

# SBS1



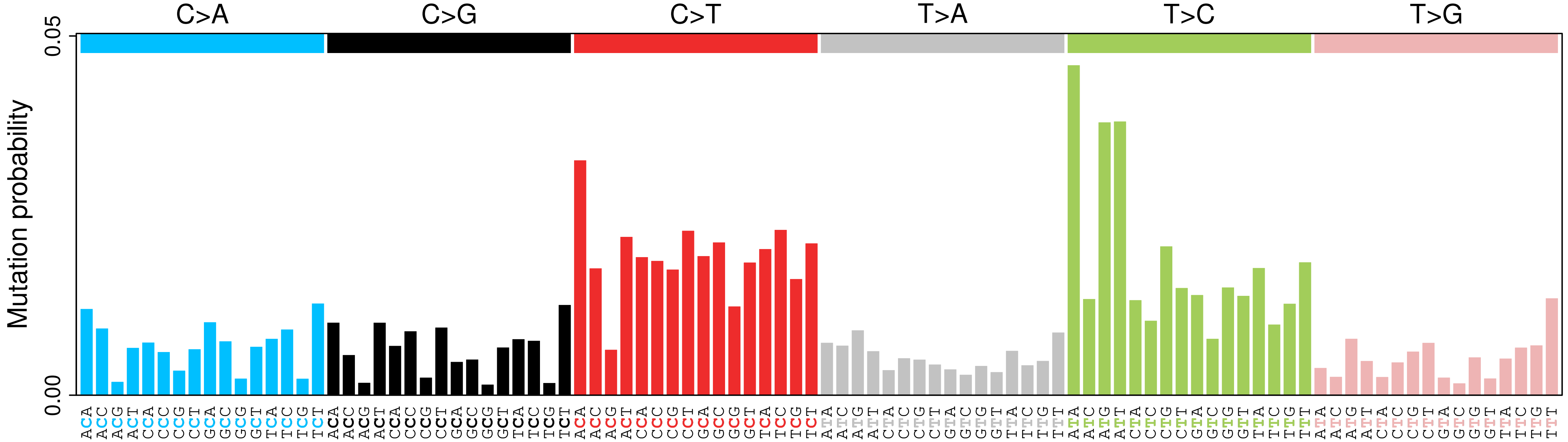


# SBS3





# SBS5





# SBS7a

**C > A**

C > G

$C > T$

**T > A**

$$T > C$$

T>G

# Mutation probability

0.3

## 0.2

0.1

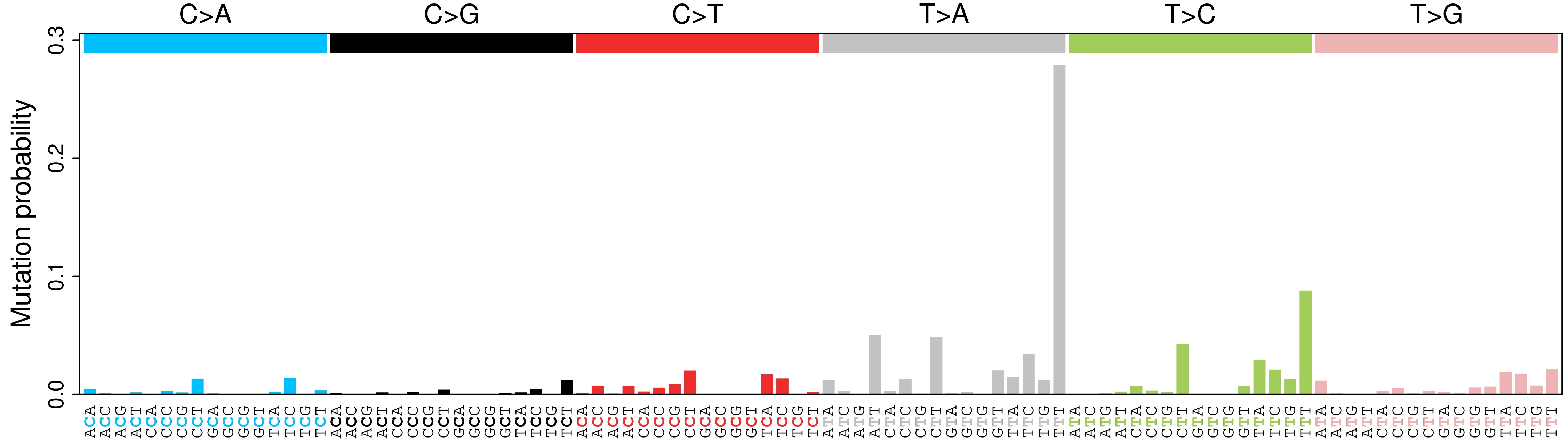
0.0

[illegible]





# SBS7c



# SBS7d

$C > A$

C > G

$C > T$

$T > A$

$T > C$

**T>G**

# Mutation probability

0.0 0.1 0.2 0.3

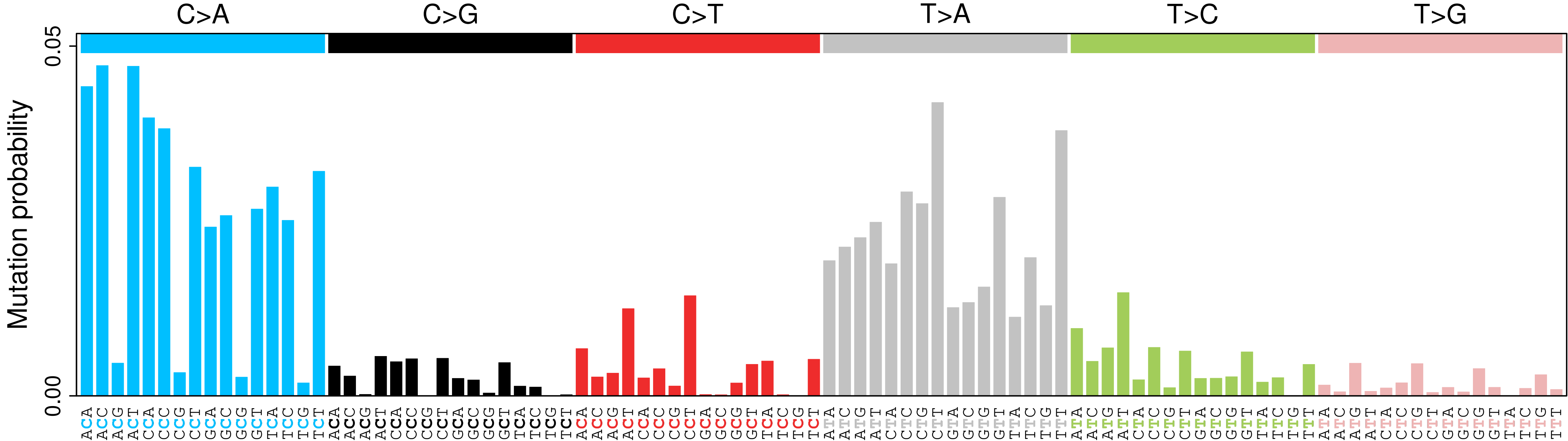
0.0

0.0 0.1 0.

