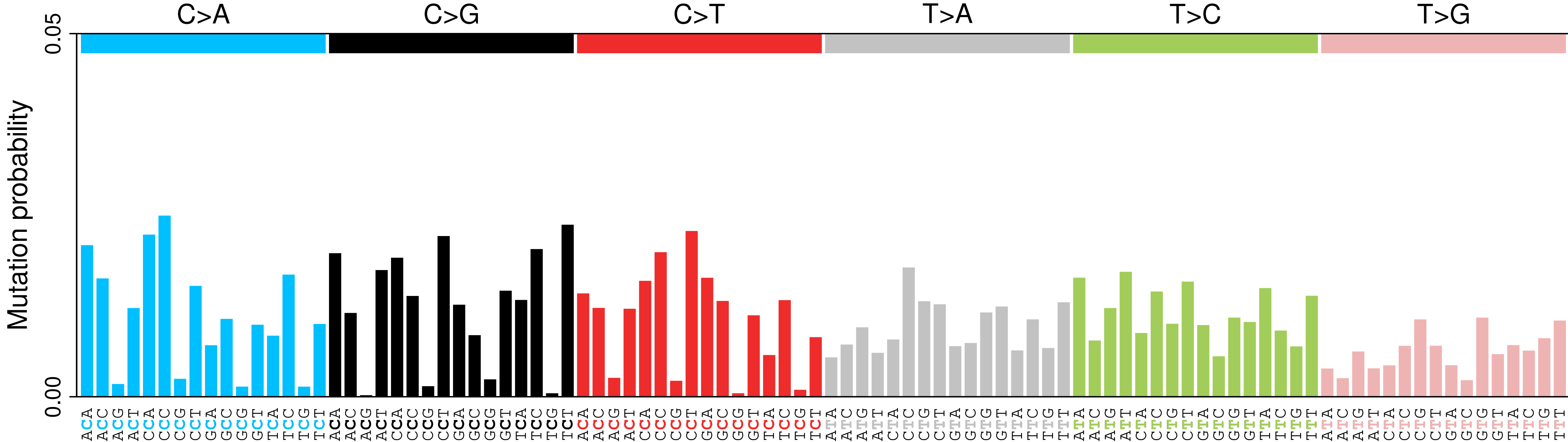






# SBS3



# SBS4

**C > A**

C > G

$C > T$

**T > A**

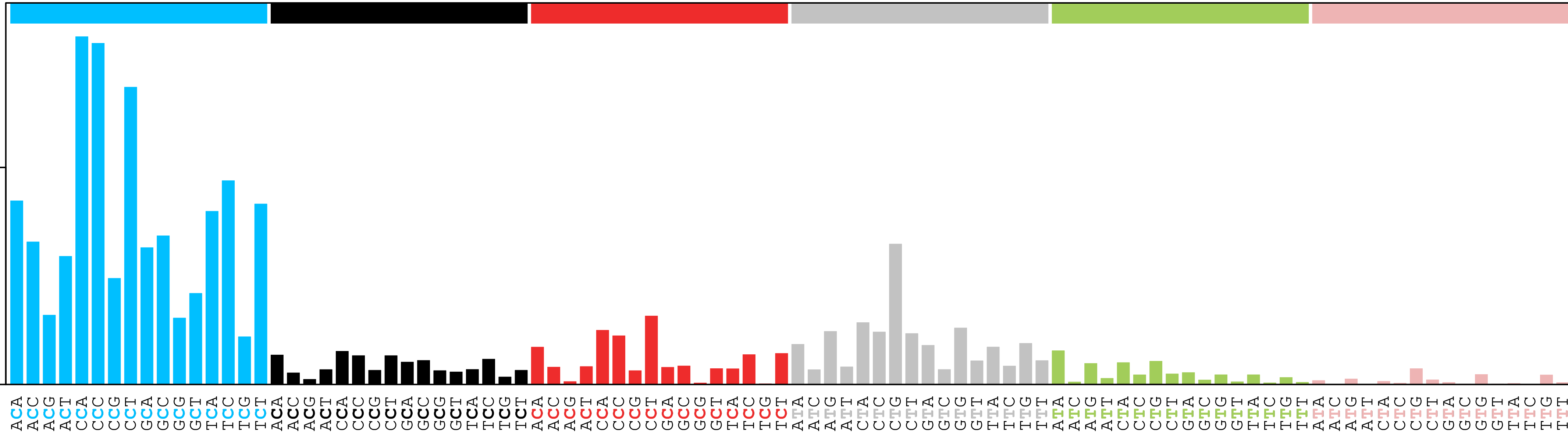
$T > C$

T>G

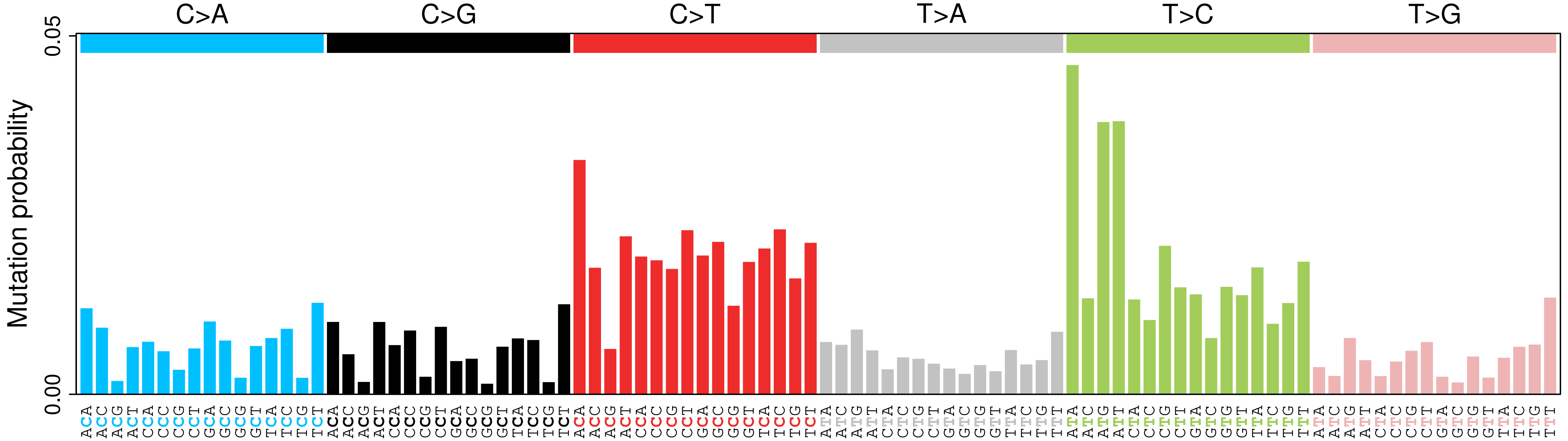
# Mutation probability

0.05

0.00



# SBS5





# SBS7a

**C > A**

C > G

$C > T$

**T > A**

$$T > C$$

T>G

# Mutation probability

3.0

0.2

0.1

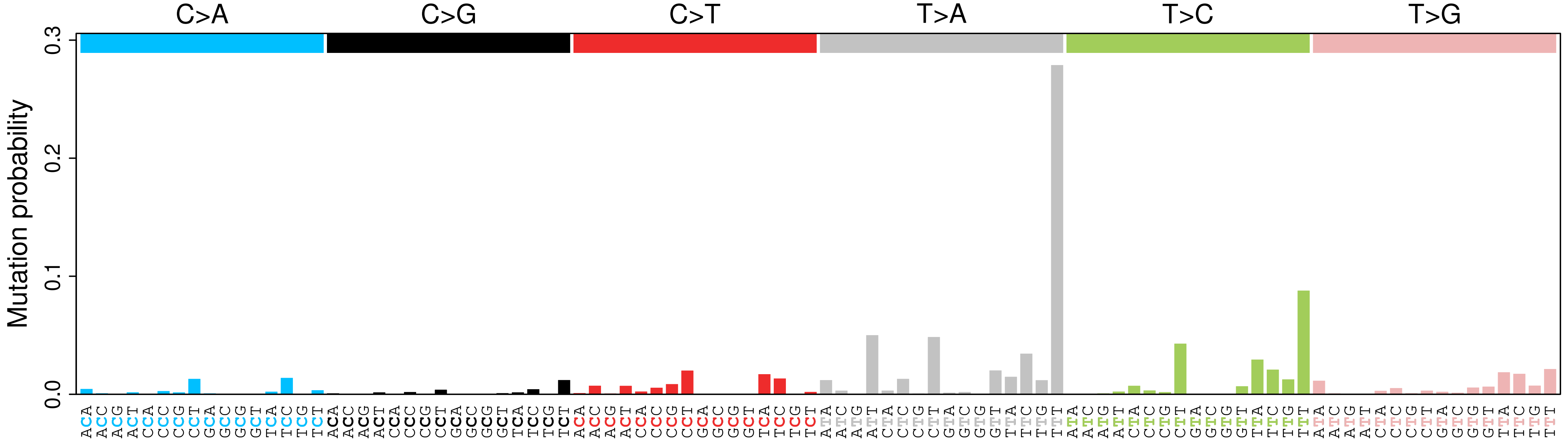
0.0

[illegible]





# SBS7c



# SBS7d

$C > A$

C > G

$C > T$

**T > A**

$T > C$

$T > G$

# Mutation probability

3.

