

SBS1

$C > A$

C > G

$$C > T$$

T > A

$T > C$

T>G

Mutation probability

15

0

0.

0.0

AACGTCAGCGTGATCTTGTACAACAGATACCGCA CGGTACTCCTTAA CACAGAACCGGGTATTGTTAATGAATACTGTA GTGTTAATCATAGATACTCTCTGTTAATCTGTTTAT

SBS3

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

SBS4

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 ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

SBS5



SBS6

$C > A$

C > G

$$C > T$$

T > A

$T > C$

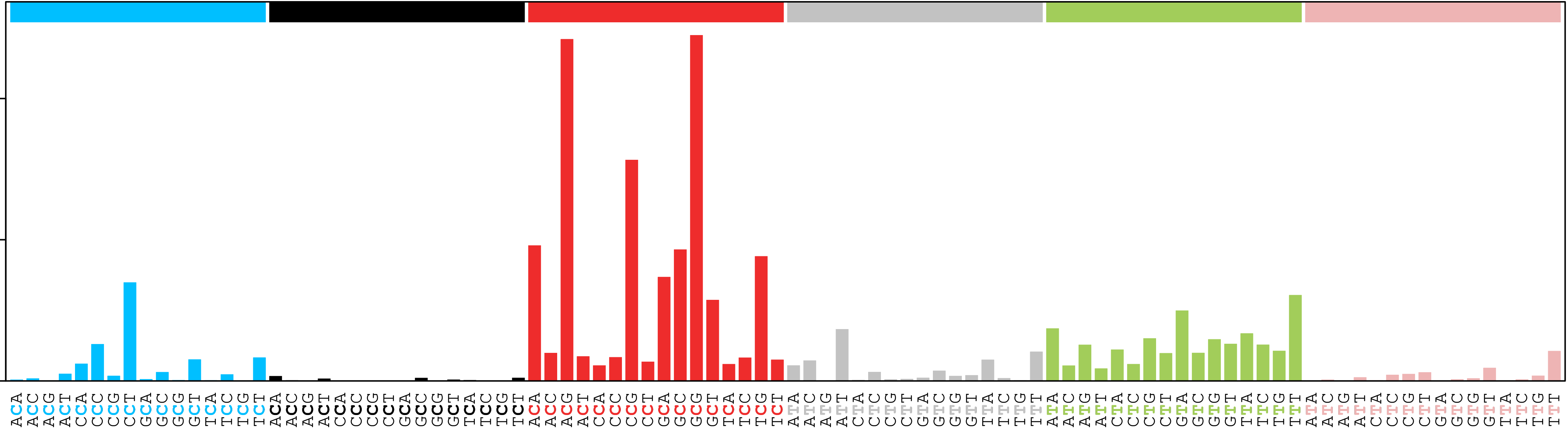
T>G

Mutation probability

0.10

50.0

0.00



SBS7c

C > A

C > G

$C > T$

T > A

$T > C$