0.0 0.1 0.2 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 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 ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT



# SBS10b





# SBS10d

**C > A**

C > G

$$C > T$$

**T > A**

$T > C$

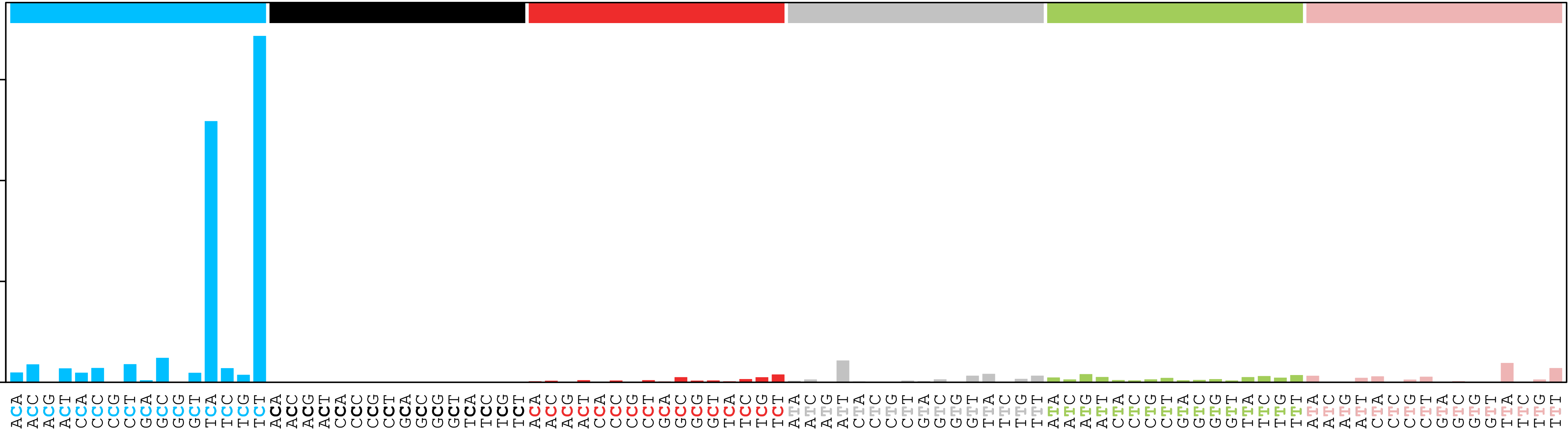
T>G

# Mutation probability

3.0

0.

0





# SBS11

$C > A$

C > G

**C>T**

**T > A**

$$T > C$$

**T>G**

# Mutation probability

0.00 0.05 0.10 0.15

[illegible]

# SBS12

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

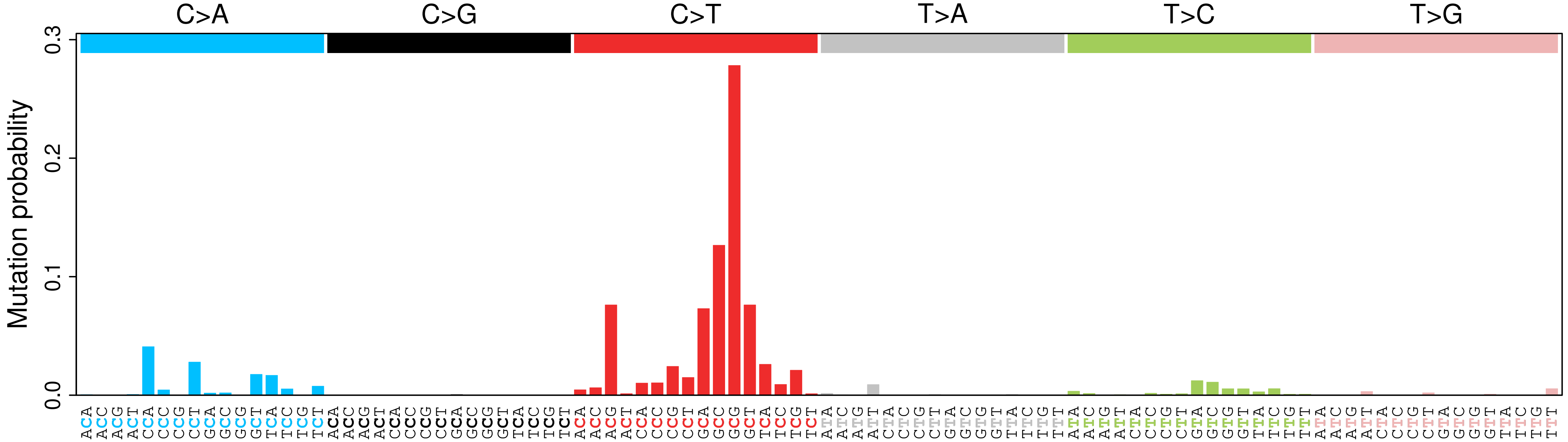
0.00

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





# SBS15



# SBS16

**C > A**

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

0.2

0.

0

[illegible]

# SBS17a

C>A

C>G

C>T

T>A

T>C

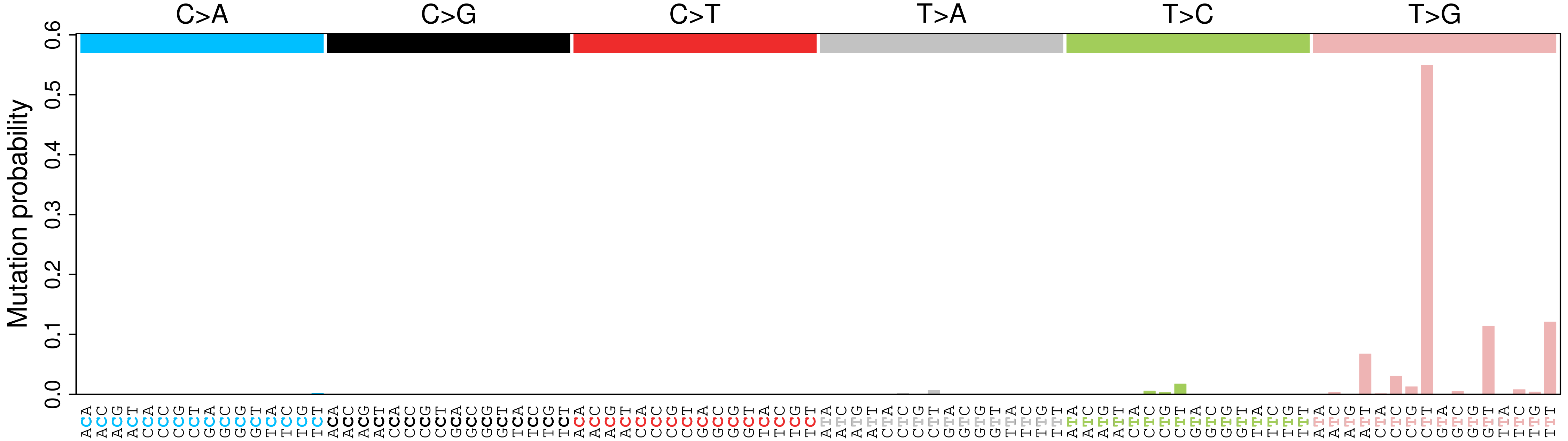
T>G

Mutation probability

0.4  
0.3  
0.2  
0.1  
0.0

ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GTT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT 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

# SBS17b





# SBS18

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.10  
0.05  
0.00









# 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 CTG CTT GCA GCC GGT GGT TTA TCC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GCA GCC GGT GGT TTA TCC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT

# SBS22b

$C > A$

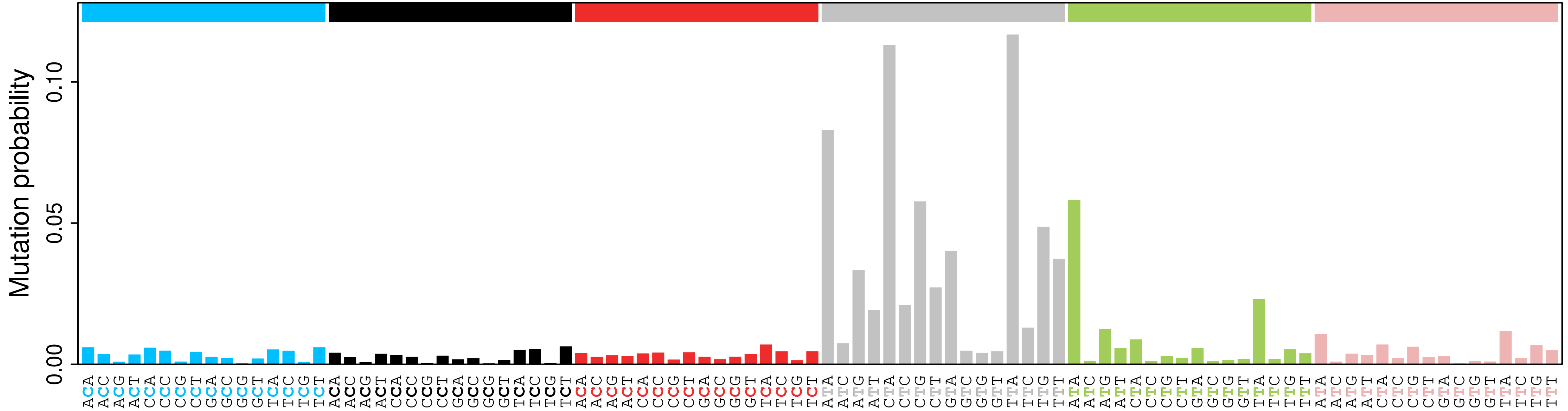
C > G

C>T

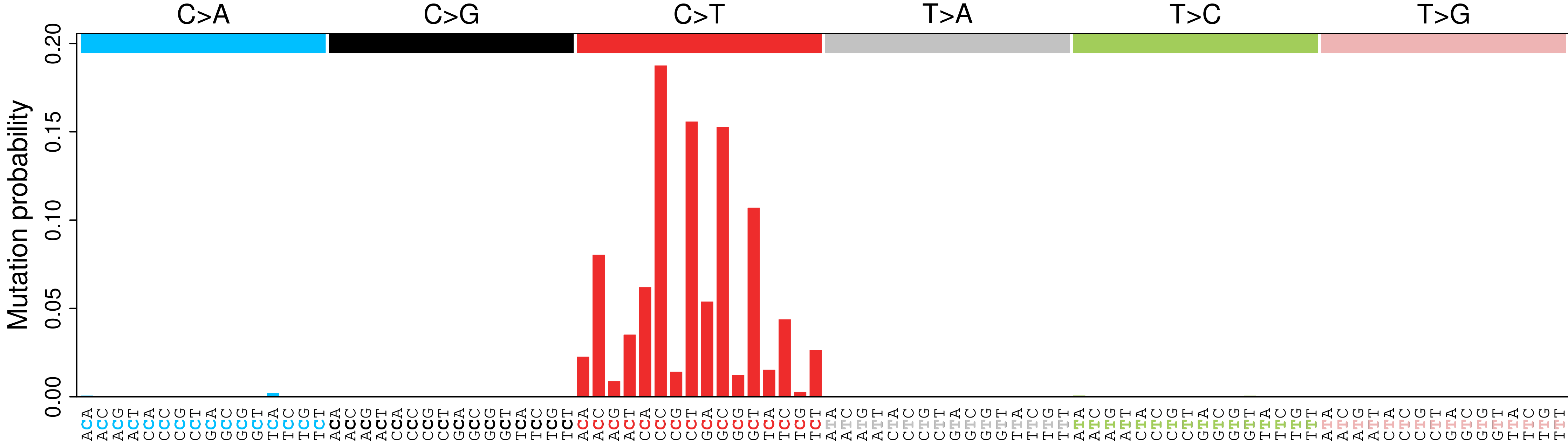
**T > A**

$T > C$

T>G



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

C>A

C>G

C>T

T>A

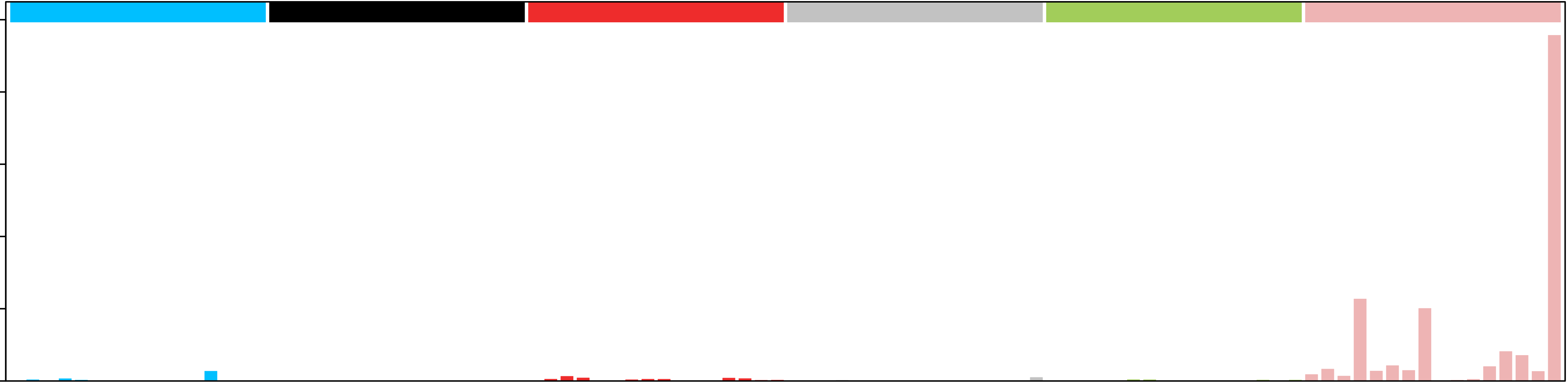
T>C

T>G

Mutation probability

0.5  
0.4  
0.3  
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 GCT TCA TCC TCG TCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG GTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG GTT GTA GTC GTG GTT TTA TTC TTG TTT TTA ATC ATG ATT CTA CTC CTG GTT GTA GTC GTG GTT TTA TTC TTG TTT