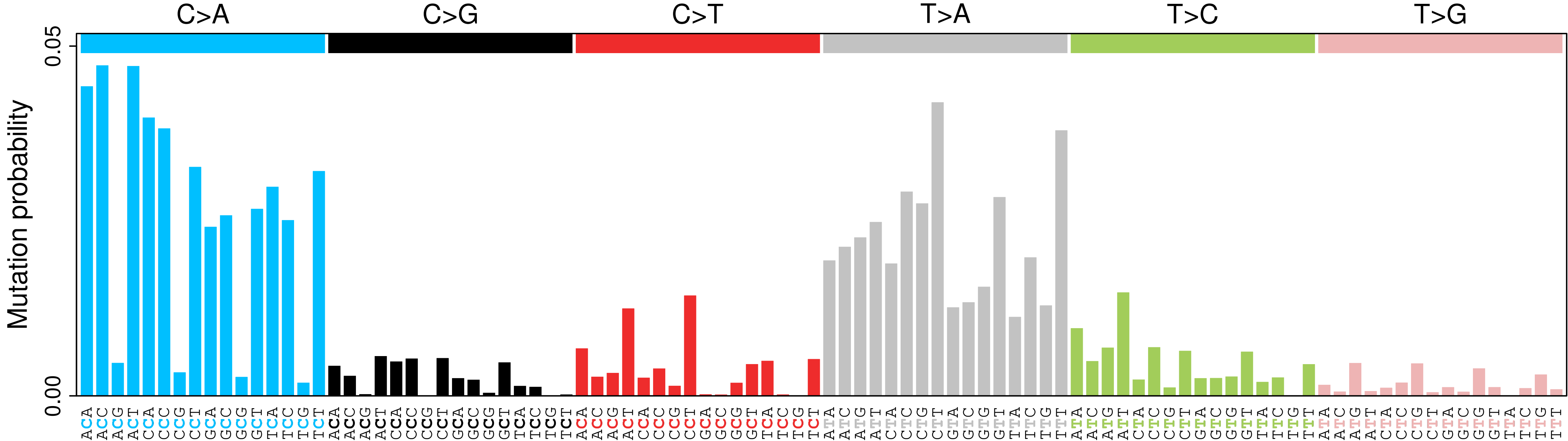
## 0.2

0.

0

[illegible]

# SBS8



# SBS9

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

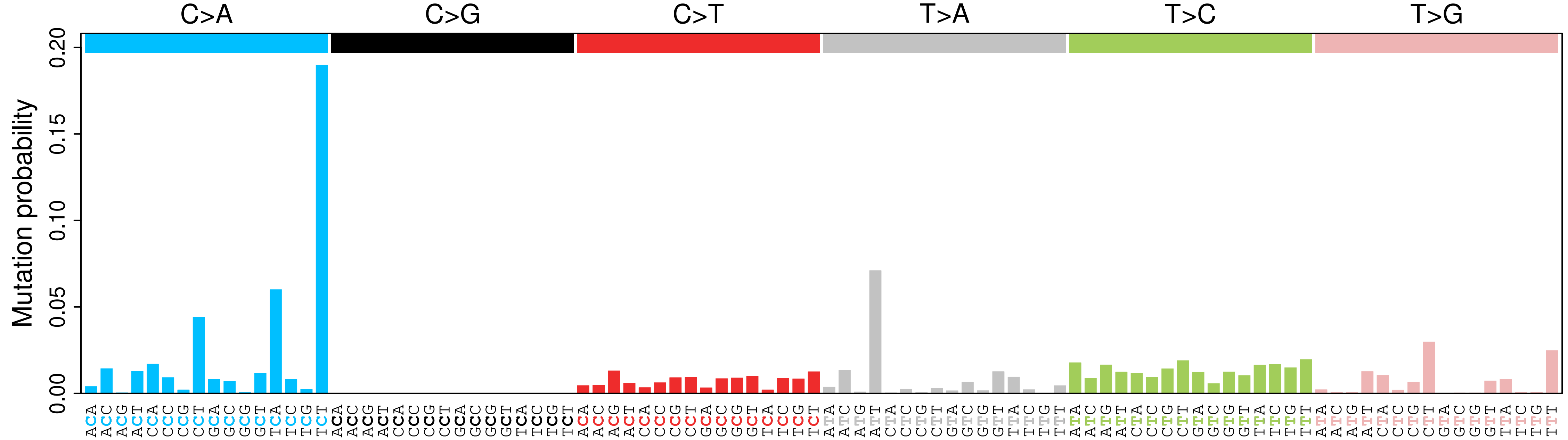
0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT





# SBS10c







# SBS11

$C > A$

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

15

0.1

0.

0.0

[illegible]