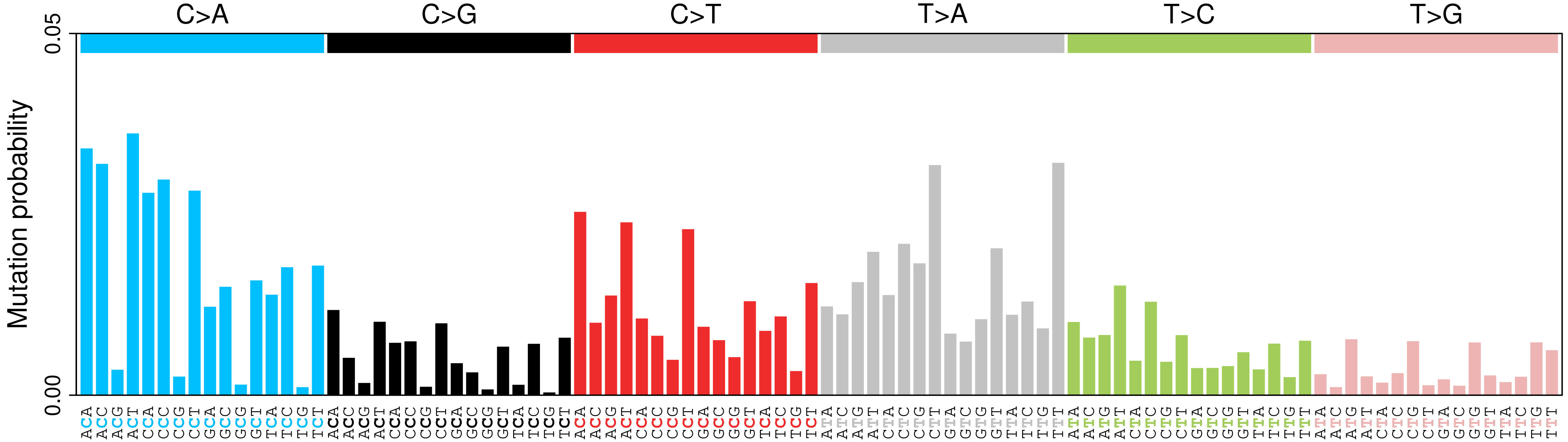
T>G

Mutation probability

0.00 0.05 0.10 0.15 0.20

[illegible]

SBS8



SBS10a

C > A

C > G

$C > T$

T > A

$T > C$

T>G

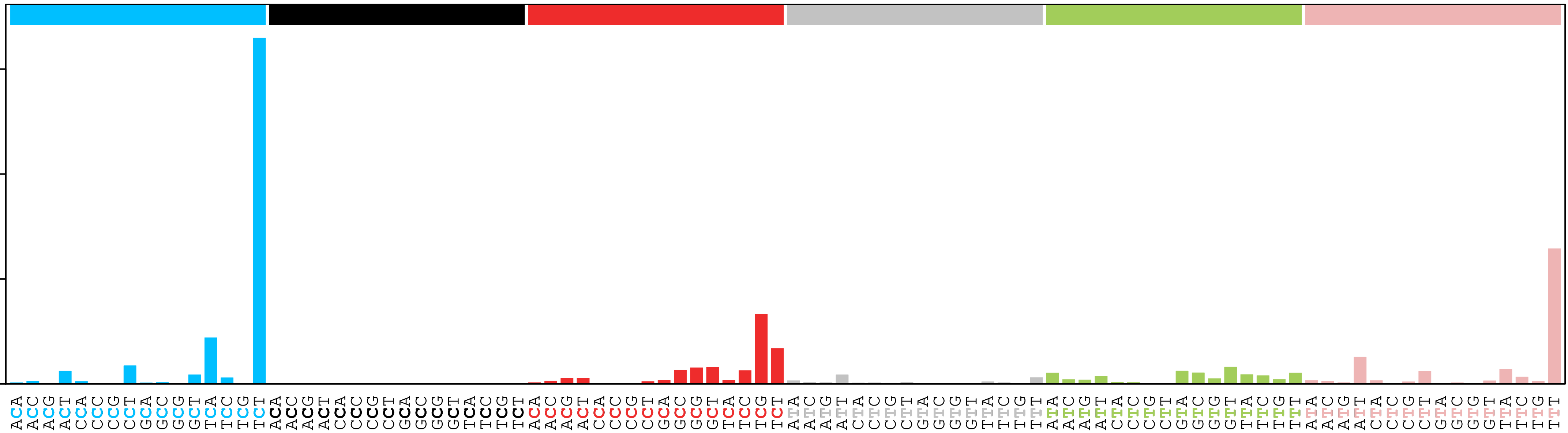
Mutation probability

၈

2

1

●



SBS10d

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.20
0.15
0.10
0.05
0.00

ACA ACC AGT ACA CCC CGT CCA GCC GGT GCT TCA TCC TCG TCT ACA ACC AGT ACT CCA CCC CGT CCA 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 CTA GTC GTG GTT TTA TCC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTA GTC GTG GTT TTA TCC TTG TTT