# SBS31

$C > A$

C > G

$C > T$

**T > A**

$T > C$

T>G

# Mutation probability

15

0.1

C

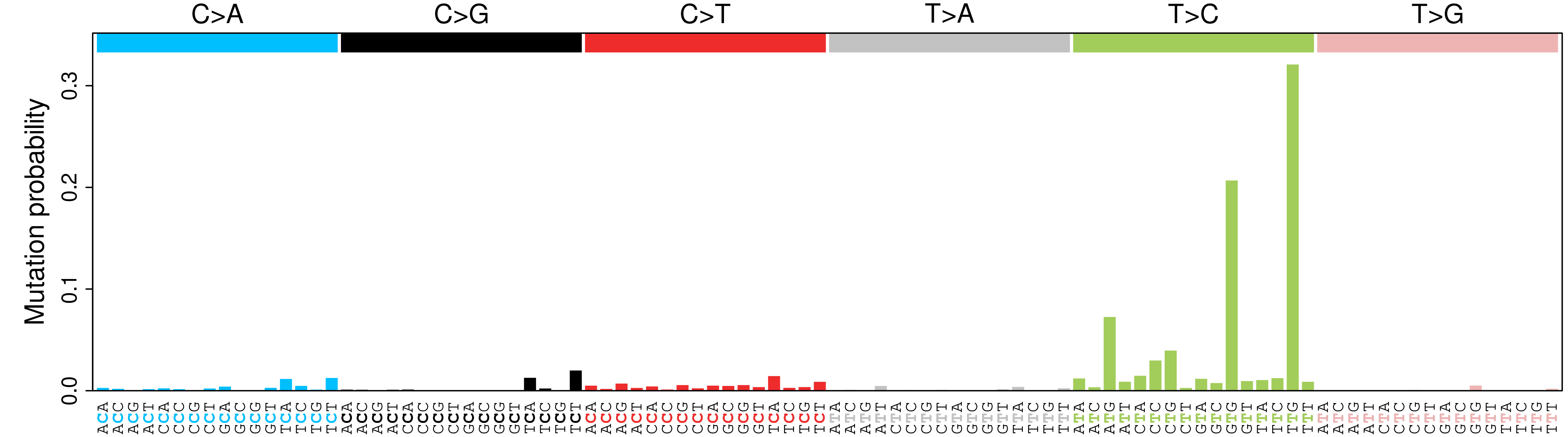
0

[illegible]





# SBS33



# SBS34

**C > A**

C > G

$C > T$

**T > A**

$$T > C$$

T>G

# Mutation probability

3.

0

C

0

[illegible]

