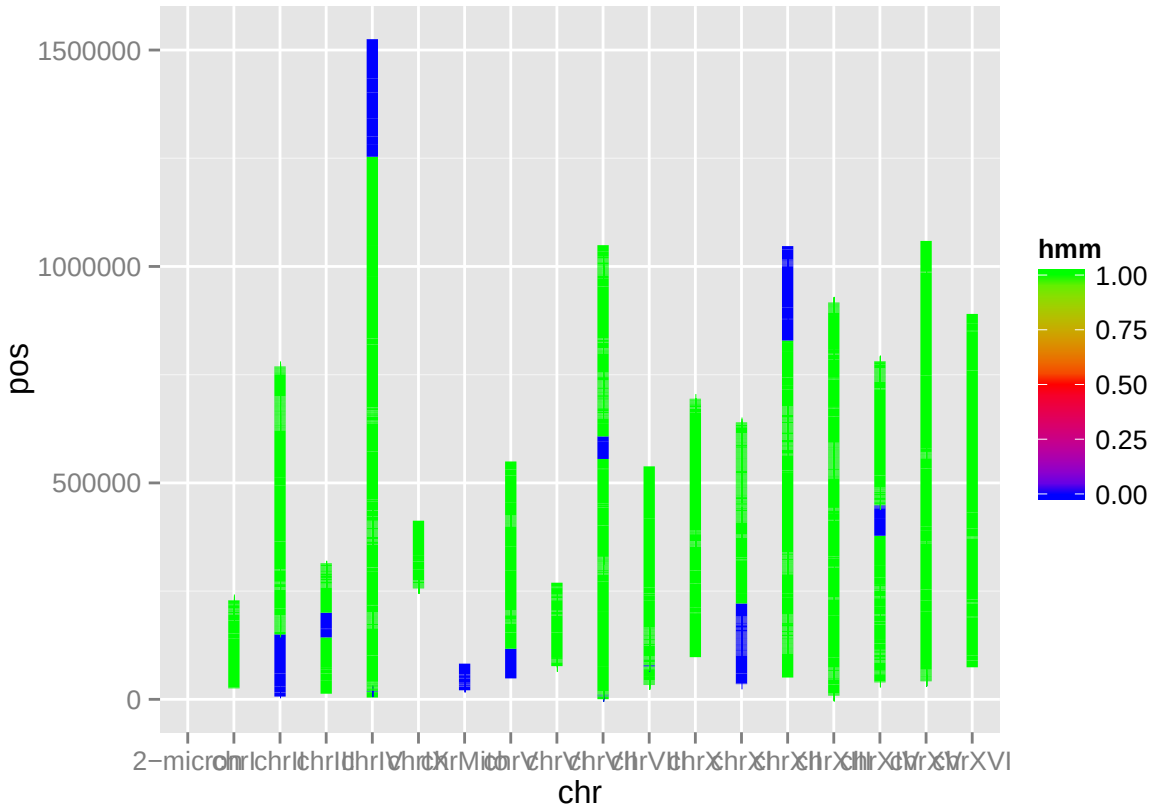
```
##
## [[9]]
```


1500000
1000000
500000
0
pos
2−micron
chrI
chrII
chrIII
chrIV
chrV
chrVI
chrVII
chrVIII
chrIX
chrX
chrXI
chrXII
chrXIII
chrXIV
chrXV
chrXVI
chr
hmm
1.00
0.75
0.50
0.25
0.00