# SBS12

C>A

C>G

C>T

T>A

T>C

T>G

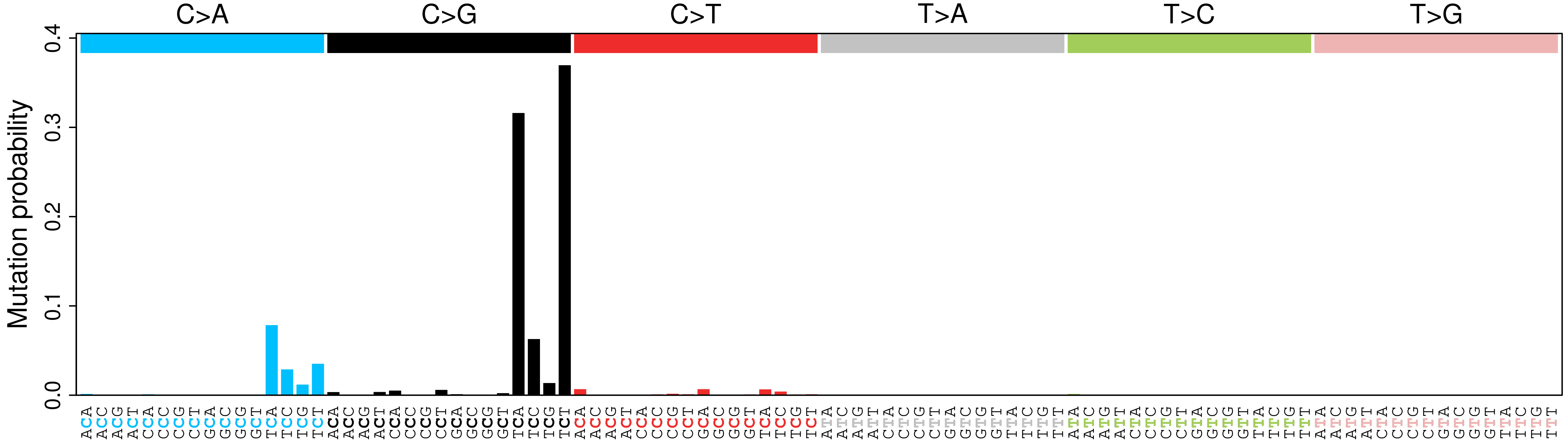
Mutation probability

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS13



# SBS14

**C > A**

C > G

$C > T$

**T > A**

$T > C$

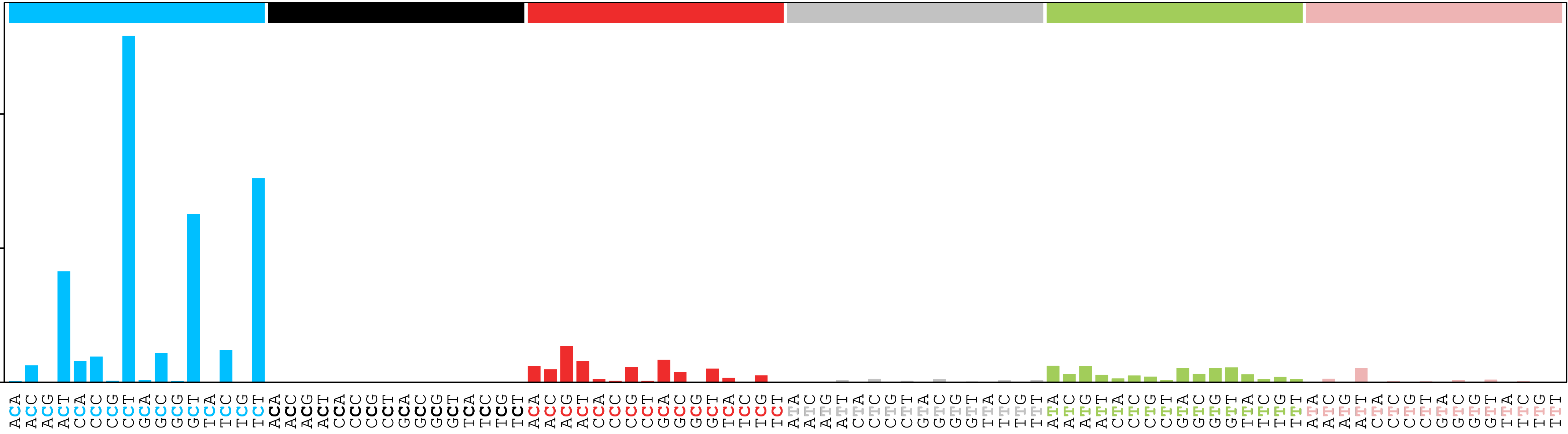
T>G

# Mutation probability

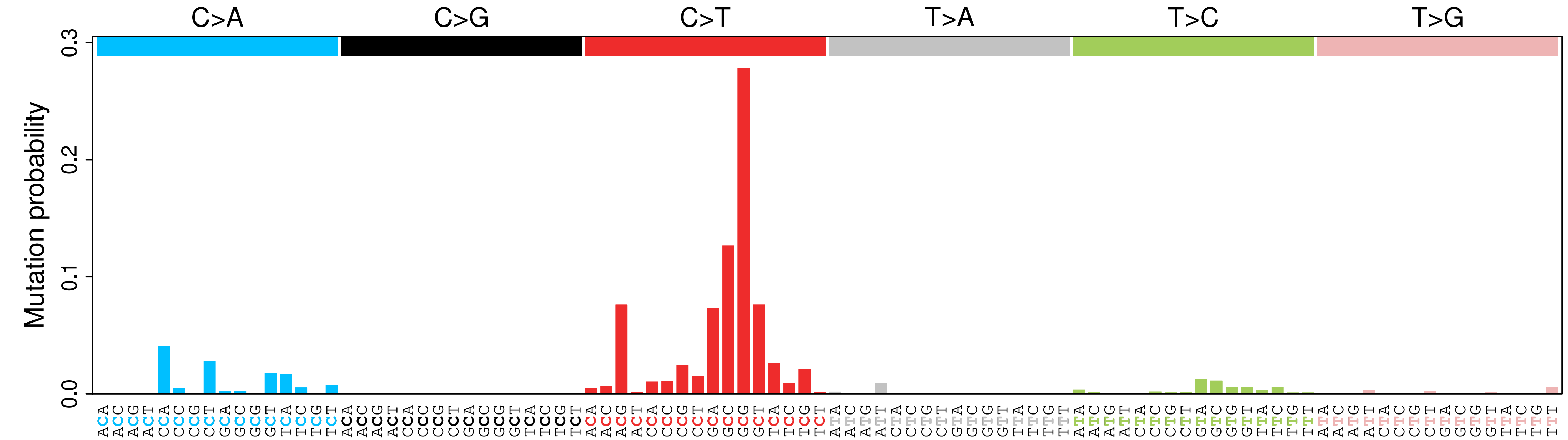
## 0.2

0.1

0



# SBS15





# SBS17a

C>A

C>G

C>T

T>A

T>C

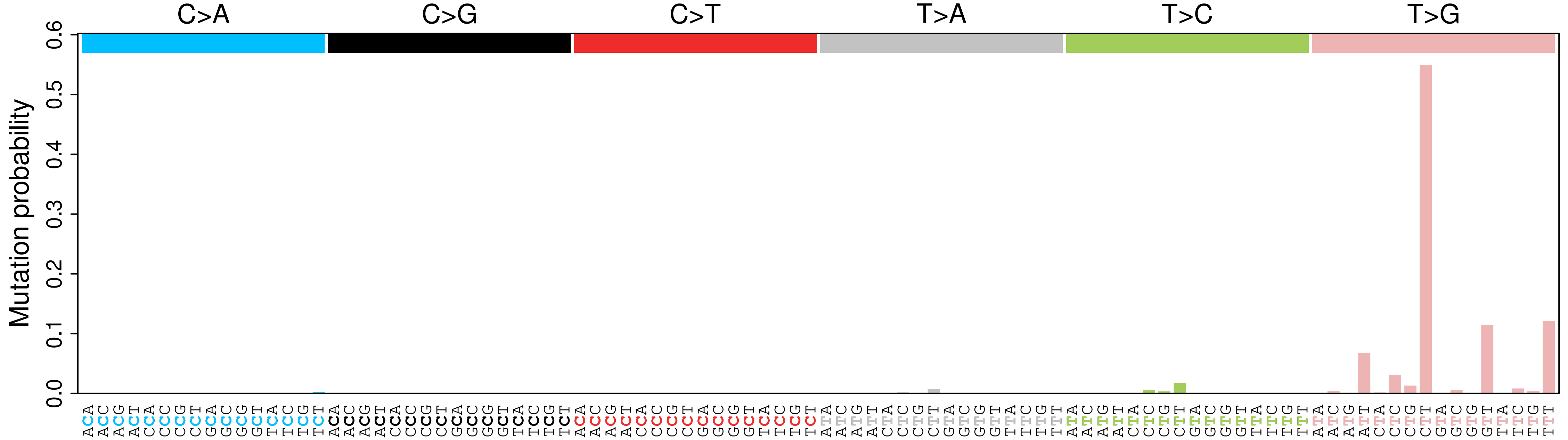
T>G

Mutation probability

0.4  
0.3  
0.2  
0.1  
0.0

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS17b





# SBS18

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.10  
0.05  
0.00





# SBS20

**C > A**

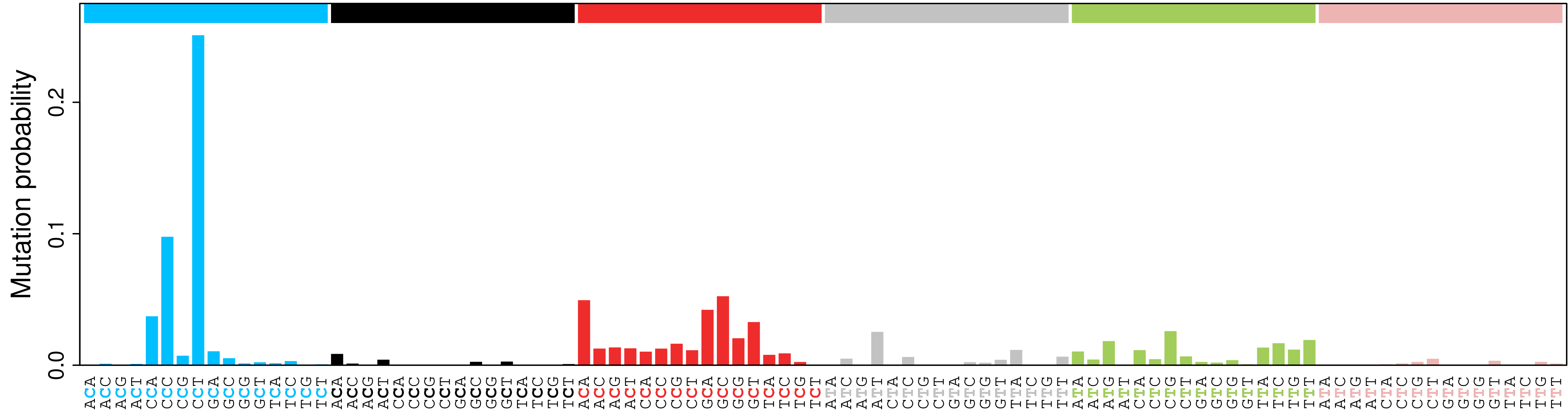
C > G

$C > T$

**T > A**

$T > C$

T>G





# SBS22a

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.15  
0.10  
0.05  
0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCA GGT GGT GGT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GGT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CCG CCG CCG CCG TTA TCC TTG TTT ATA ATC ATG ATT CTA CTC CCG CCG CCG CCG TTA TCC TTG TTT ATA ATC ATG ATT CTA CTC CCG CCG CCG CCG TTA TCC TTG TTT