SBS12

C>A

C>G

C>T

T>A

T>C

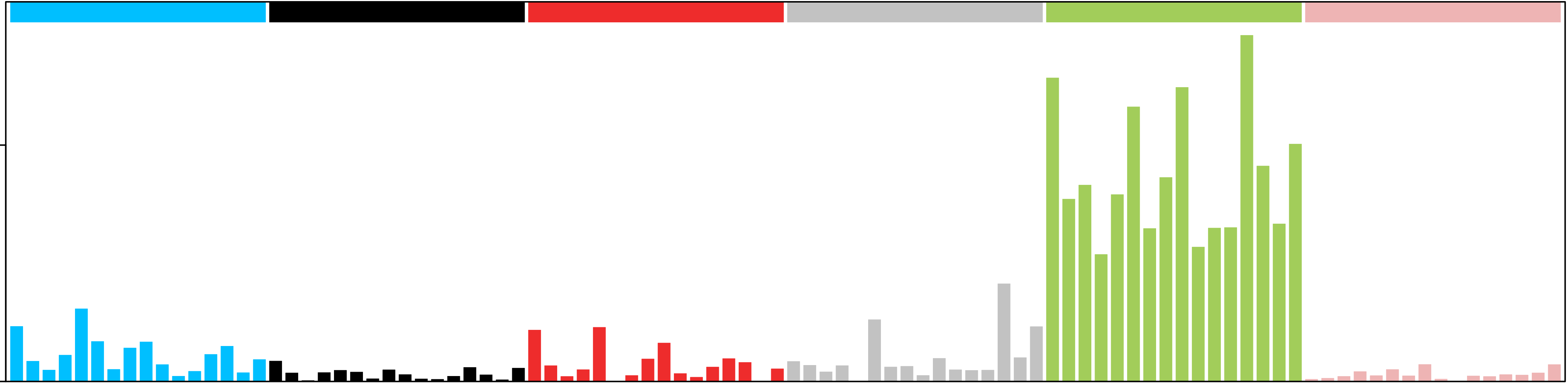
T>G

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 ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT



SBS13

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.20
0.15
0.10
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 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