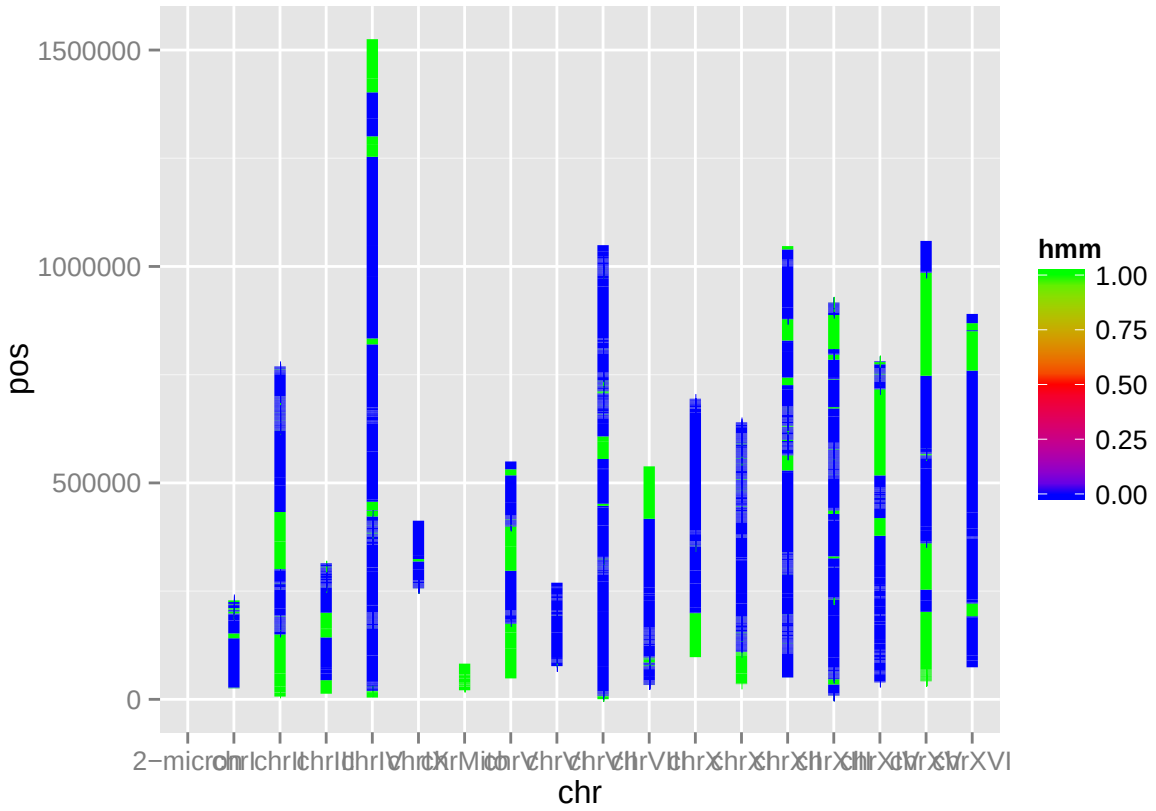
```
##
## [[10]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

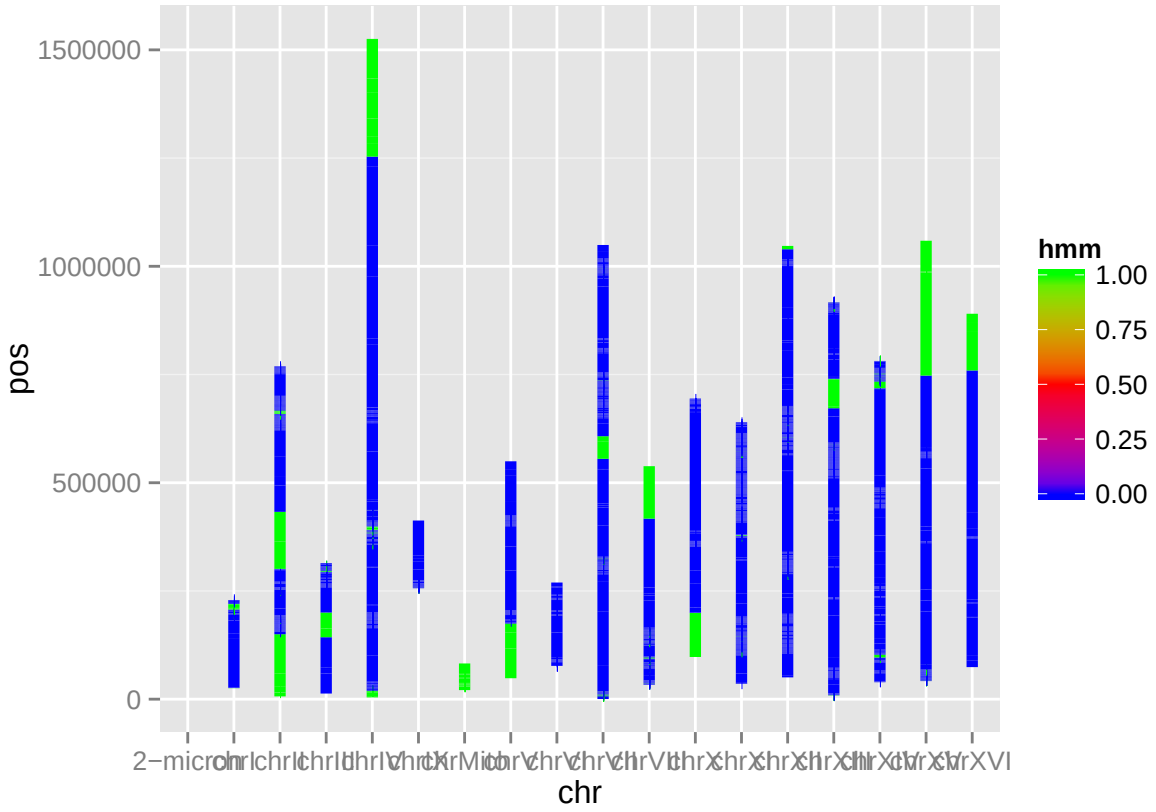
```
##
## [[11]]
```


1500000
1000000
500000
0
pos
2−micron
chrI
chrII
chrIII
chrIV
chrV
chrVI
chrVII
chrVIII
chrIX
chrX
chrXI
chrXII
chrXIII
chrXIV
chrXV
chrXVI
chr
hmm
1.00
0.75
0.50
0.25
0.00

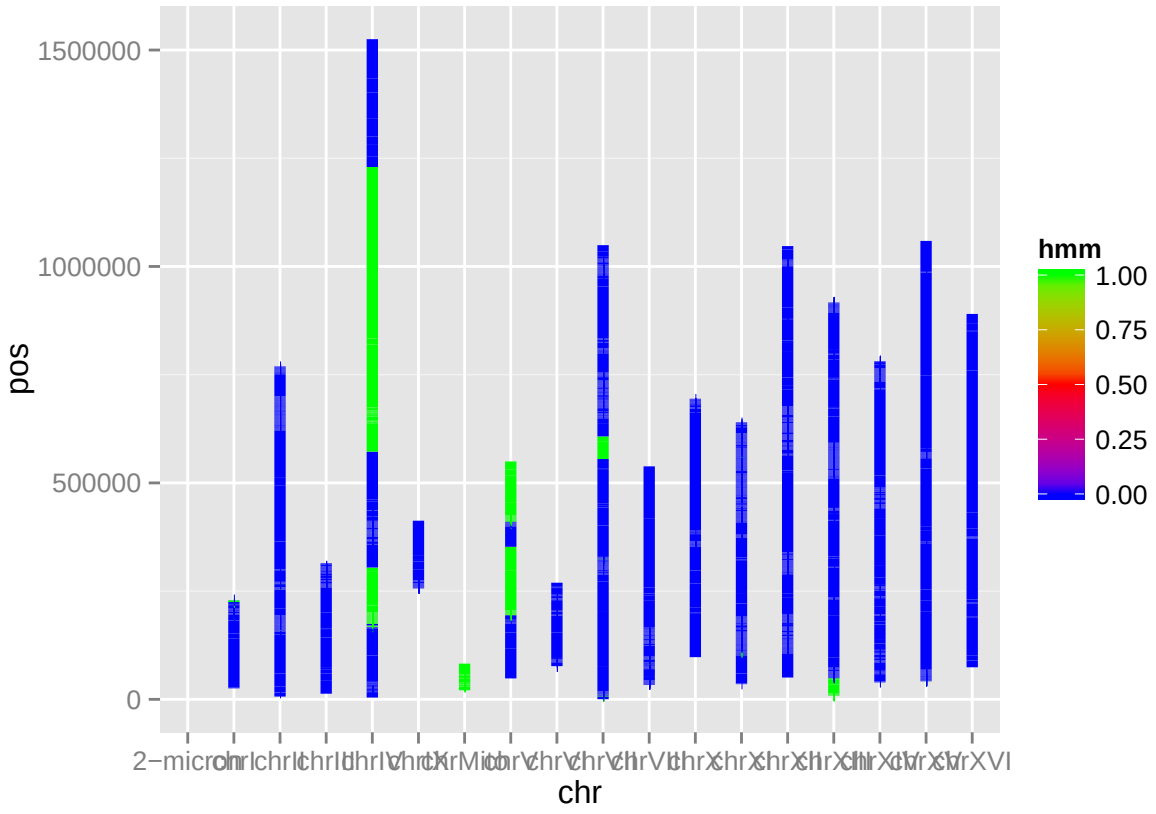
```
##
## [[12]]
```


1500000
1000000
500000
0
pos
2−micron
chrI
chrII
chrIII
chrIV
chrV
chrVI
chrVII
chrVIII
chrIX
chrX
chrXI
chrXII
chrXIII
chrXIV
chrXV
chrXVI
chr
hmm
1.00
0.75
0.50
0.25
0.00

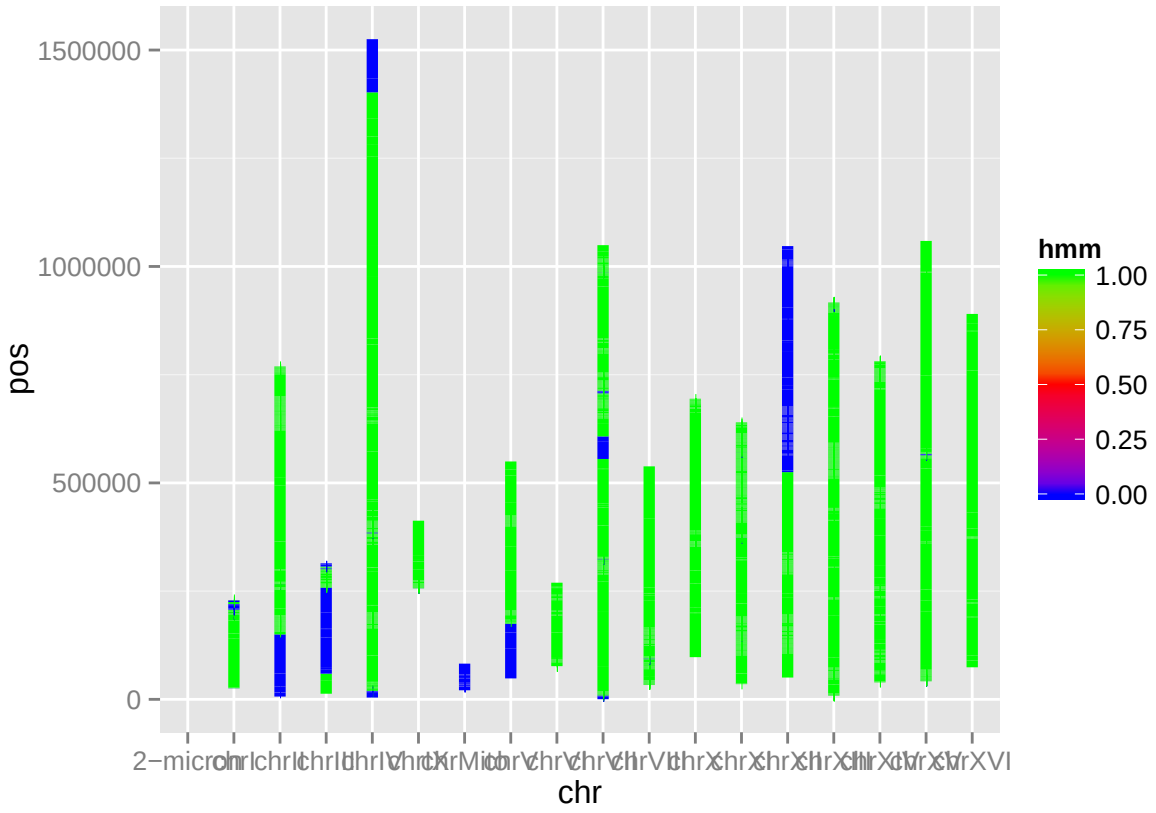
```
##
## [[13]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