# SBS22b

$C > A$

C > G

C>T

**T > A**

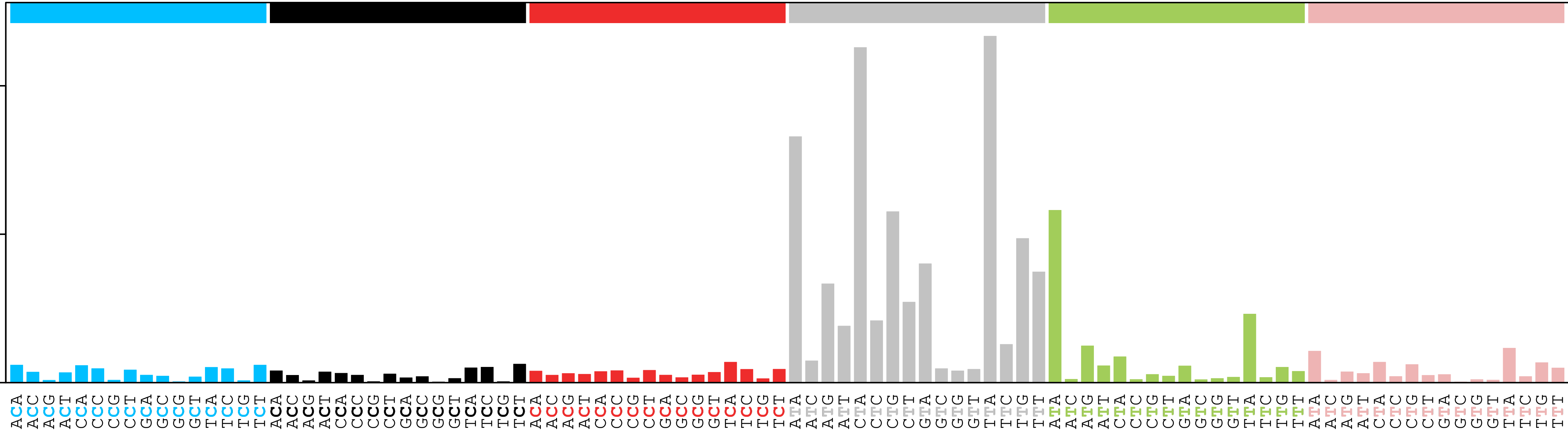
$T > C$

T>G

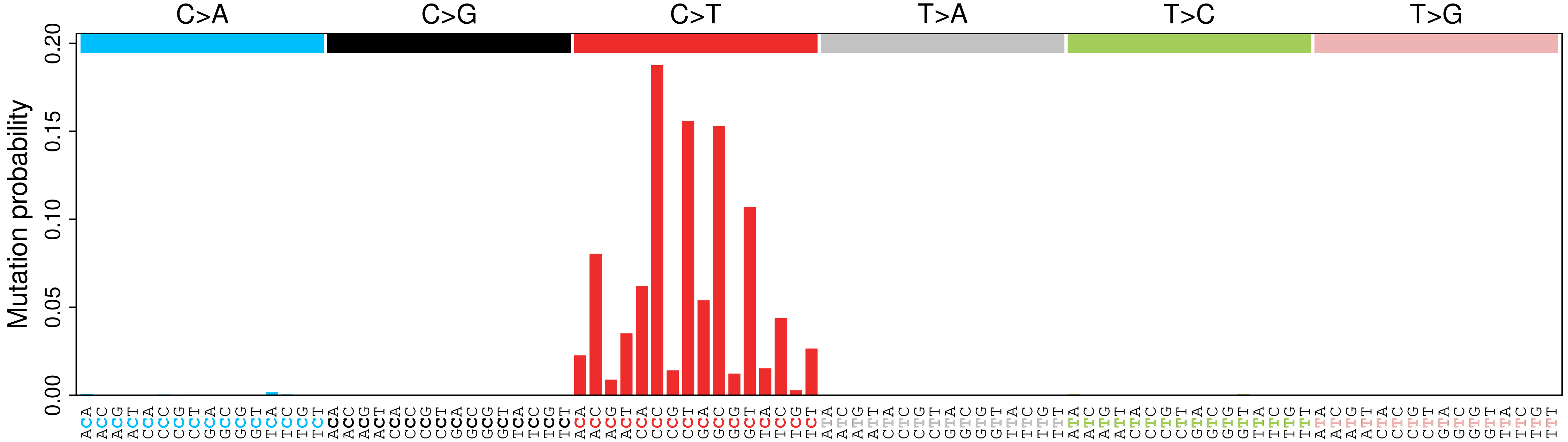
# Mutation probability

0.10

0.00



# SBS23



# SBS24

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.10

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GGA GGC GGT GCA GCC GCG GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GGA GGC GCG GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GGA GGC GCG GCT TCA TCC TCG TCT ATC ATG ATT ATA CTC CTT CTA CTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTT CTA CTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTT CTA CTC GTG GTT TTA TTC TTG TTT



# SBS25

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

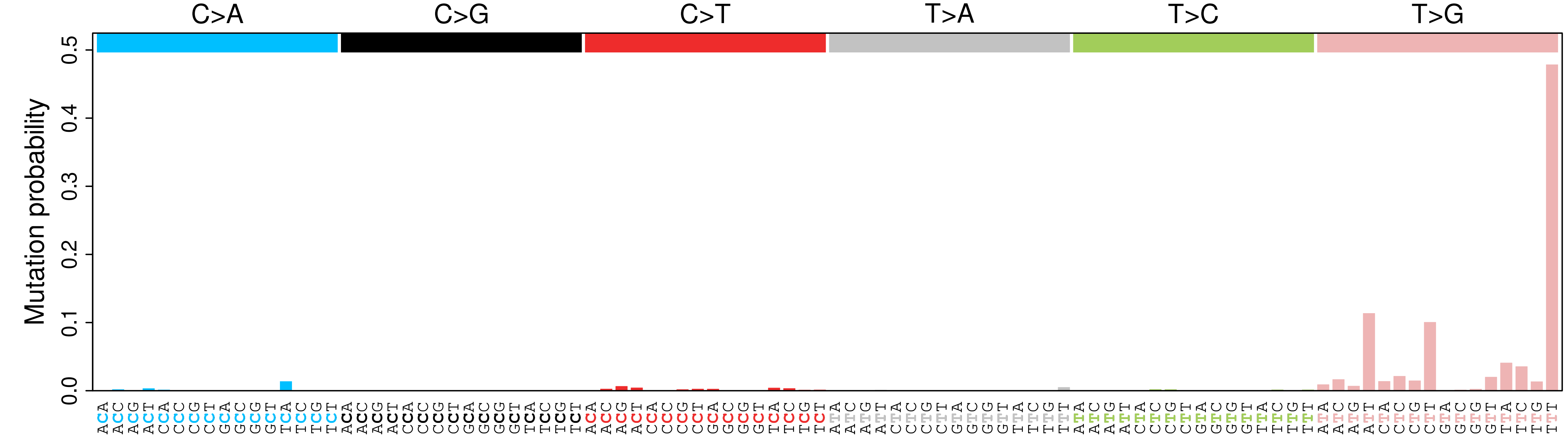
0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT





# SBS28







# SBS31

$C > A$

C > G

$C > T$

**T > A**

$T > C$

$T > G$

# Mutation probability

15

0.1

0.04

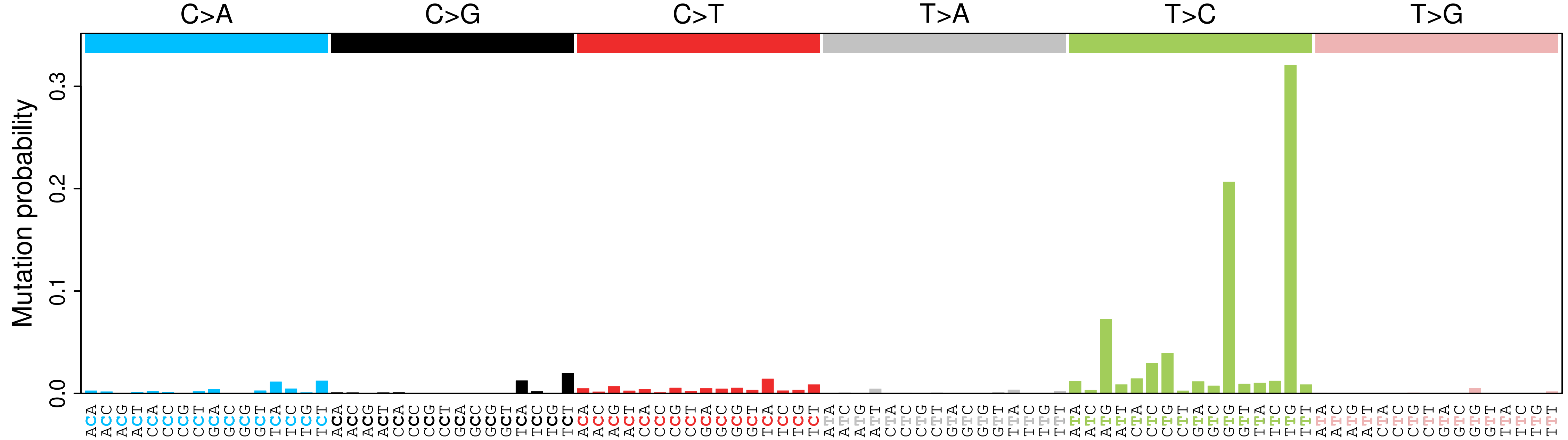
00.

[illegible]