# SBS35

**C > A**

C > G

$C > T$

**T > A**

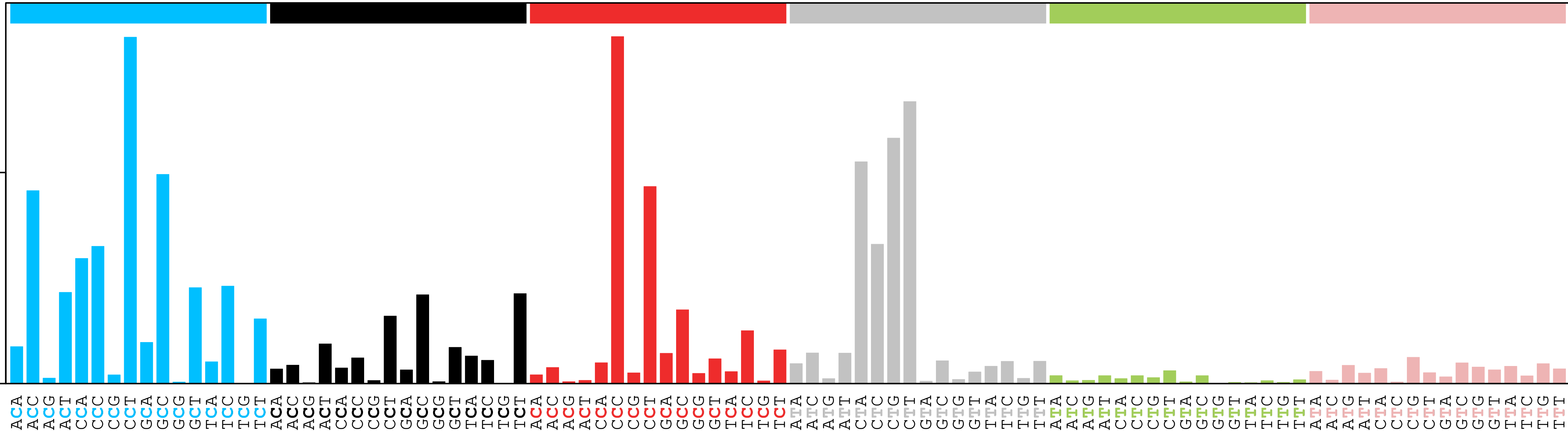
$T > C$

T>G

# Mutation probability

0.05

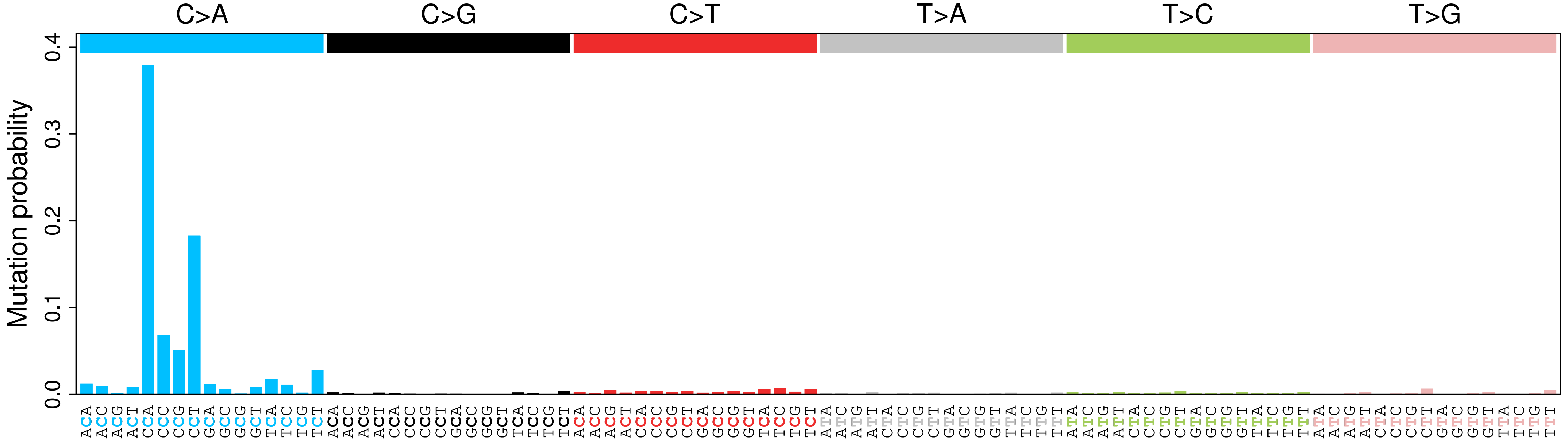
0.00







# SBS38



# SBS39

$C > A$

C > G

**C>T**

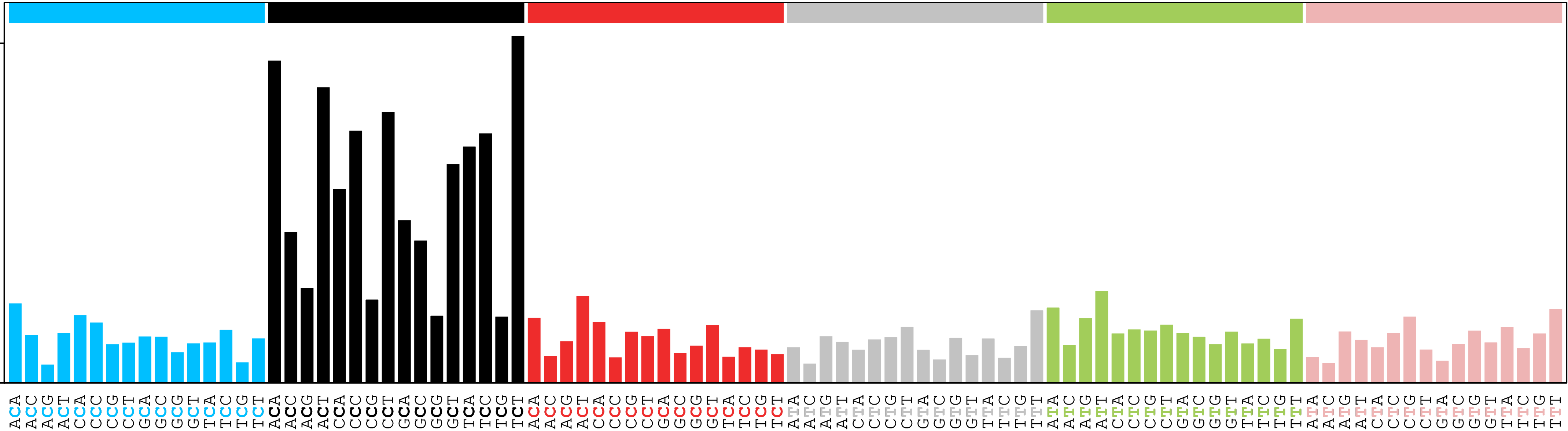
**T>A**

$$T > C$$

**T>G**

0.05

0.00



# SBS40a





# SBS40b

C>A

C>G

C>T

T>A

T>C

T>G

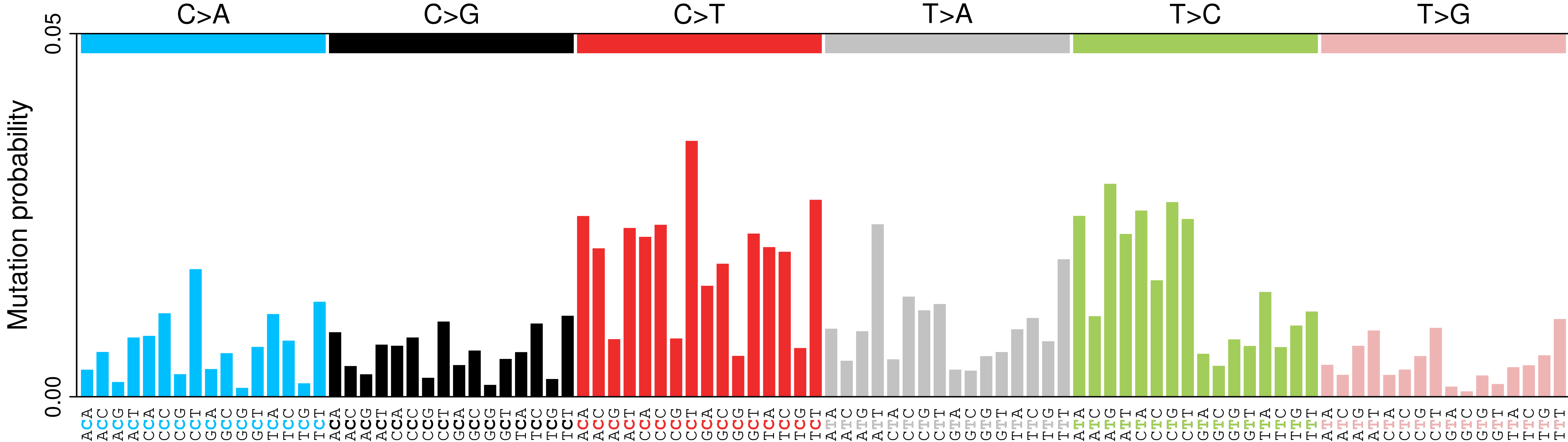
Mutation probability

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 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

ACA ACC ACG ACT CCA CCC CGC CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CGC CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CGC 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



# SBS43

**C > A**

C > G

$C > T$

**T > A**

$T > C$

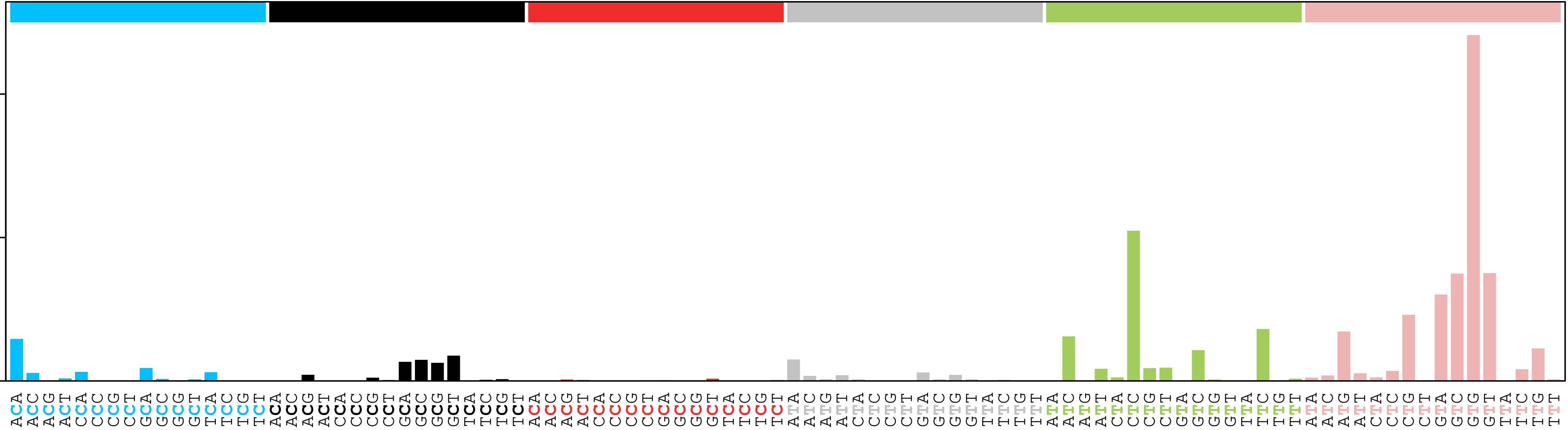
T>G

# Mutation probability

## 0.2

0

0



# SBS44



# SBS45

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.2  
0.1  
0.0

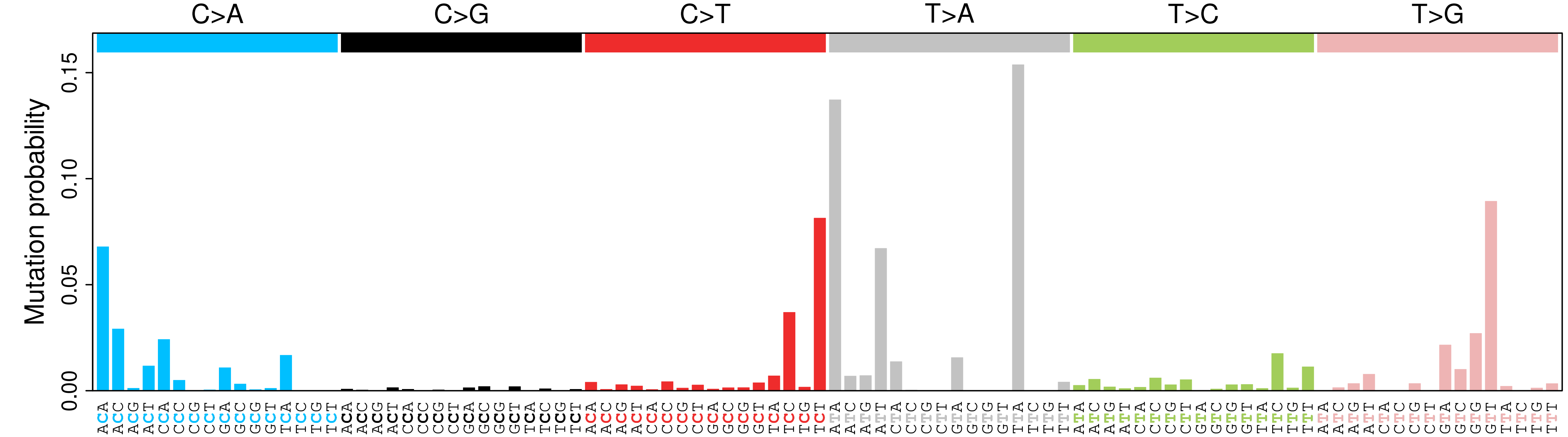
ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG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