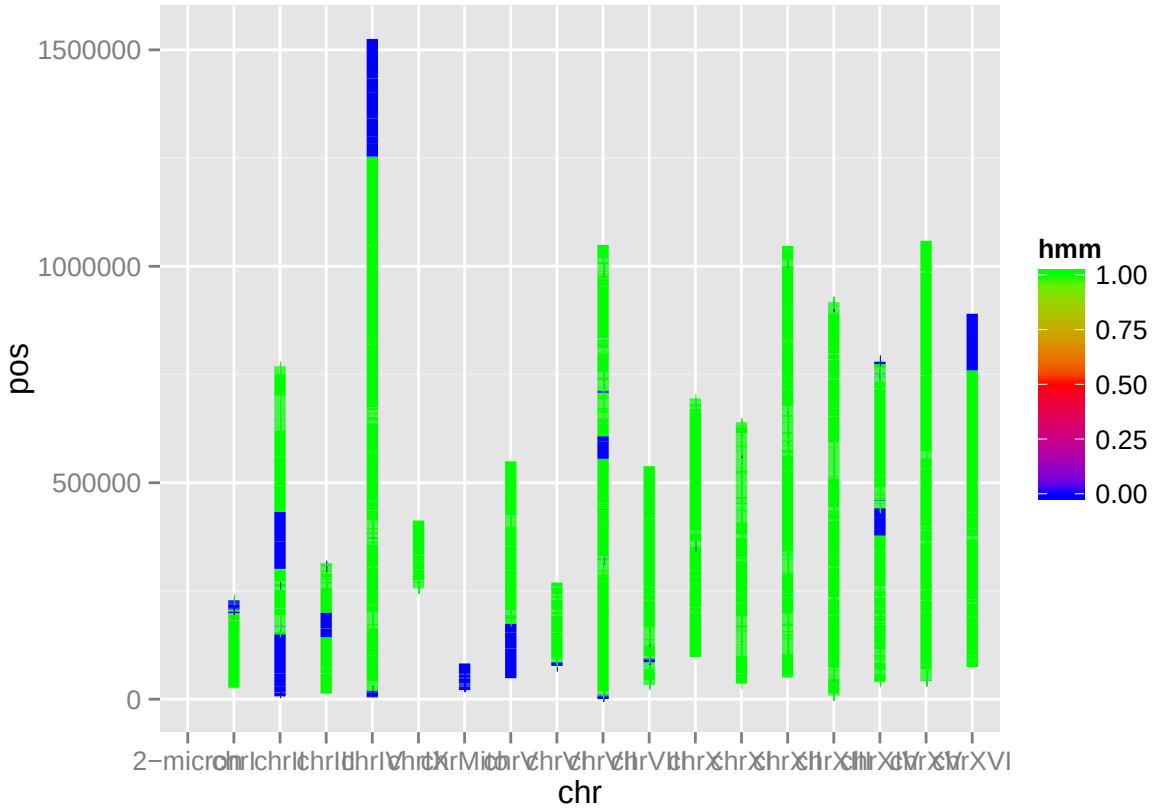
```
##
## [[14]]
```


1500000
1000000
500000
0
pos
hmm
1.00
0.75
0.50
0.25
0.00
chr

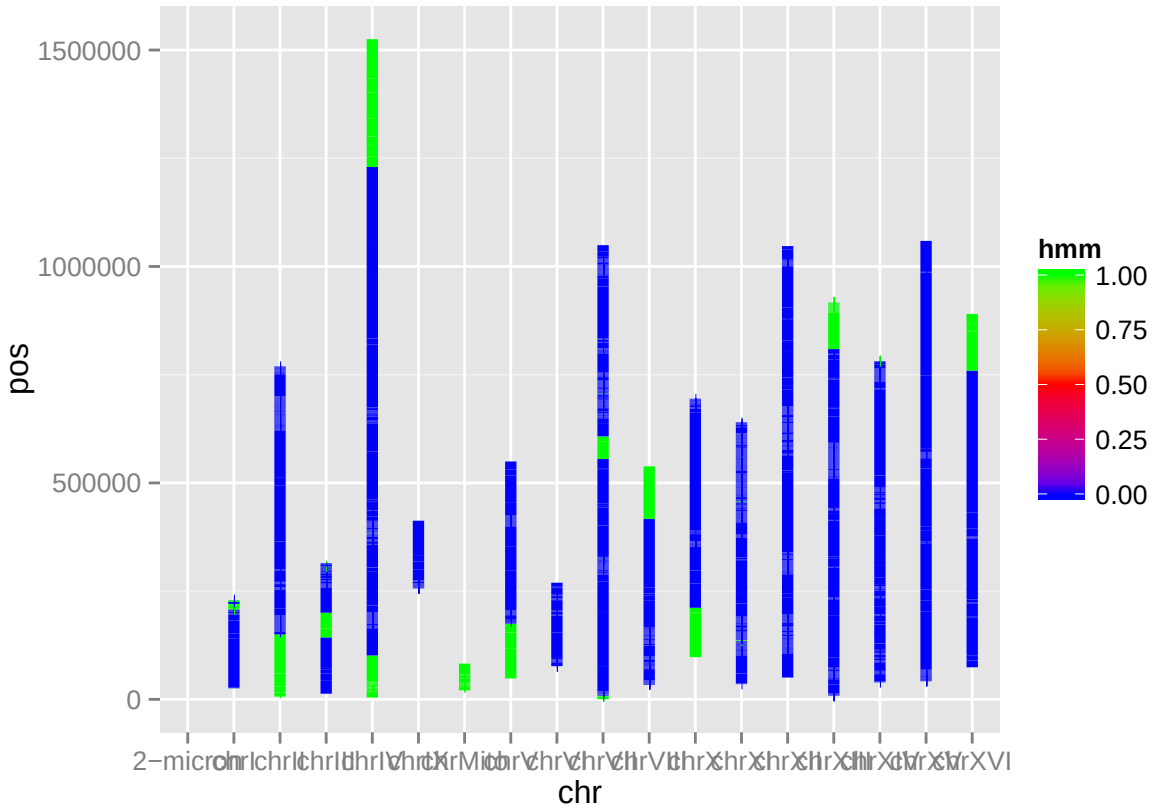
```
##
## [[15]]
```


1500000
1000000
500000
0
pos
hmm
1.00
0.75
0.50
0.25
0.00
chr

```
##
## [[16]]
```


1500000
1000000
500000
0
pos
2−micron
chr
hmm
1.00
0.75
0.50
0.25
0.00

```
##
## [[17]]
```



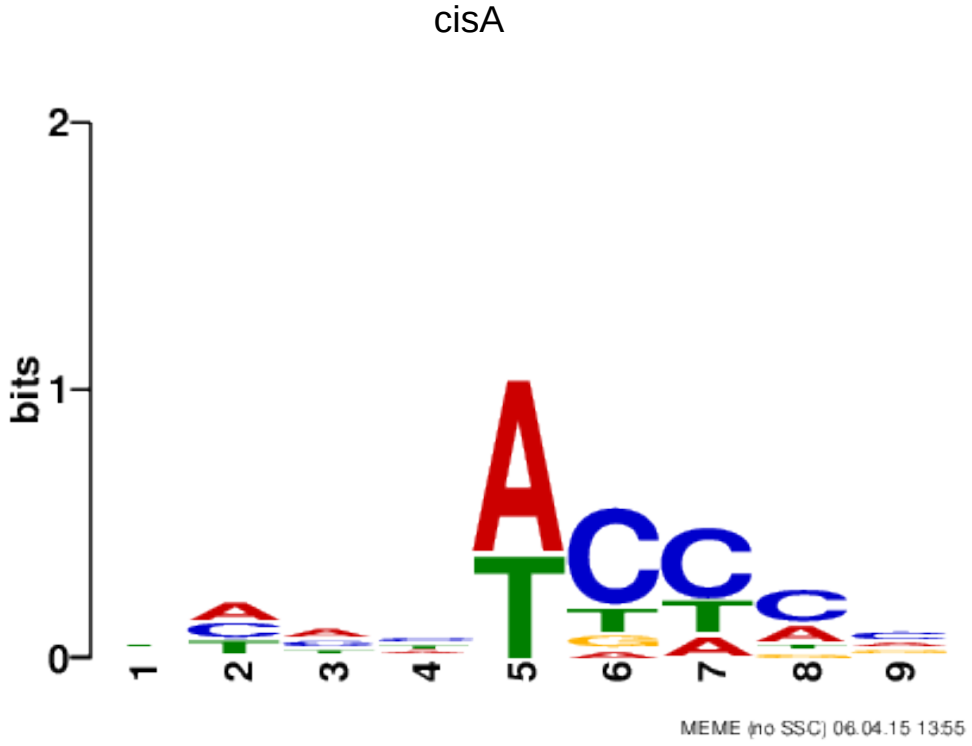

```
hmmcounts <- data["mode"]
hmmcounts$type <- lapply(rownames(hmmcounts), function(x){gsub("[0-9]", "",x)  } )
hmmcounts
```

```
##            mode      type
## cis--3.hmm   77 cis--.hmm
## cis--2.hmm   77 cis--.hmm
## cis--1.hmm   75 cis--.hmm
## cis+-2.hmm   45 cis+-.hmm
## cis+-1.hmm   76 cis+-.hmm
## cis++1.hmm   32 cis++.hmm
## cis++2.hmm   31 cis++.hmm
## cis++3.hmm   34 cis++.hmm
## uv--3.hmm    53  uv--.hmm
## uv--2.hmm   100  uv--.hmm
## uv--1.hmm    65  uv--.hmm
## uv+-3.hmm    81  uv+-.hmm
## uv+-2.hmm    88  uv+-.hmm
## uv+-1.hmm    58  uv+-.hmm
## uv++1.hmm    27  uv++.hmm
## uv++2.hmm    43  uv++.hmm
## uv++3.hmm    44  uv++.hmm
```

```
# meme stuff
load("/home/mitchell/IW/meme/pic.data")
load("/home/mitchell/IW/meme/picrc.data")
```

```
for(i in 1:length(pic)){
  print(pic[i])
  print(picrc[i])
}
```