# SBS33





# SBS35

$C > A$

C > G

$C > T$

**T > A**

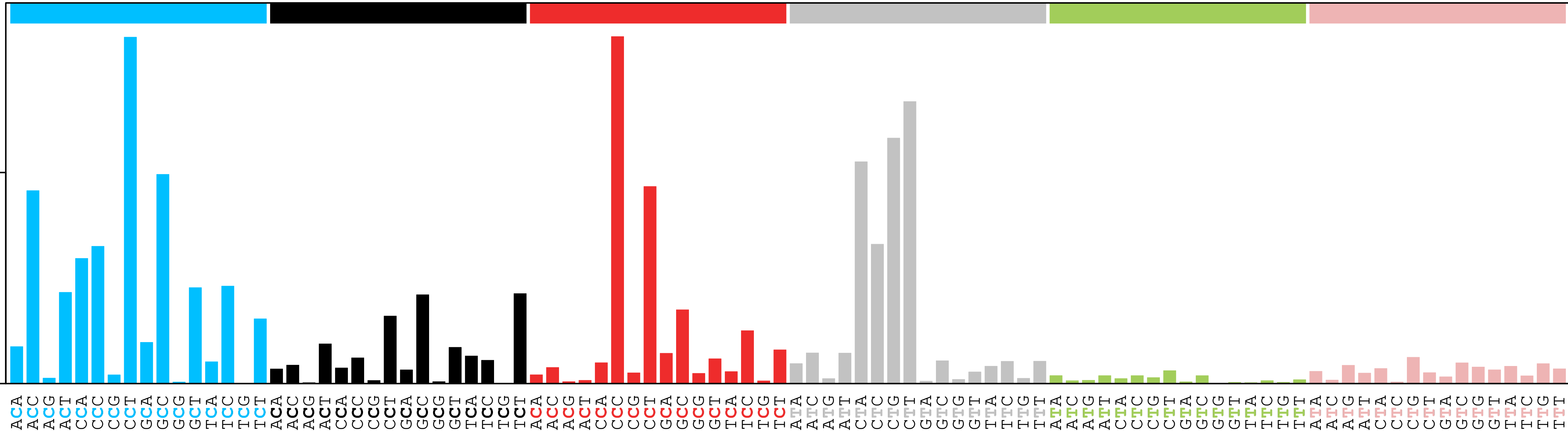
$T > C$

T>G

# Mutation probability

0.05

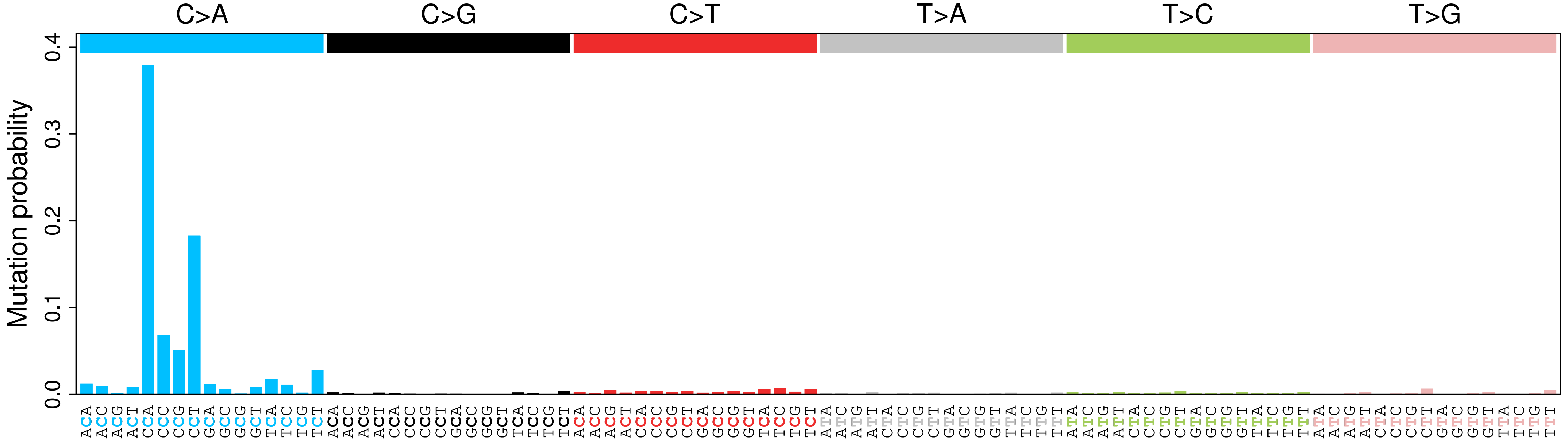
0.00







# SBS38



# SBS39

**C > A**

C > G

$C > T$

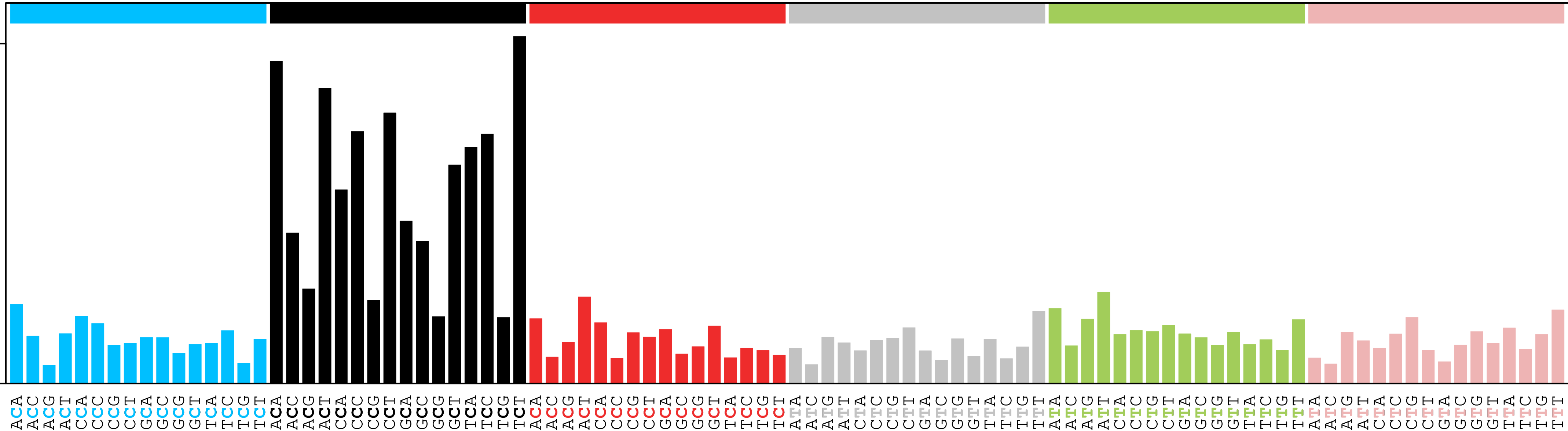
**T > A**

$T > C$

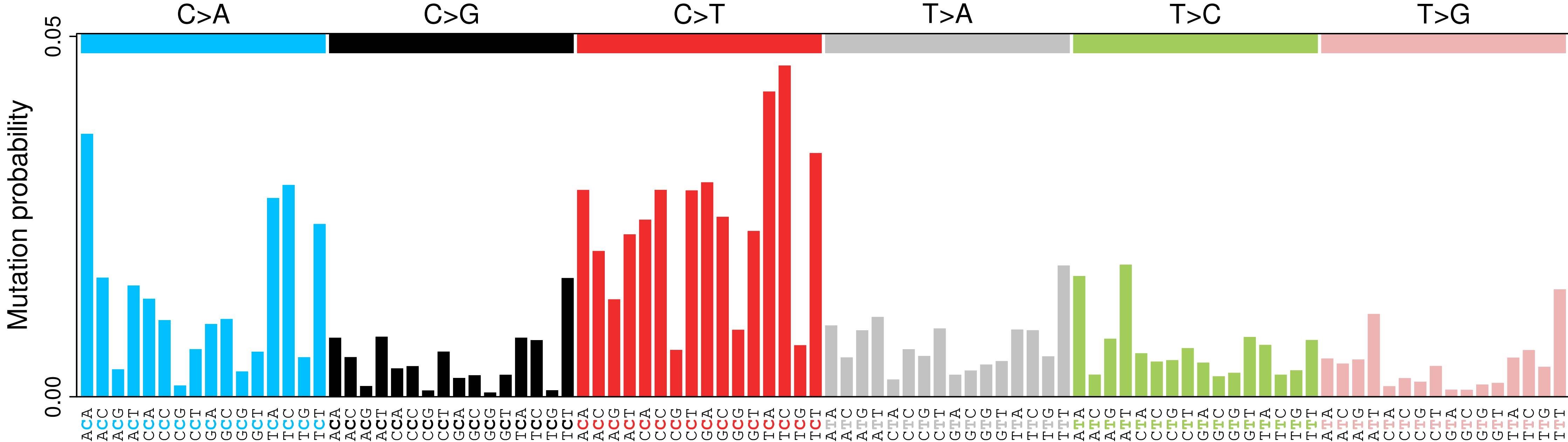
T>G

0.05

0.00



# SBS40a





# SBS40b

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS40c



# SBS41

**C > A**

C > G

$C > T$

**T > A**

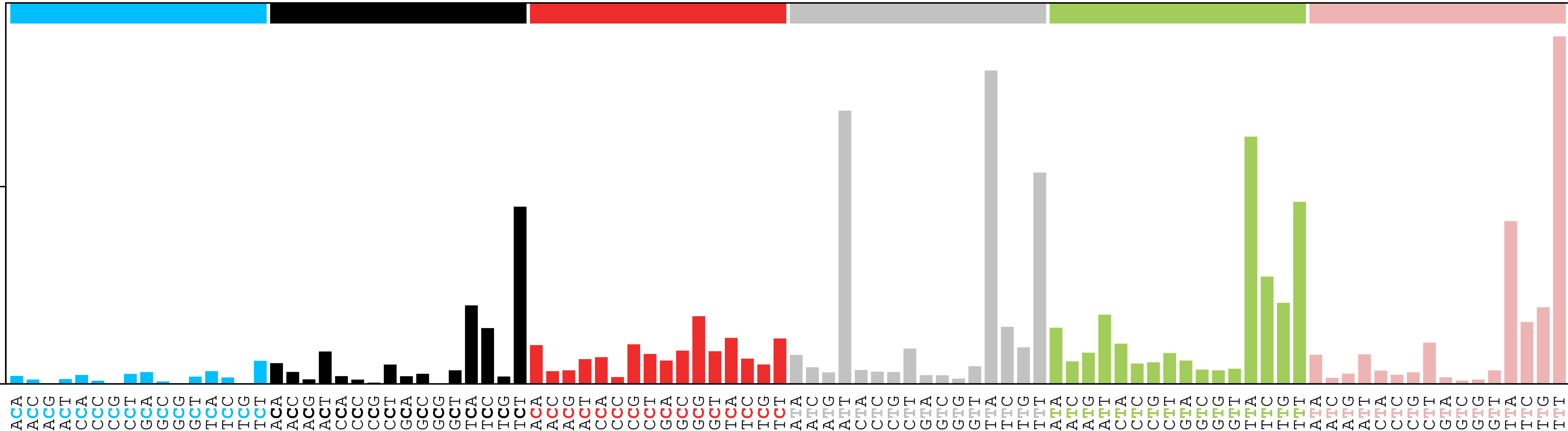
$T > C$

T>G

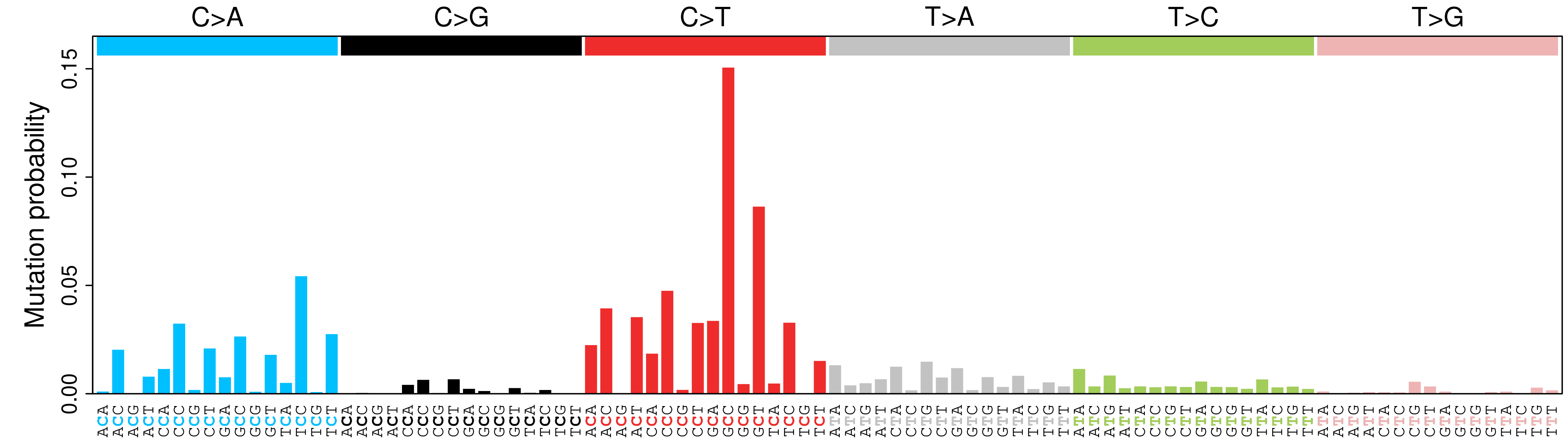
# Mutation probability

0.05

0.00



# SBS42



# SBS43

**C > A**

C > G

$C > T$

**T > A**

$T > C$

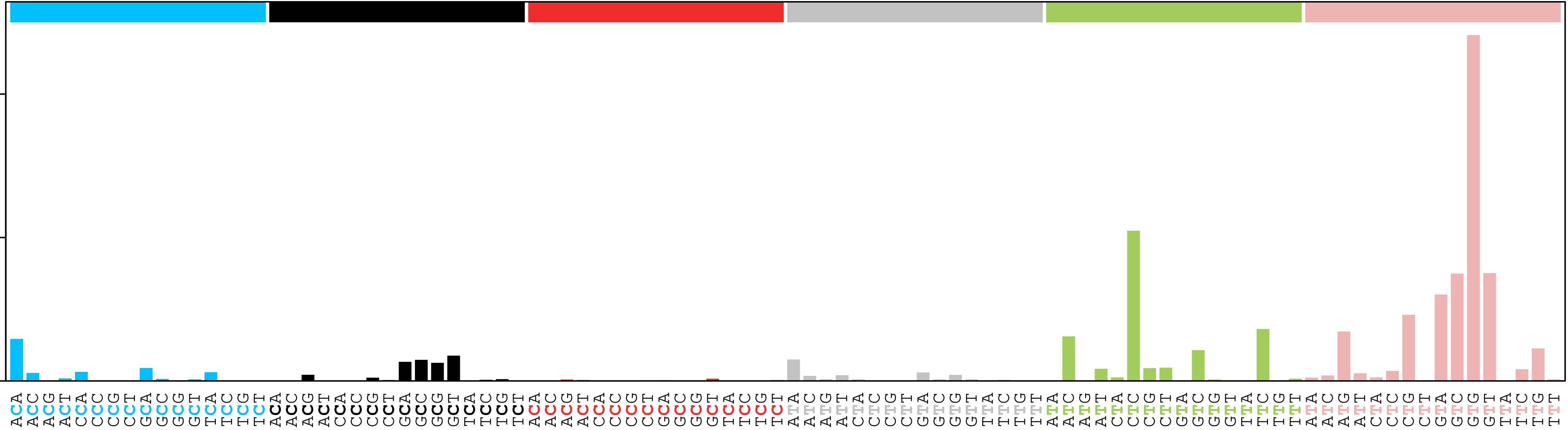
T>G

# Mutation probability

## 0.2

0

0





# SBS45

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.2  
0.1  
0.0

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS46







# SBS48

**C > A**

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

## 9.0

0.

0.