# SBS46





# SBS47



# SBS48

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.0  
0.2  
0.4  
0.6

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 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

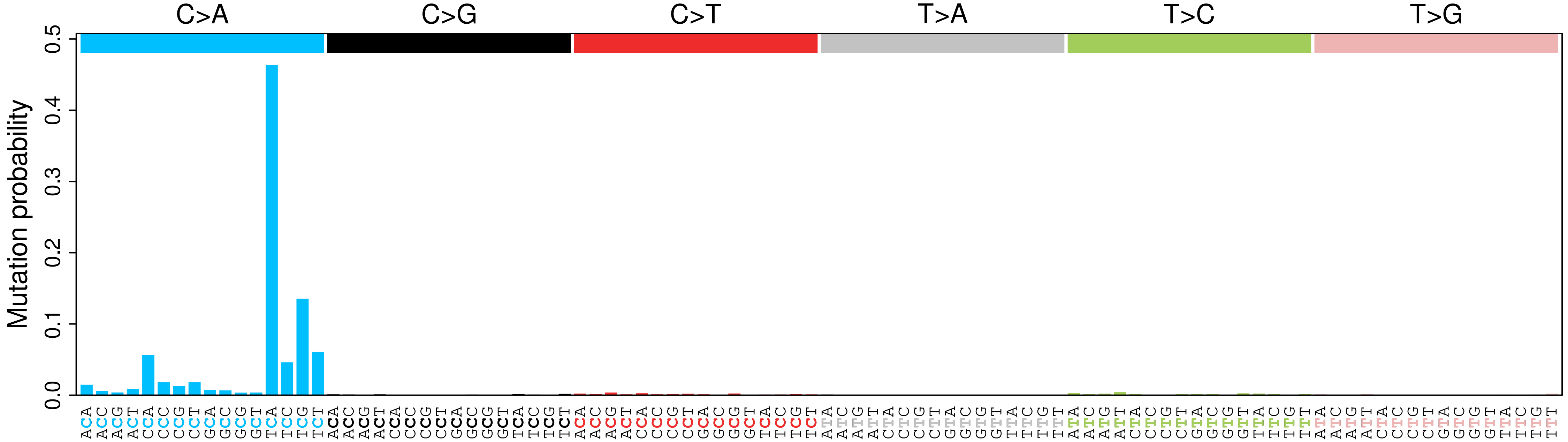




# SBS51



# SBS52









# SBS55

$C > A$

C > G

C>T

**T > A**

$T > C$

T>G

# Mutation probability

0.3

0.2

0

C

A C A  
A C C  
A C G  
A C T  
C C A  
C C C  
C C G  
C C T  
G C A  
G C C  
G C G  
G C T  
T C A  
T C C  
T C G  
T C T  
A C A  
A C C  
A C G  
A C T  
C C A  
C C C  
C C G  
C C T  
G C A  
G C C  
G C G  
G C T  
T C A  
T C C  
T C G  
T C T  
A C A  
A C C  
A C G  
A C T  
C C A  
C C C  
C C G  
C C T  
G C A  
G C C  
G C G  
G C T  
T C A  
T C C  
T C G  
T C T  
A T A  
A T C  
A T G  
A T T  
C T A  
C T C  
C T G  
C T T  
G T A  
G T C  
G T G  
G T T  
T T A  
T T C  
T T G  
T T T  
A T A  
A T C  
A T G  
A T T  
C T A  
C T C  
C T G  
C T T  
G T A  
G T C  
G T G  
G T T  
T T A  
T T C  
T T G  
T T T  
A T A  
A T C  
A T G  
A T T  
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C T C  
C T G  
C T T  
G T A  
G T C  
G T G  
G T T  
T T A  
T T C  
T T G  
T T T

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# 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