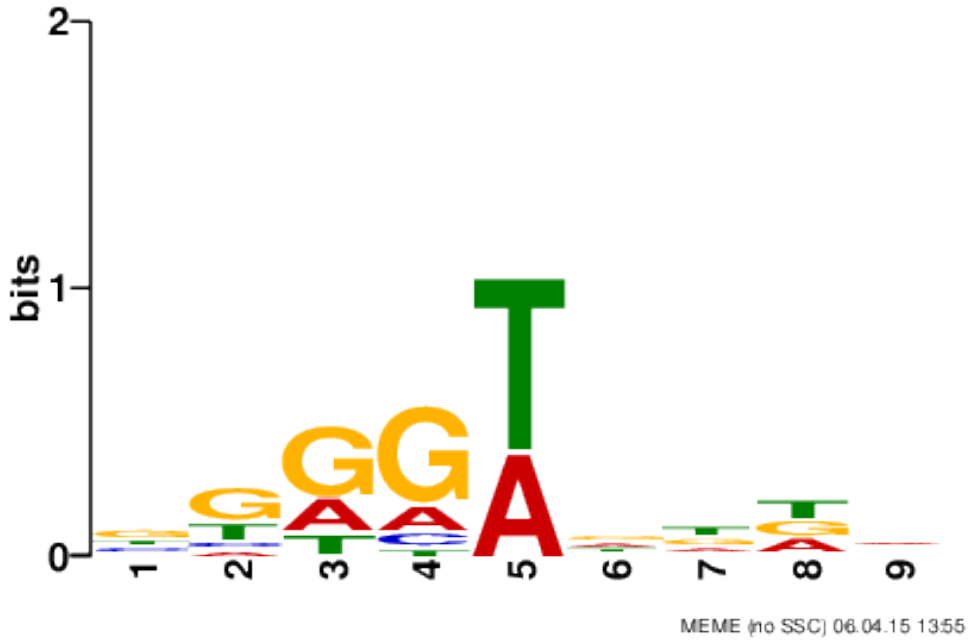
```
## $cisA
```



E−value = 1.4e−017

```
##
## $cisA
```

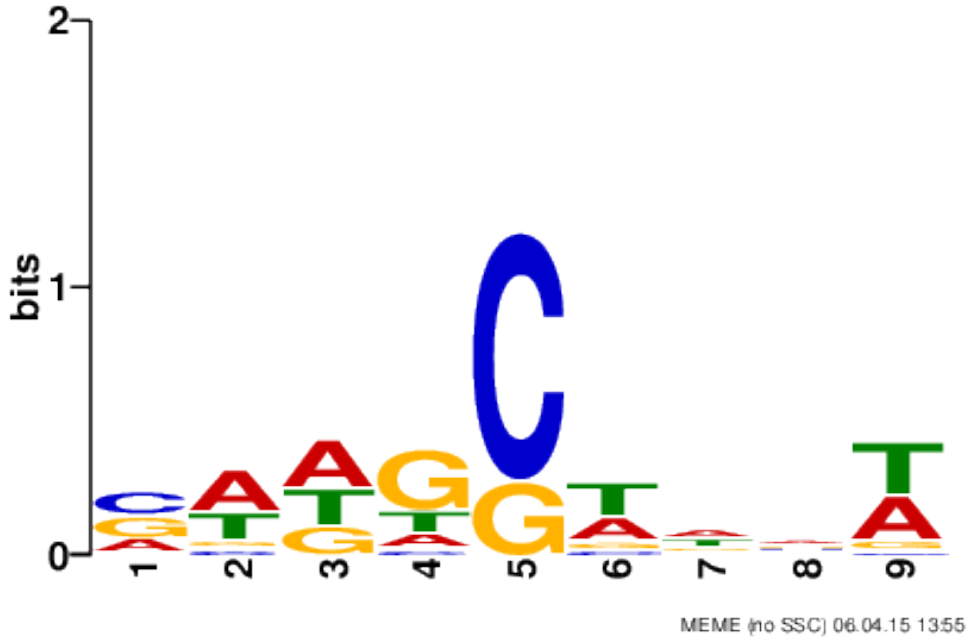
cisA, reverse complement



E−value = 1.4e−017

```
##
## $cisG
```

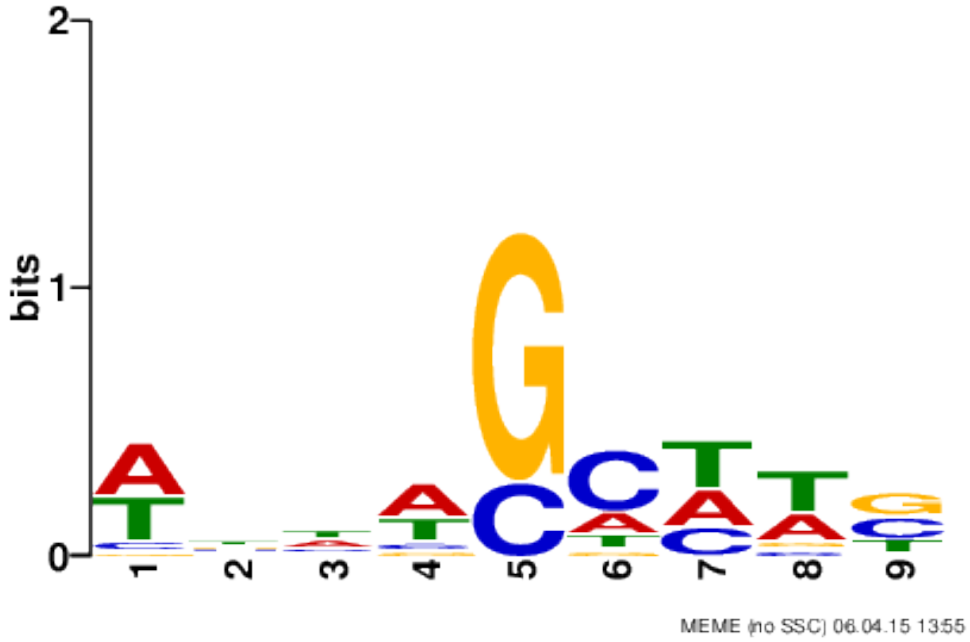
cisG



E−value = 5.7e−016

```
##
## $cisG
```

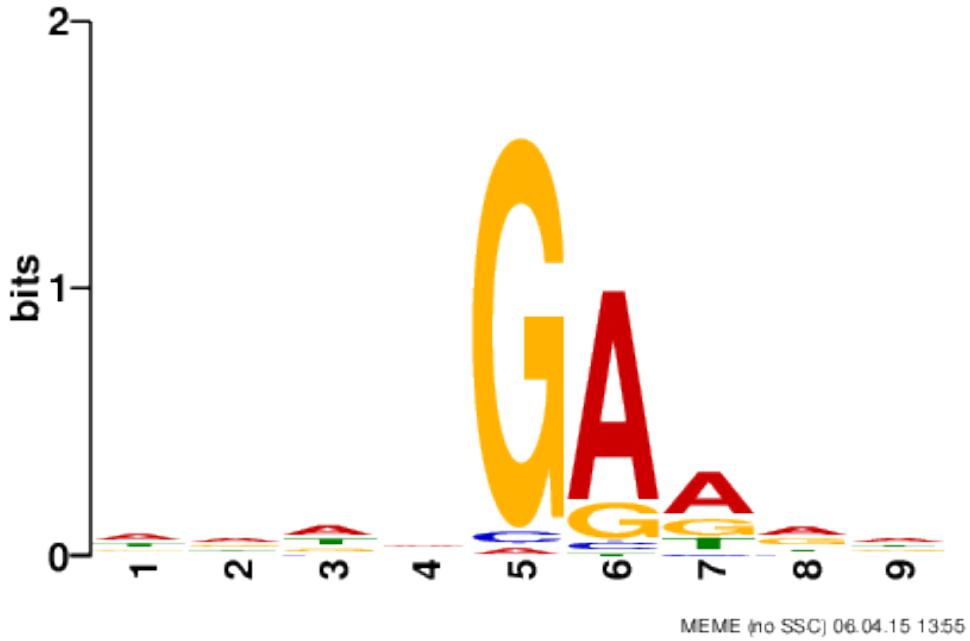
cisG, reverse complement



E−value = 5.7e−016

```
##
## $rad_G_A__C_T
```

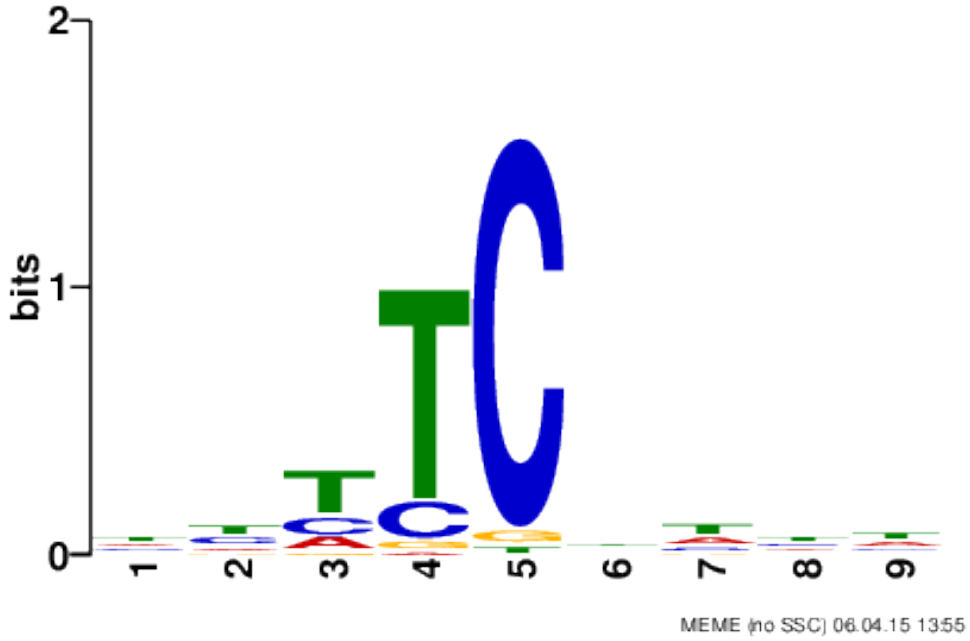
rad, G>A:C>T



E−value = 2.7e−093