[illegible]



# SBS50

**C > A**

C > G

$C > T$

**T > A**

$T > C$

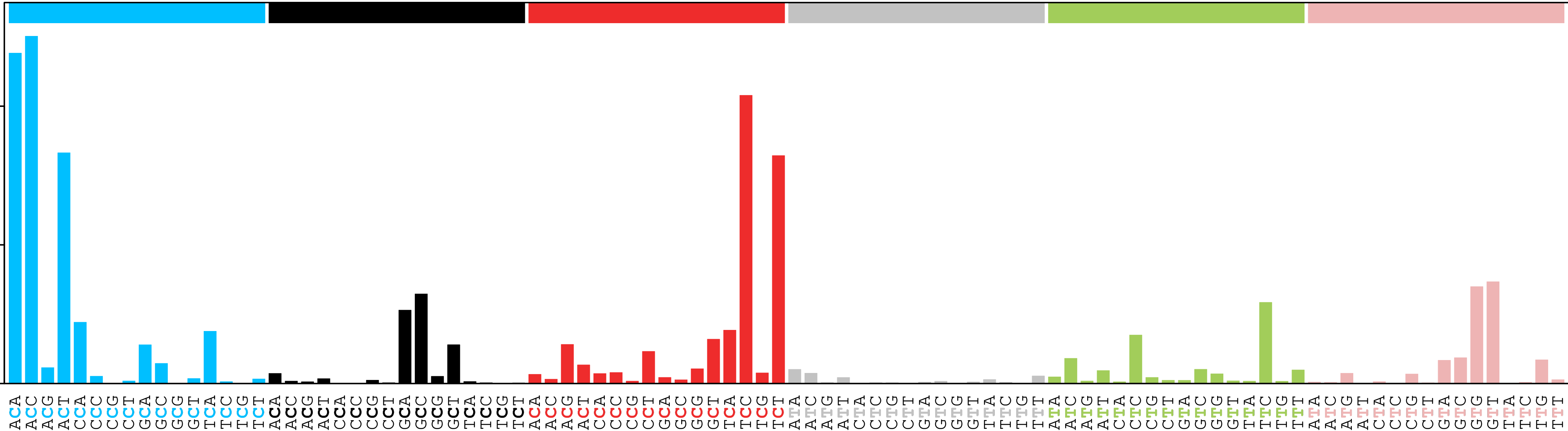
T>G

# Mutation probability

0.10

50.

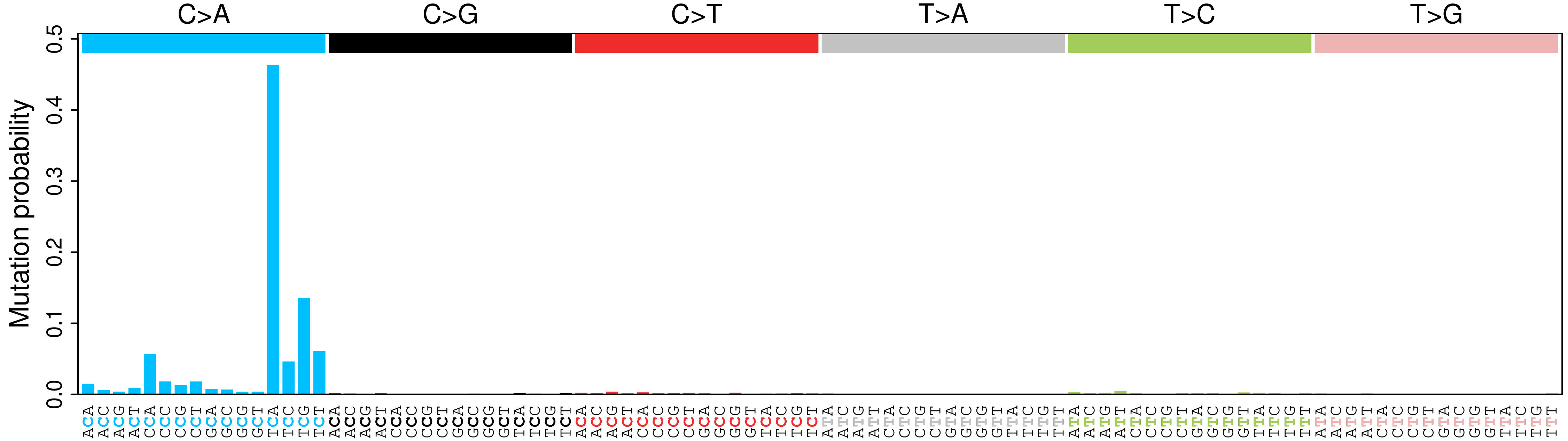
0.00



# SBS51



# SBS52





# SBS54

**C > A**

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

O

1.

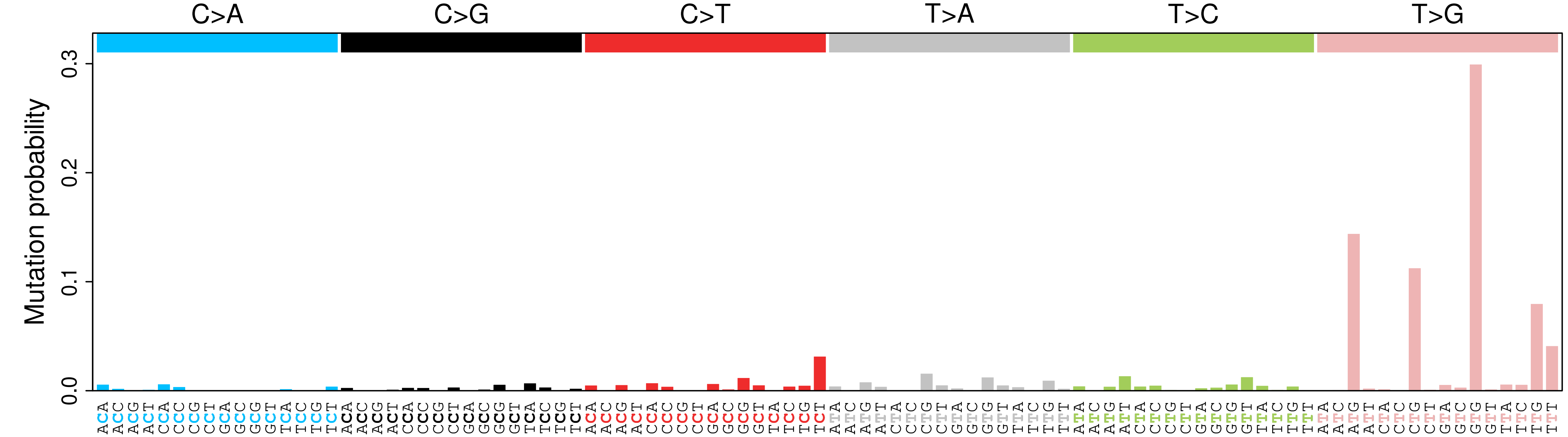
0

○

AA  
AC  
AG  
AT  
CA  
CC  
CG  
CT  
GA  
GC  
GG  
GT  
TA  
TC  
TG  
TT  
ACA  
ACC  
ACG  
ACT  
CCA  
CCC  
CCG  
CCT  
GCA  
GCC  
GCG  
GCT  
TCA  
TCC  
TCG  
TCT  
ACA  
ACG  
ACG  
ACT  
CCA  
CCC  
CCG  
CCT  
GCA  
GCC  
GCG  
GCT  
TCA  
TCC  
TCG  
TCT  
ACA  
ACG  
ACG  
ACT  
CCA  
CCC  
CCG  
CCT  
GCA  
GCC  
GCG  
GCT  
TCA  
TCC  
TCG  
TCT  
ATA  
ATC  
ATG  
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CTC  
CTG  
CTT  
GTA  
GTC  
GTT  
GTA  
TTC  
TTG  
TTT  
ATA  
ATG  
ATT  
CTA  
CTC  
CTG  
CTT  
GTA  
GTC  
GTT  
GTA  
TTC  
TTG  
TTT  
ATA  
ATG  
ATT  
CTA  
CTC  
CTG  
CTT  
GTA  
GTC  
GTT  
GTA  
TTC  
TTG  
TTT