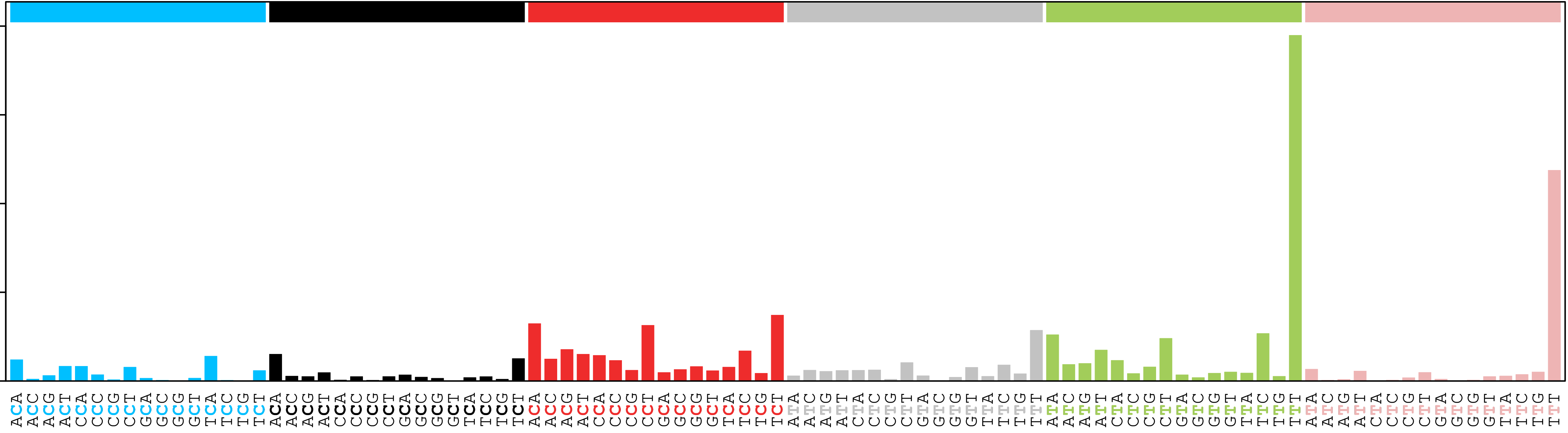
T>A

T>C

T>G

Mutation probability

0.20  
0.15  
0.10  
0.05  
0.00



# SBS58

C>A

C>G

C>T

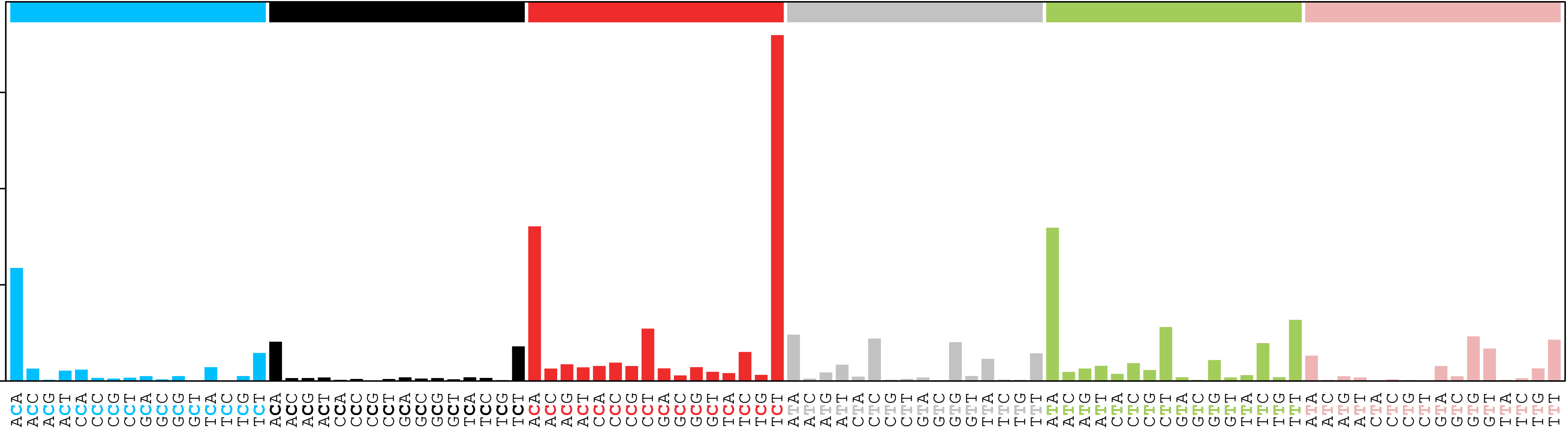
T>A

T>C

T>G

Mutation probability

0.00  
0.05  
0.10  
0.15





# SBS60

**C > A**

C > G

$C > T$

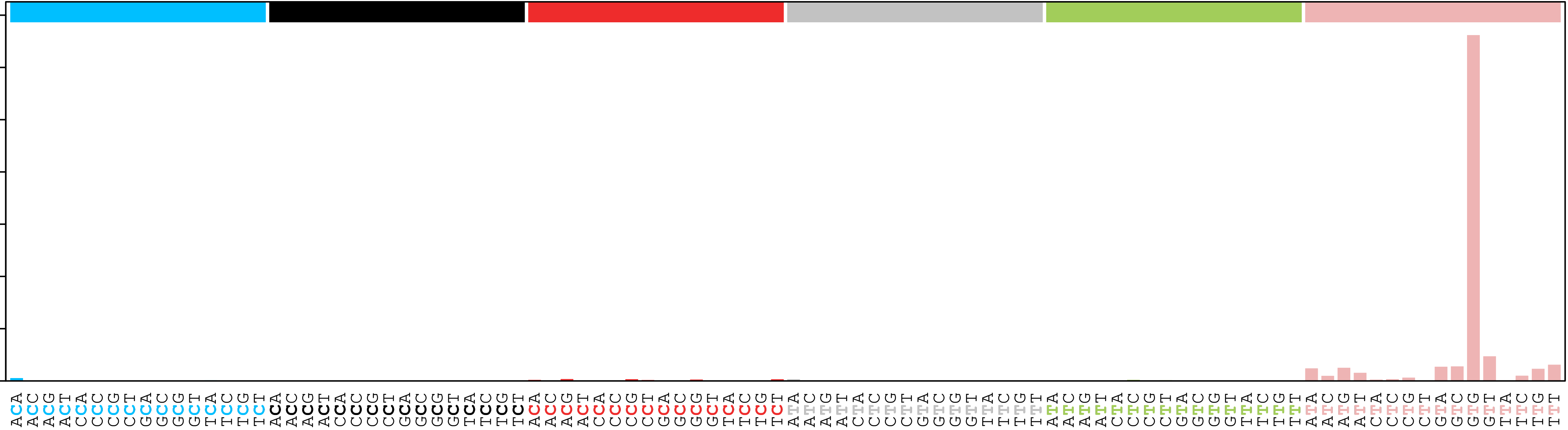
**T > A**

$T > C$

T>G

# Mutation probability

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7





# SBS85

$C > A$

C > G

$C > T$

**T > A**

$$T > C$$

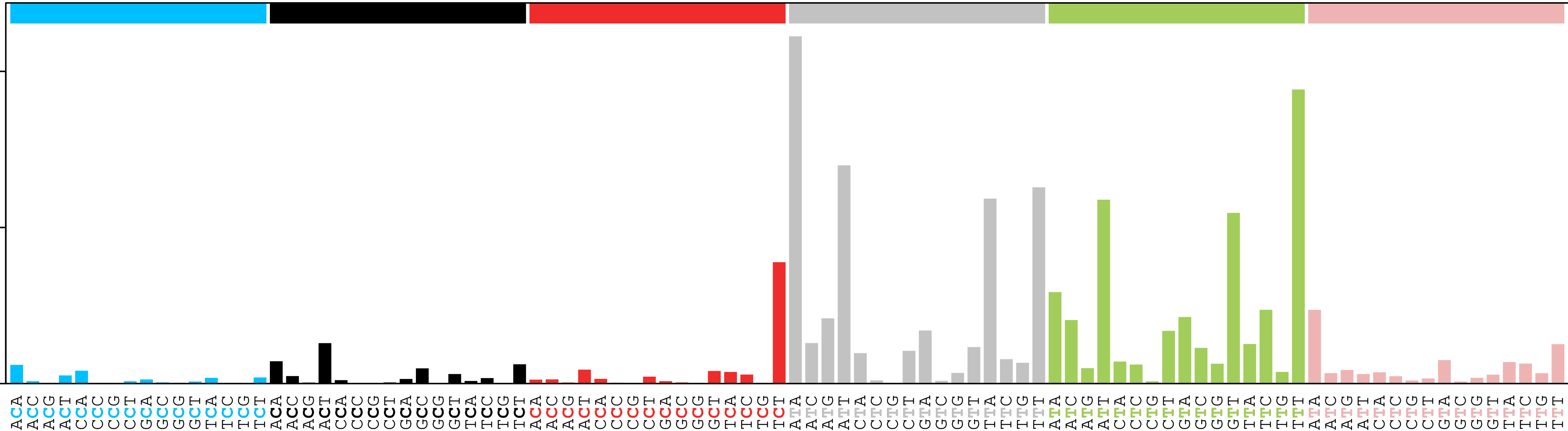
**T>G**

# Mutation probability

0.10

0.05