```
##
## $rad_G_A__C_T
```

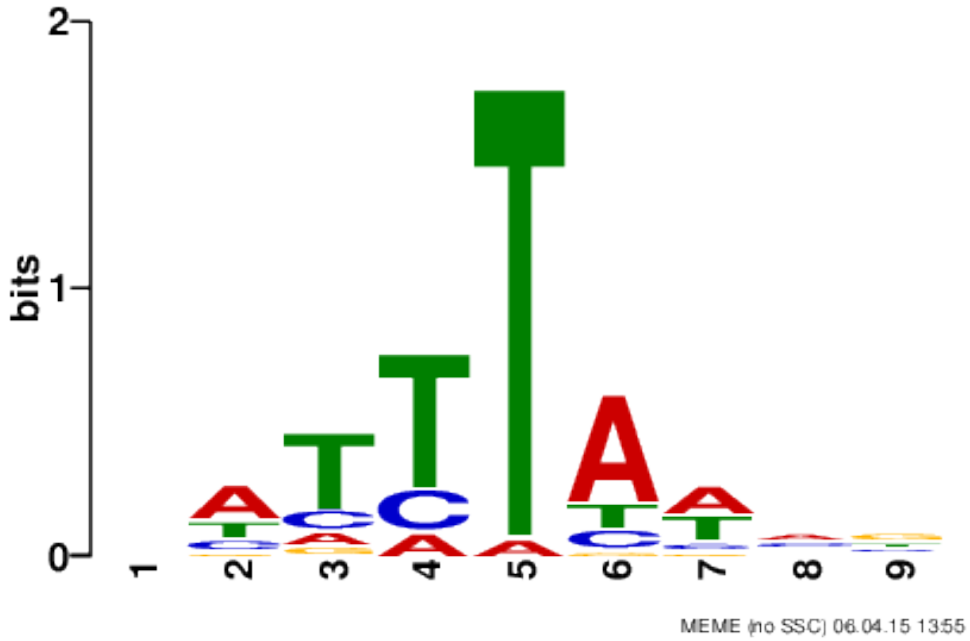
rad, G>A:C>T, reverse complement



E−value = 2.7e−093

```
##
## $`uv+-_A_G__T_C`
```

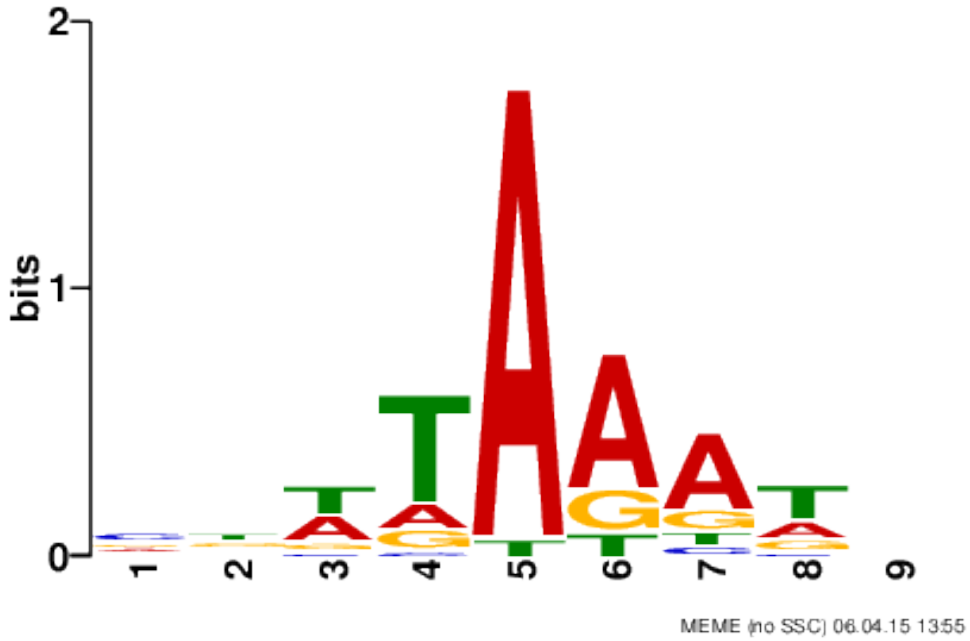
uv+−, A>G:T>C



E−value = 1.1e−003

```
##
## $`uv+-_A_G__T_C`
```

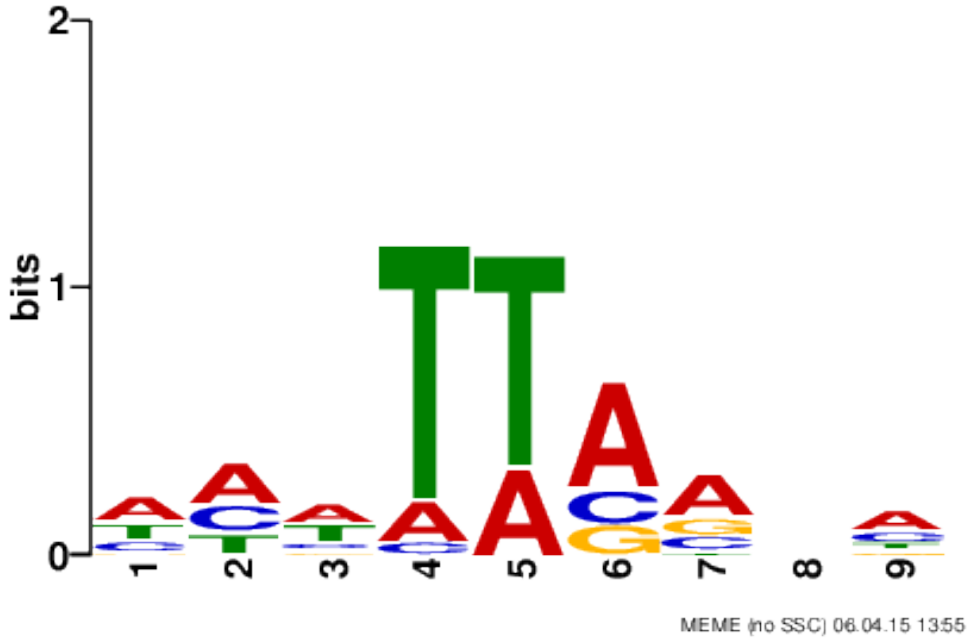
uv+−, A>G:T>C, reverse complement



E−value = 1.1e−003

```
##
## $`uv++_A_G__T_C`
```

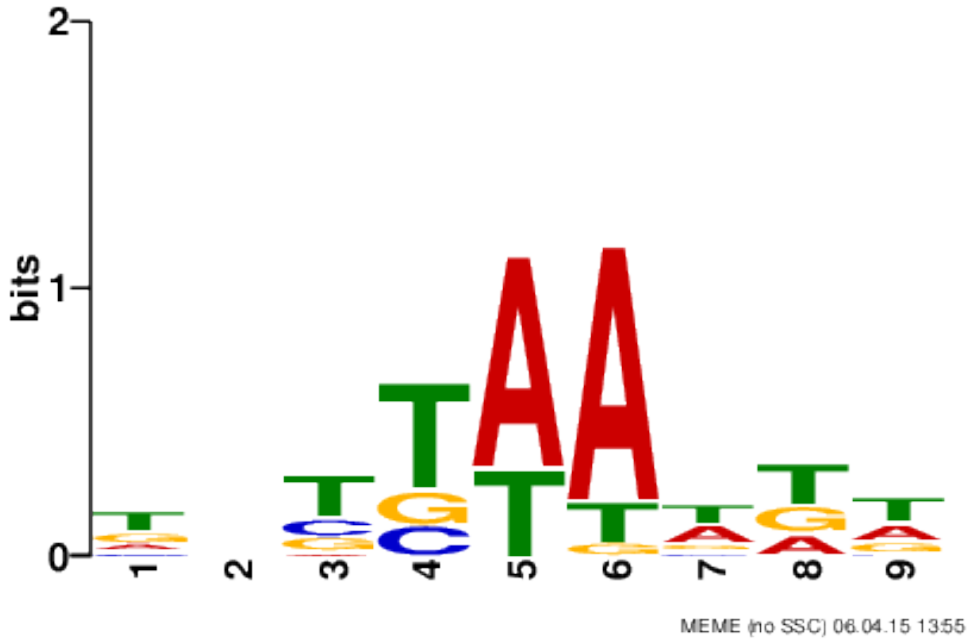
uv++, A>G:T>C



E−value = 9.2e−011

```