# SBS55



# SBS56

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.4  
0.3  
0.2  
0.1  
0.0

ACA ACC AGC ACT CCA CCC CCG CCT GCA GCC GGG GGT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGG GGT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS57

C>A

C>G

C>T

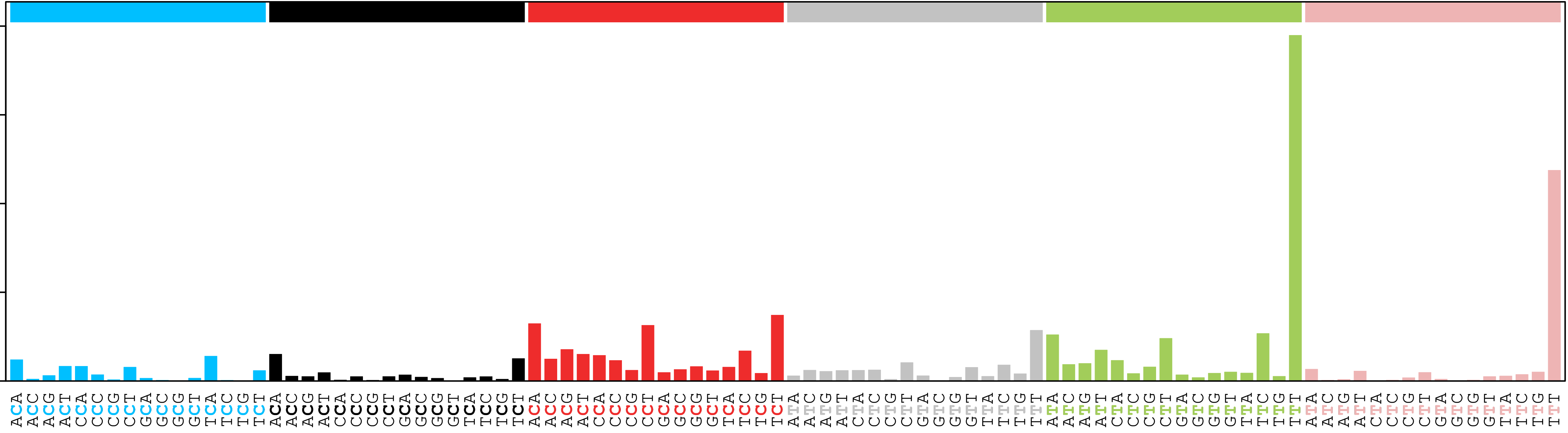
T>A

T>C

T>G

Mutation probability

0.20  
0.15  
0.10  
0.05  
0.00



# SBS58

C>A

C>G

C>T

T>A

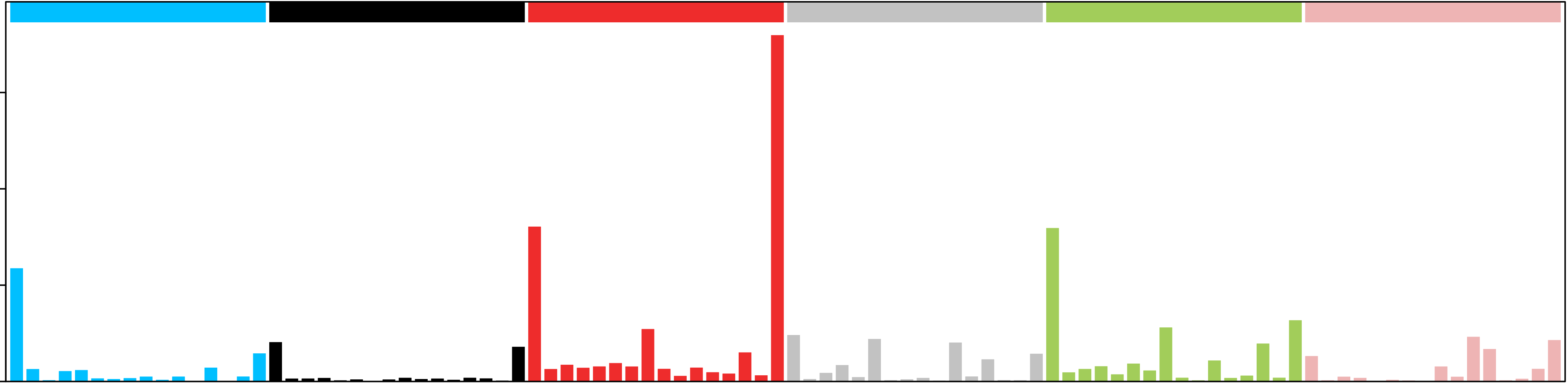
T>C

T>G

Mutation probability

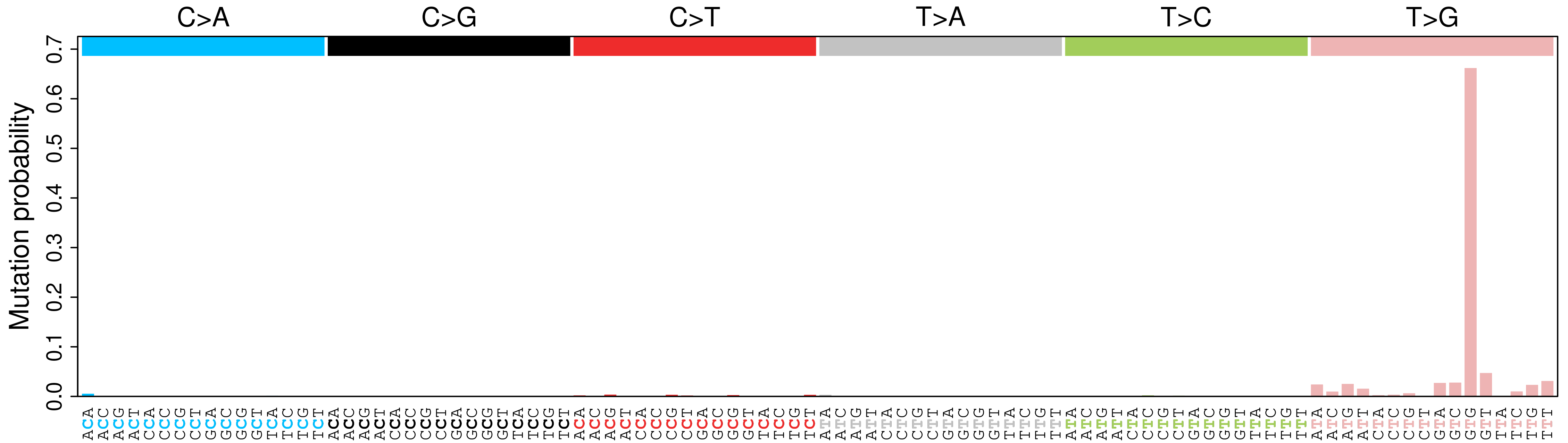
0.00  
0.05  
0.10  
0.15

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT





# SBS60



# SBS84

C>A

C>G

C>T

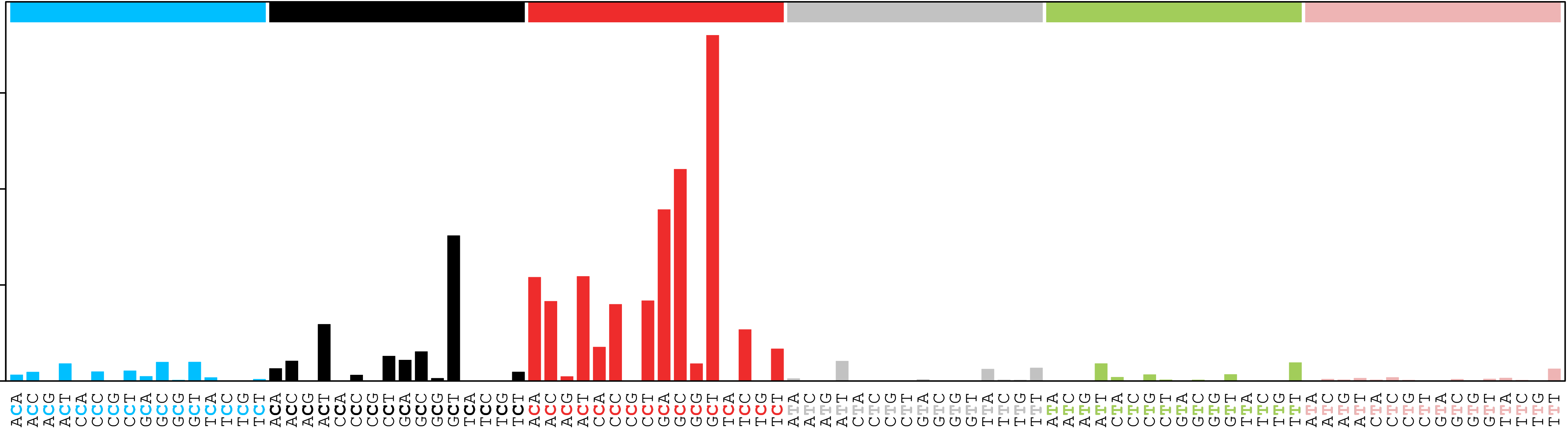
T>A

T>C

T>G

Mutation probability

0.15  
0.10  
0.05  
0.00

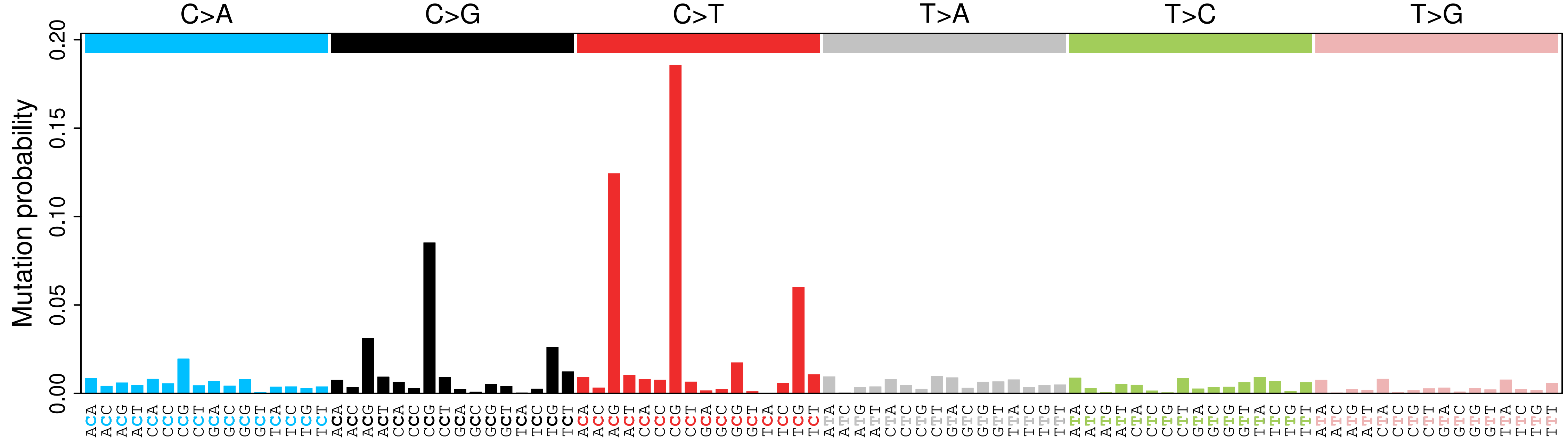