$C > A$

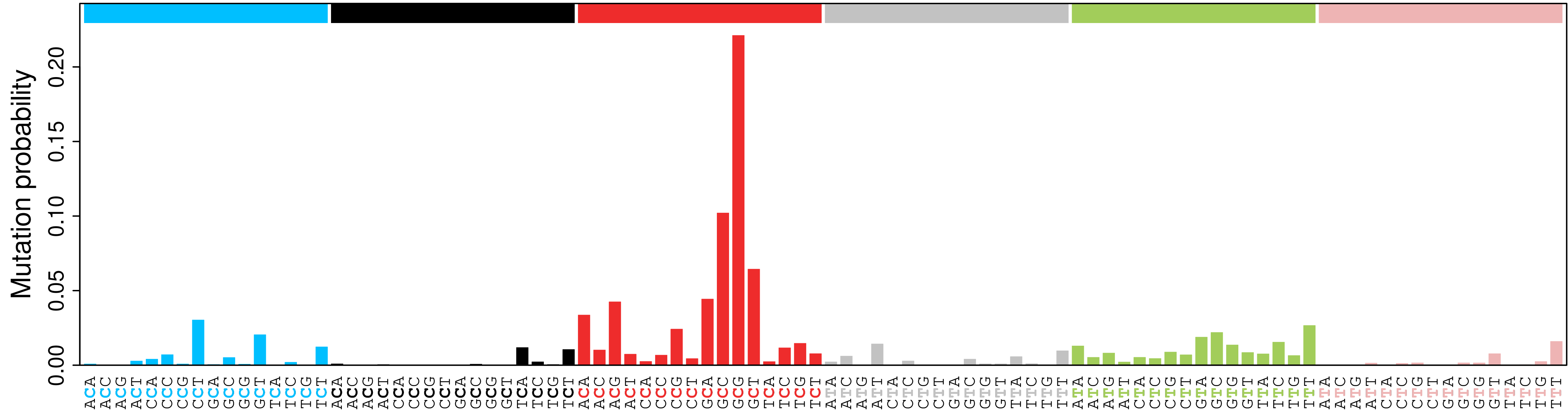
C > G

$$C > T$$

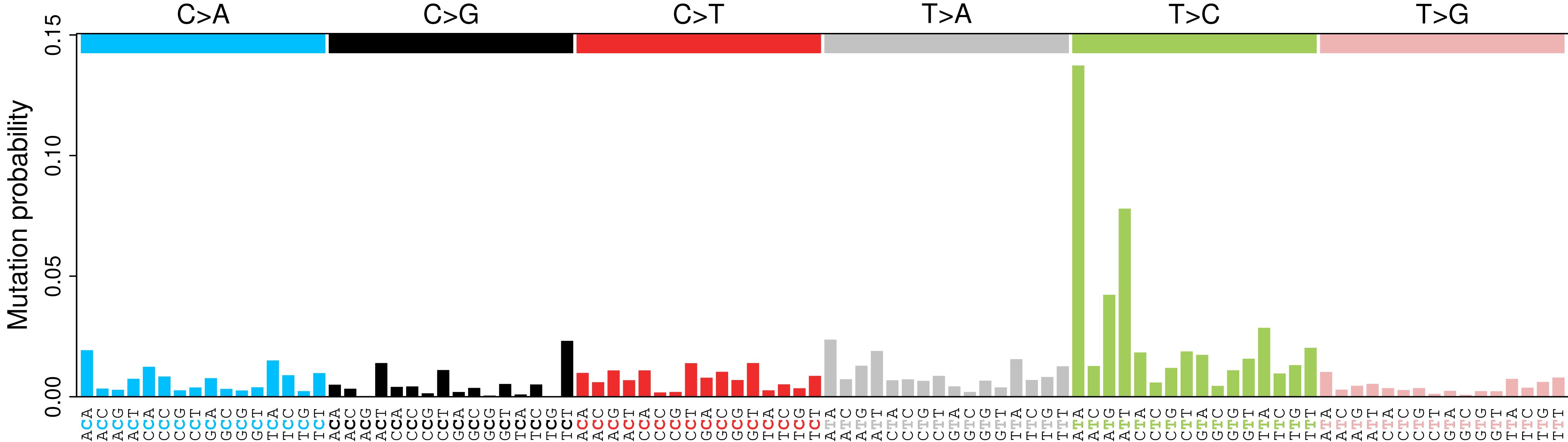
T > A

T>C

T>G



SBS16



SBS17

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.20
0.15
0.10
0.05
0.00



SBS17a

C>A

C>G

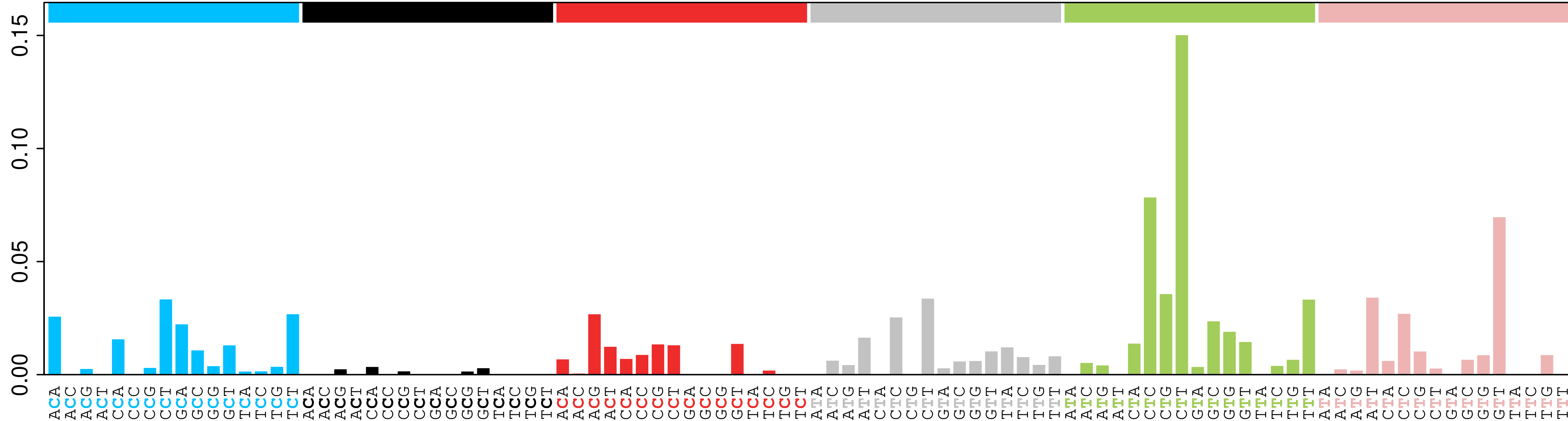
C>T

T>A

T>C

T>G

Mutation probability



SBS18

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