##
## $`uv++_A_G__T_C`
```

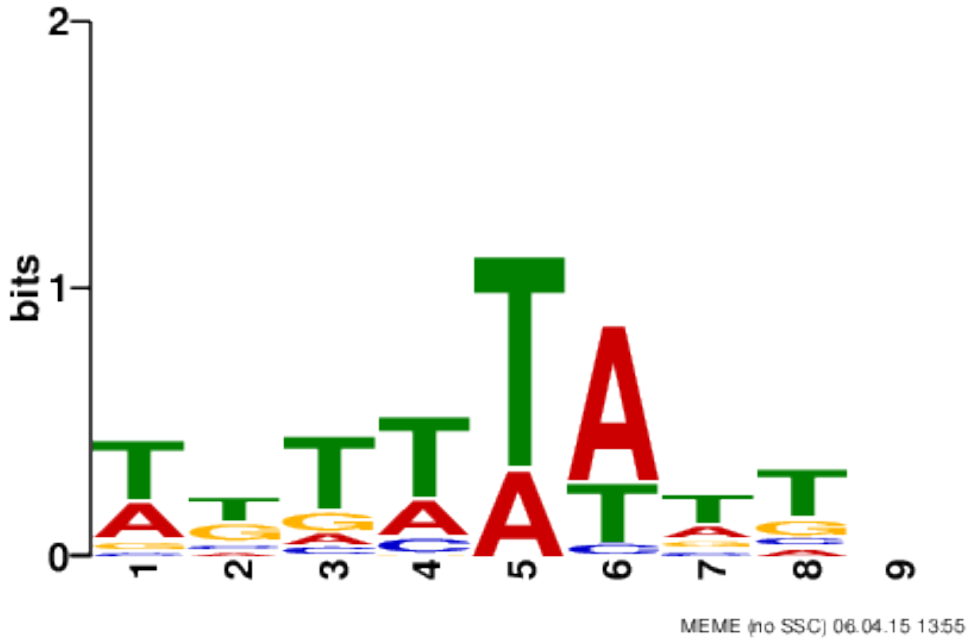
uv++, A>G:T>C, reverse complement



E−value = 9.2e−011

```
##
## $`uv++_A_T__T_A`
```

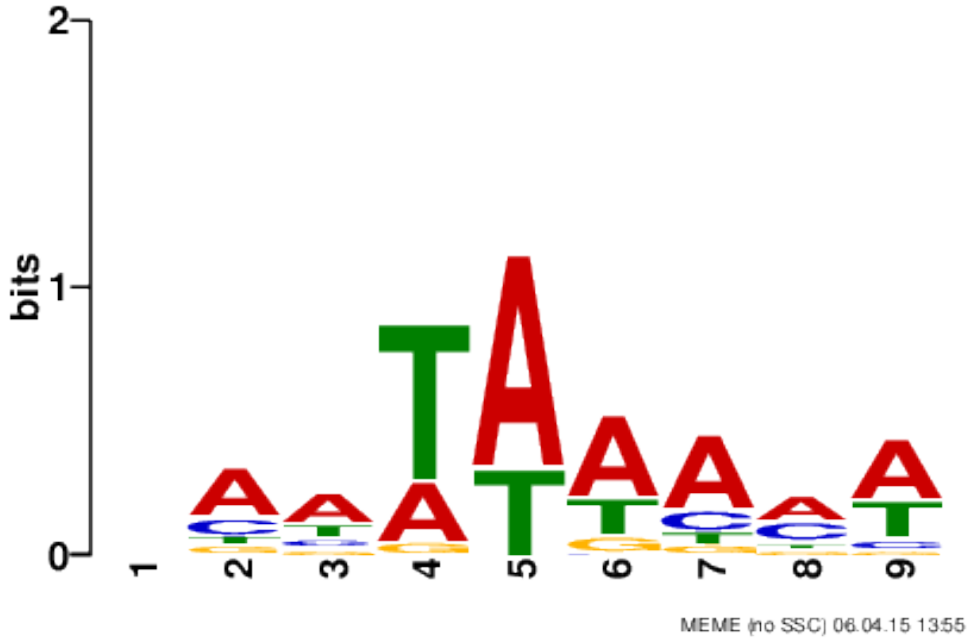
uv++, A>T:T>A



E−value = 9.3e−002

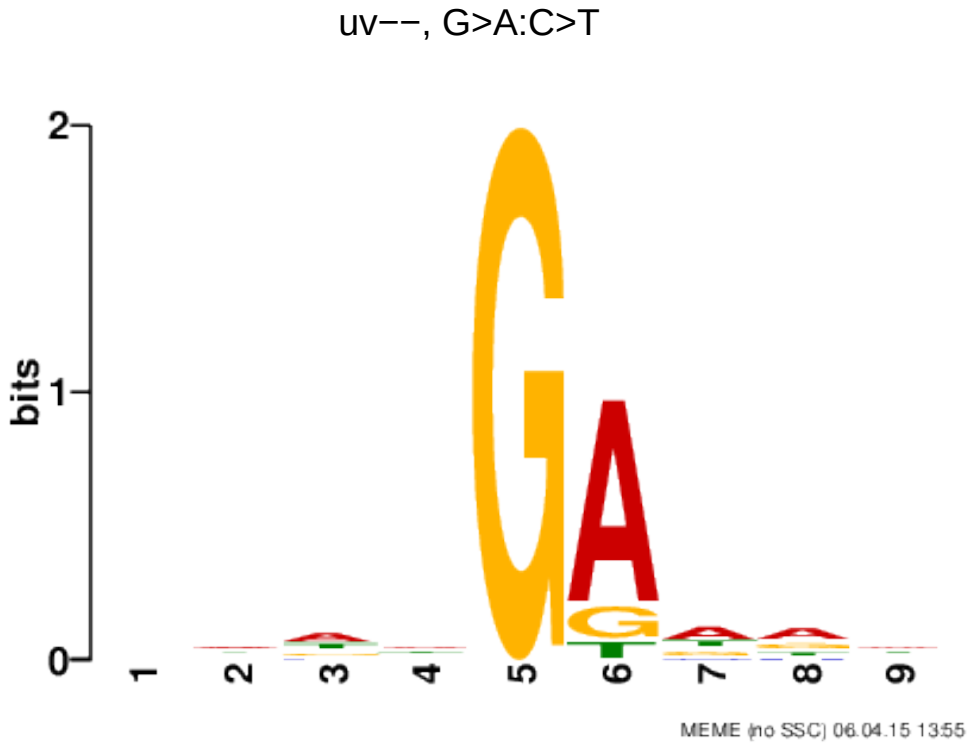
```
##
## $`uv++_A_T__T_A`
```

uv++, A>T:T>A, reverse complement



E−value = 9.3e−002

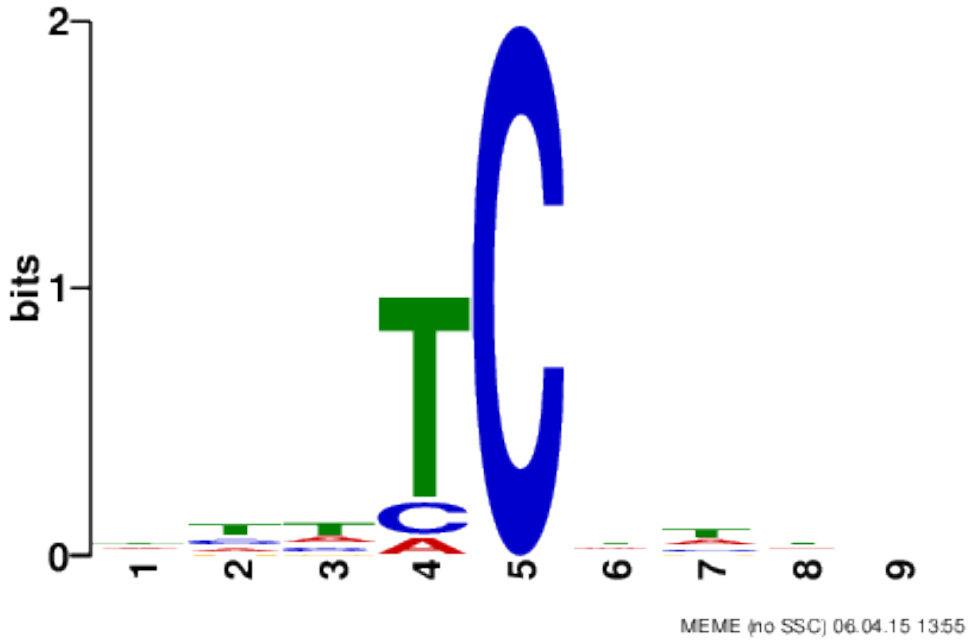
```
##
## $`uv--_G_A__C_T`
```



E−value = 9.9e−057

```
##
## $`uv--_G_A__C_T`
```