# SBS87









# SBS91

**C > A**

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

0.3

0.2

0

[illegible]

# SBS92

C>A

C>G

C>T

T>A

T>C

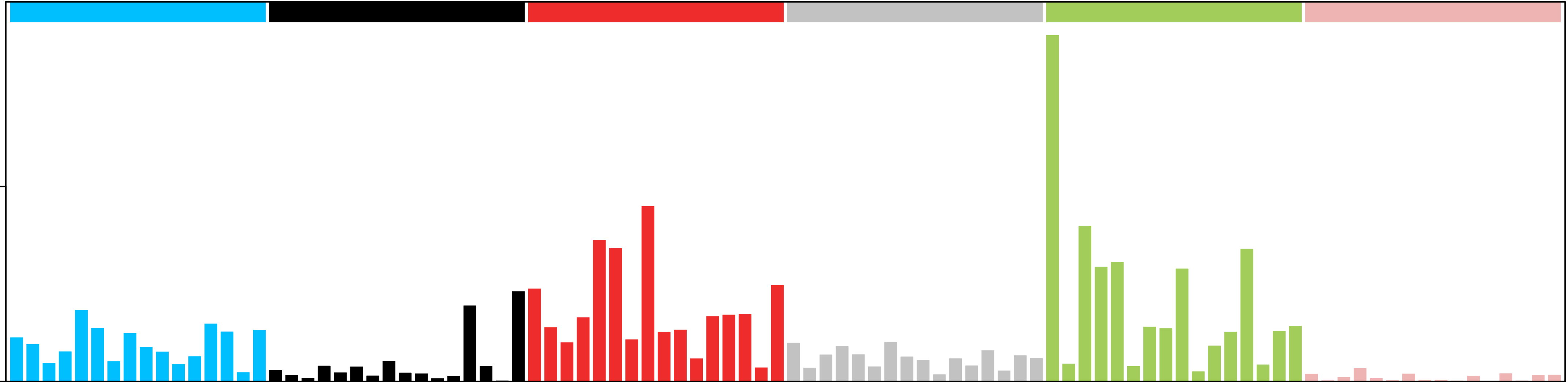
T>G

Mutation probability

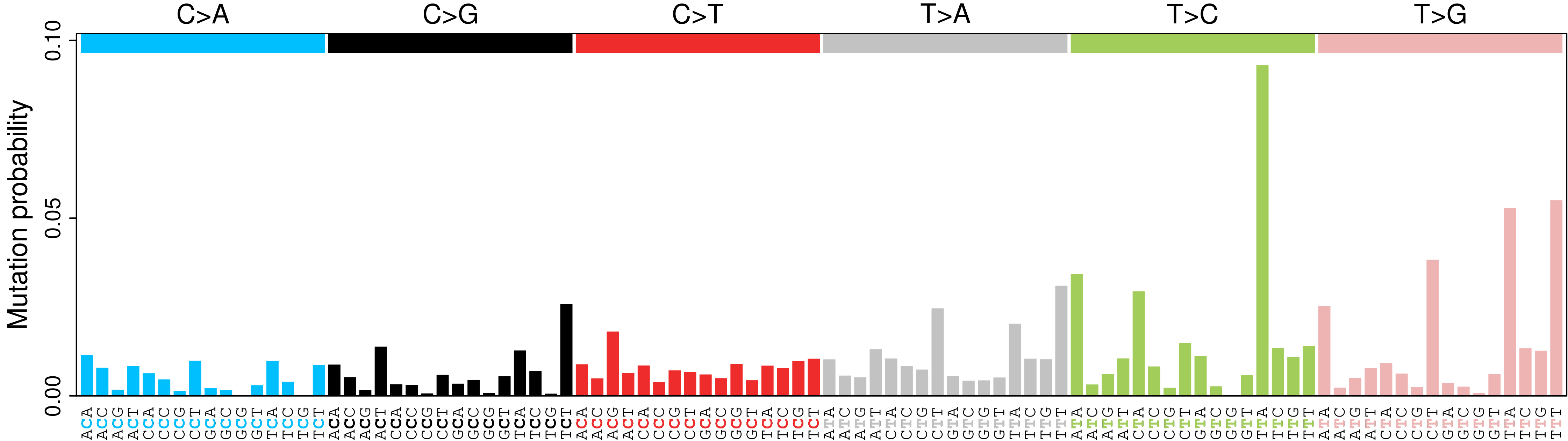
0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC GTT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTC GTT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT



# SBS93





# SBS94

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGG GGT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGG GGT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGG GGT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS95

**C > A**

C > G

$C > T$

**T > A**

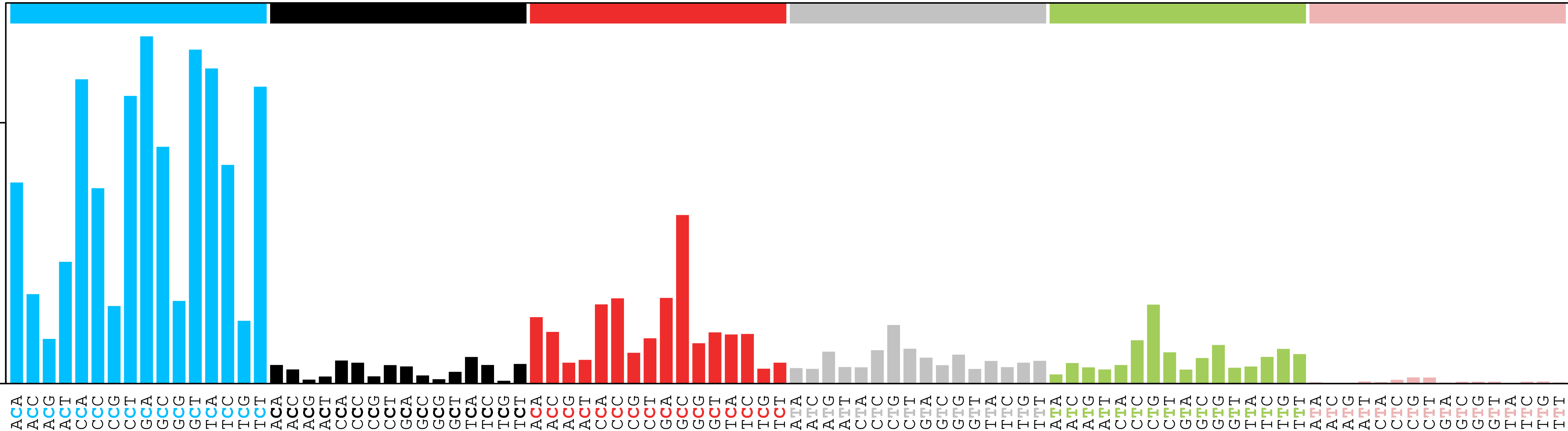
$T > C$

T>G

# Mutation probability

0.05

0.00



# SBS96

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

# SBS97