0.00





# SBS86

$C > A$

C > G

C>T

**T > A**

$T > C$

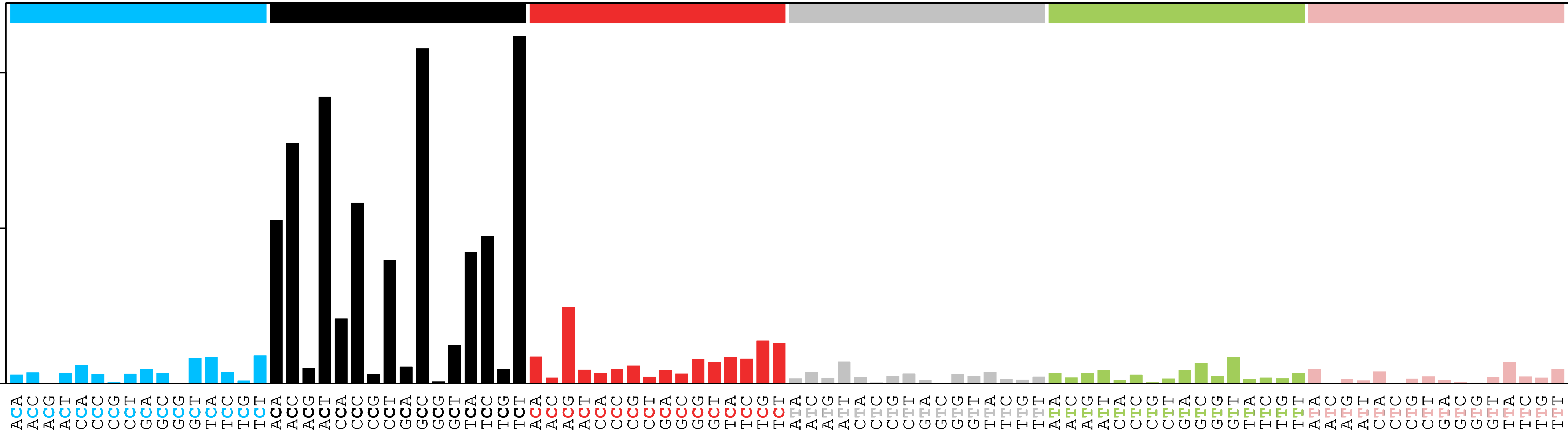
T>G

# Mutation probability

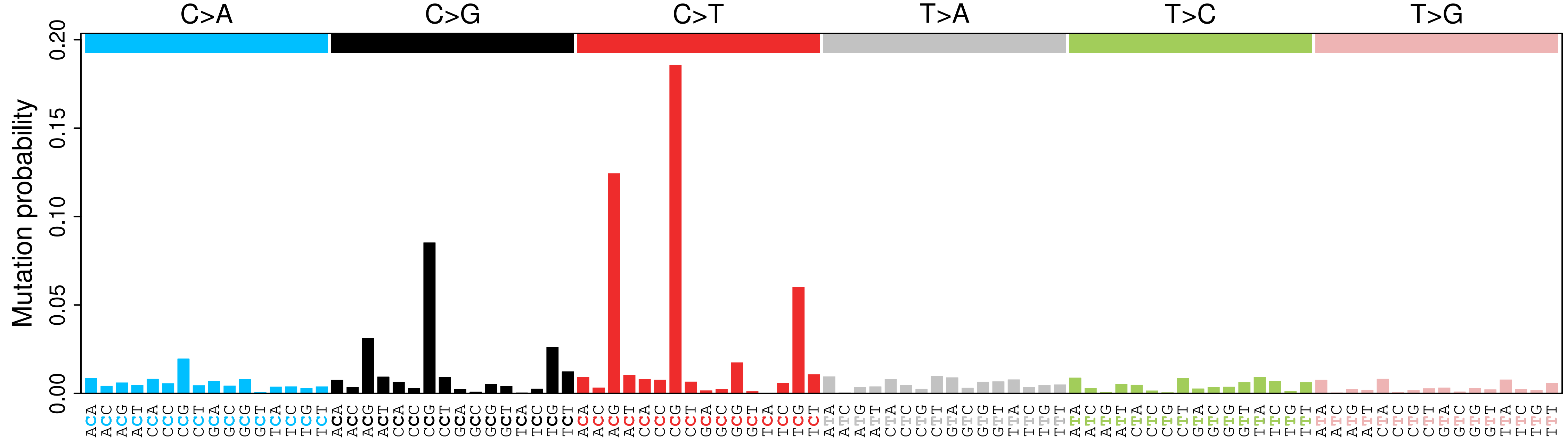
## 0.10

50.0

0.00



# SBS87











# SBS92

C>A

C>G

C>T

T>A

T>C

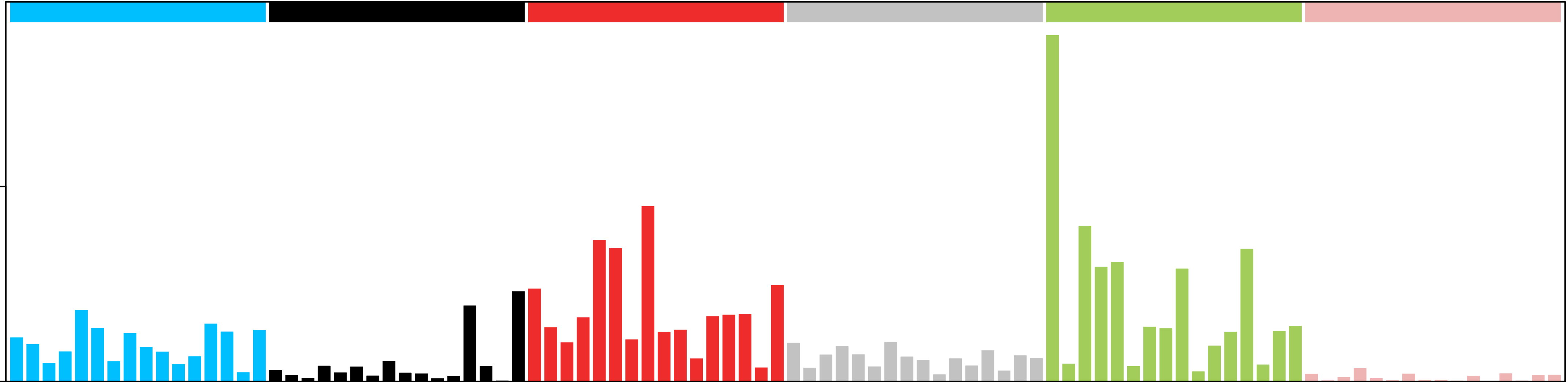
T>G

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 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







# 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**

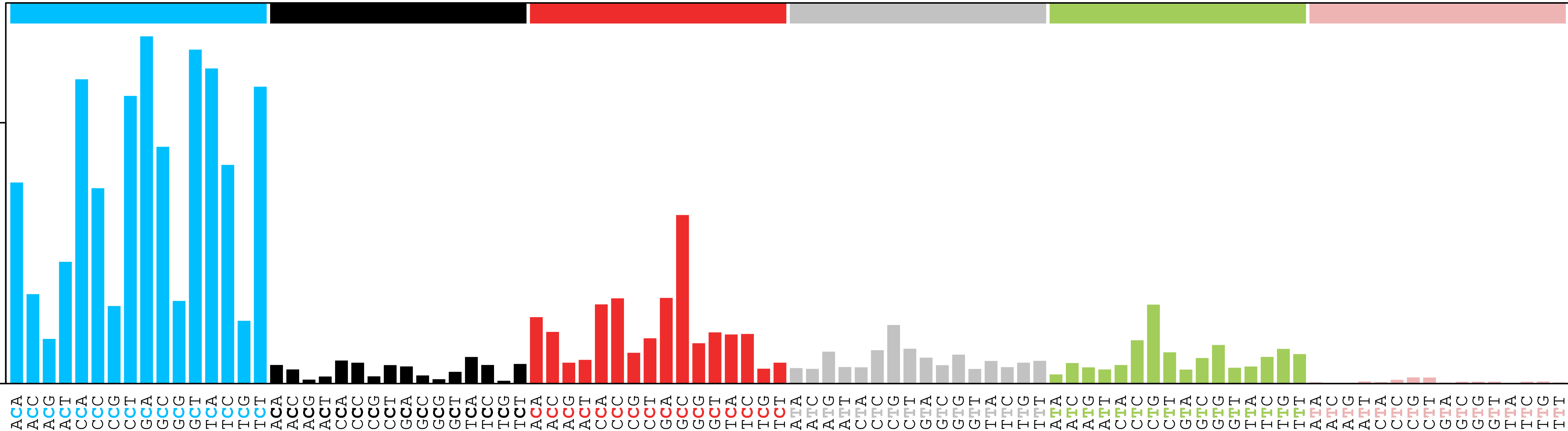
$T > C$

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