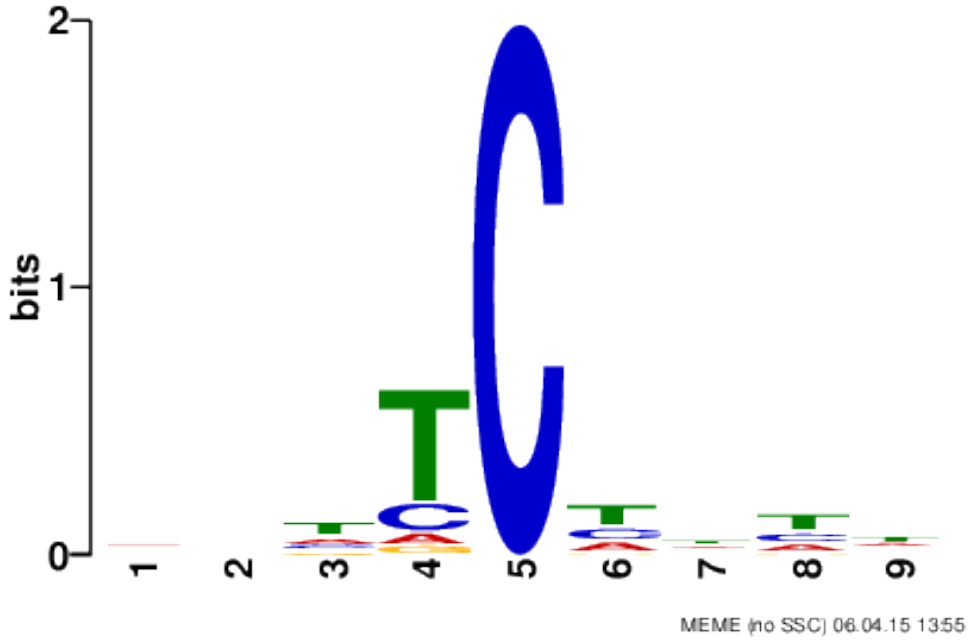
uv−−, G>A:C>T, reverse complement



E−value = 9.9e−057

```
##
## $`uv++_G_A__C_T`
```

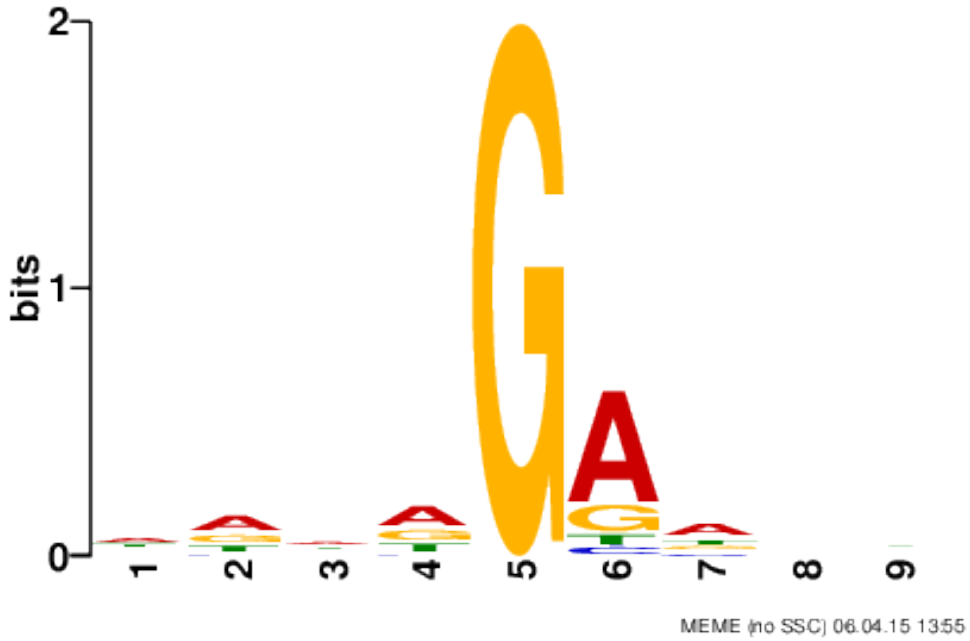
uv++, G>A:C>T



E−value = 9.2e−026

```
##
## $`uv++_G_A__C_T`
```

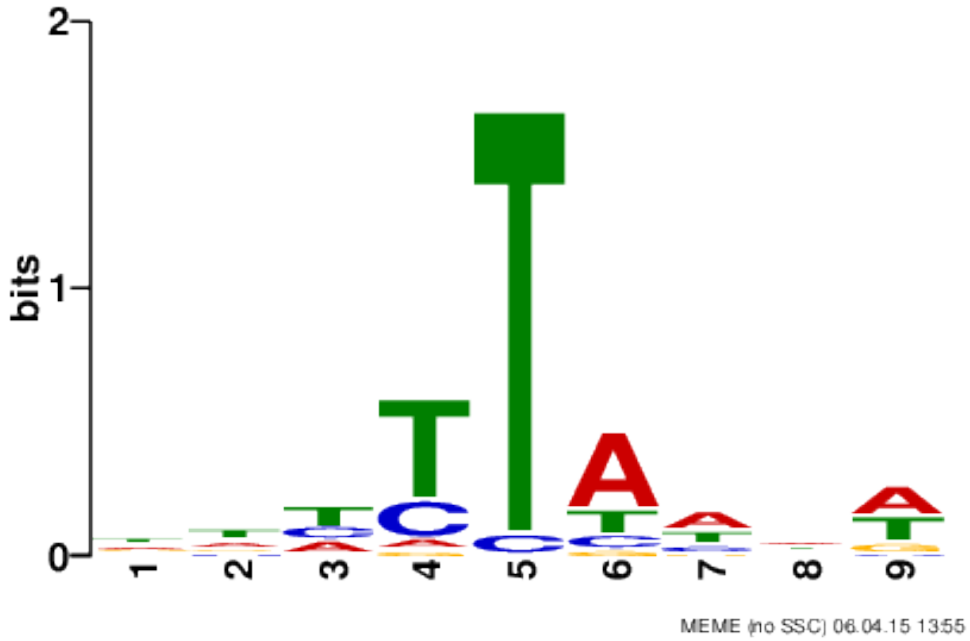
uv++, G>A:C>T, reverse complement



E−value = 9.2e−026

```
##
## $wt_A_G__T_C
```

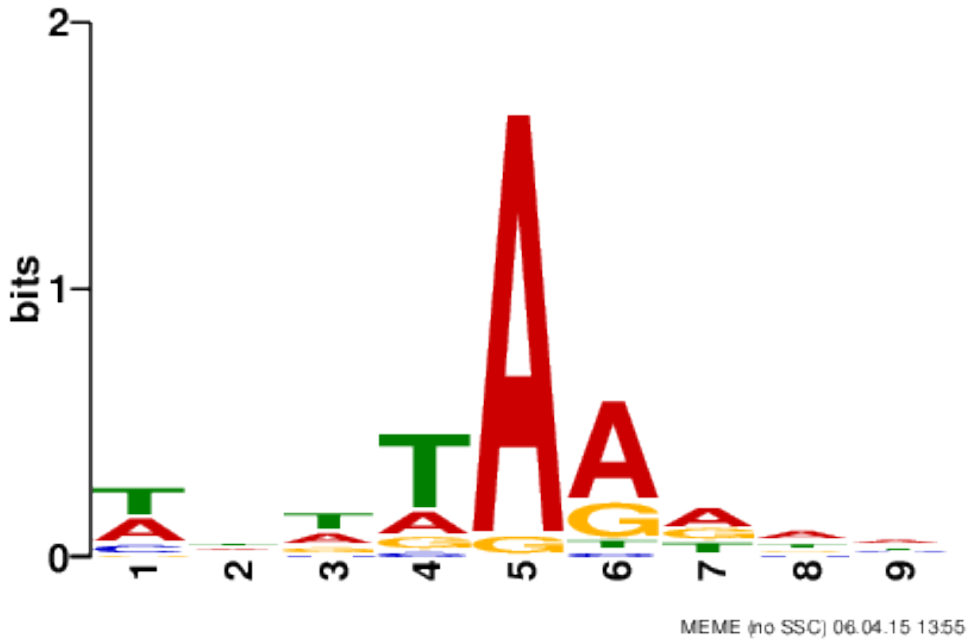
wt, A>G:T>C



E−value = 1.4e−025

```
##
## $wt_A_G__T_C
```

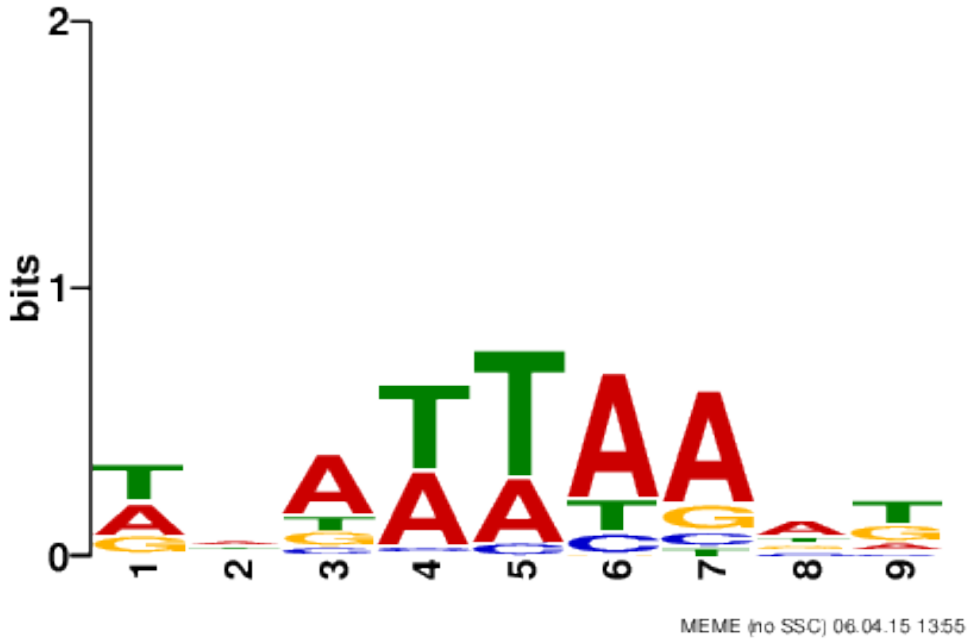
wt, A>G:T>C, reverse complement



E−value = 1.4e−025

```
##
## $wt_A_T__T_A
```

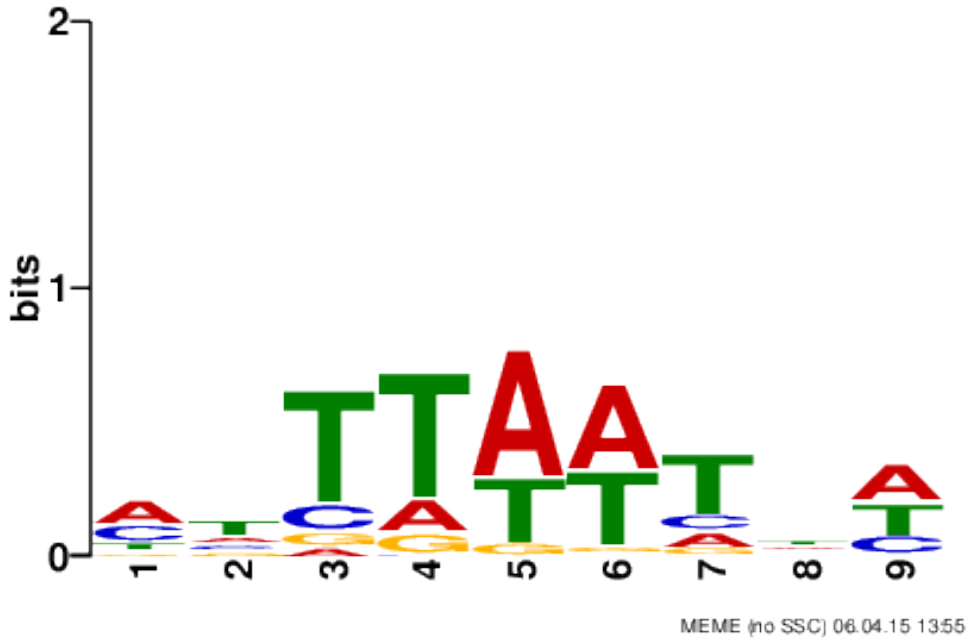
wt, A>T:T>A



E−value = 8.6e+000

```
##
## $wt_A_T__T_A
```

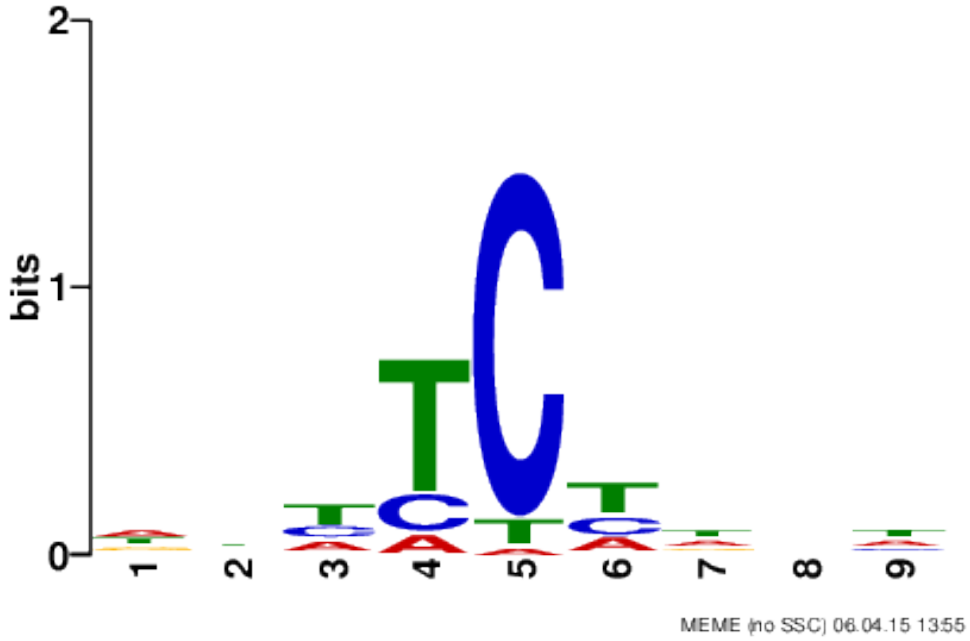
wt, A>T:T>A, reverse complement



E−value = 8.6e+000

```
##
## $wt_G_A__C_T
```

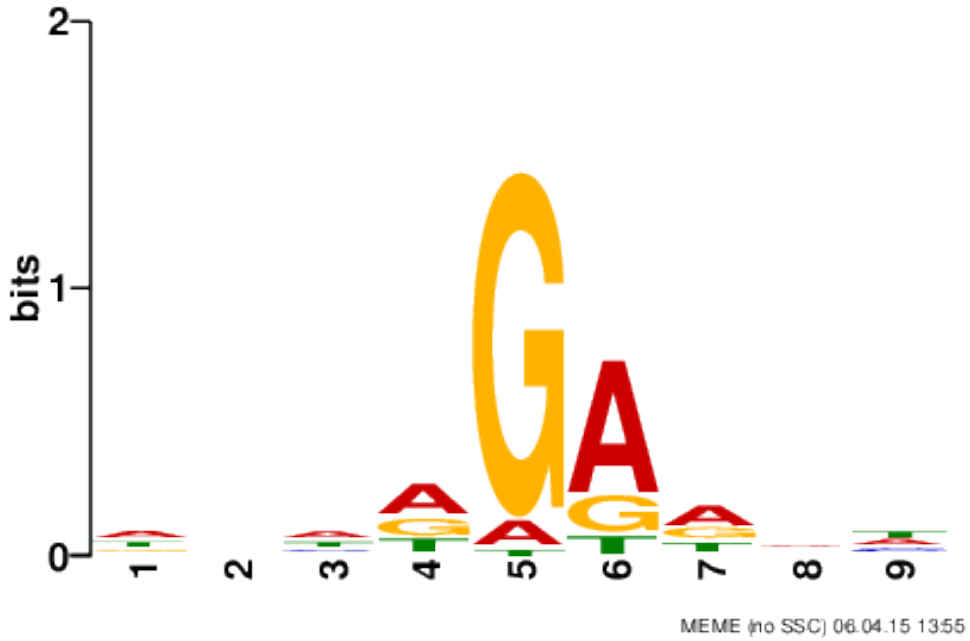
wt, G>A:C>T



E−value = 8.0e−041

```
##
## $wt_G_A__C_T
```

wt, G>A:C>T, reverse complement



E−value = 8.0e−041