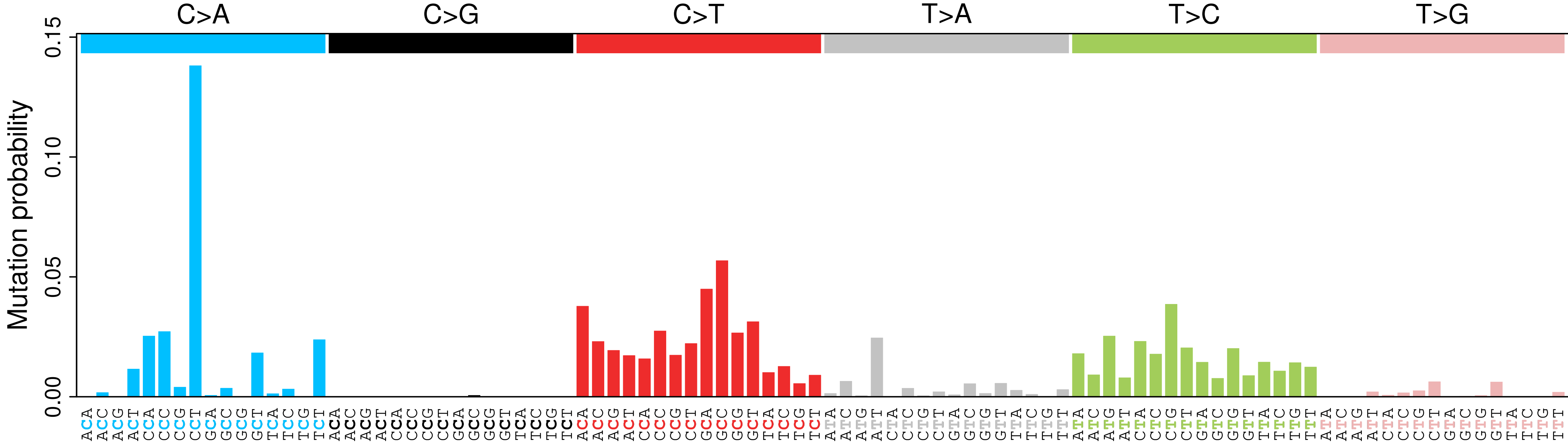
0.10

0.05

0.00

ACA ACC ACG ACT CCA CCC CCG CCT 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 ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

SBS20



SBS22

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

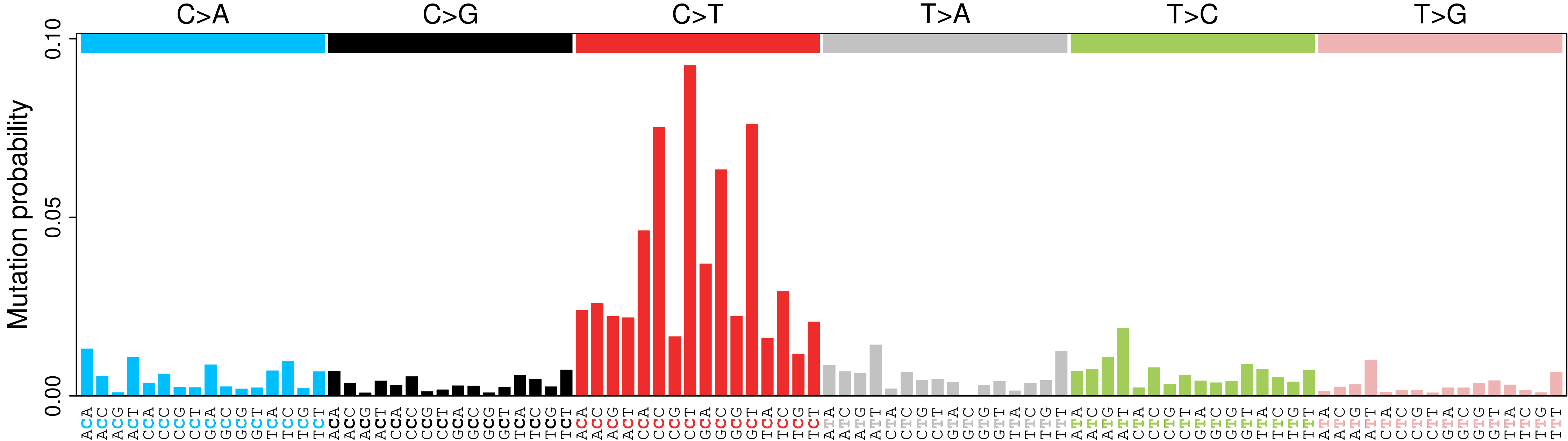
0.10

0.05

0.00

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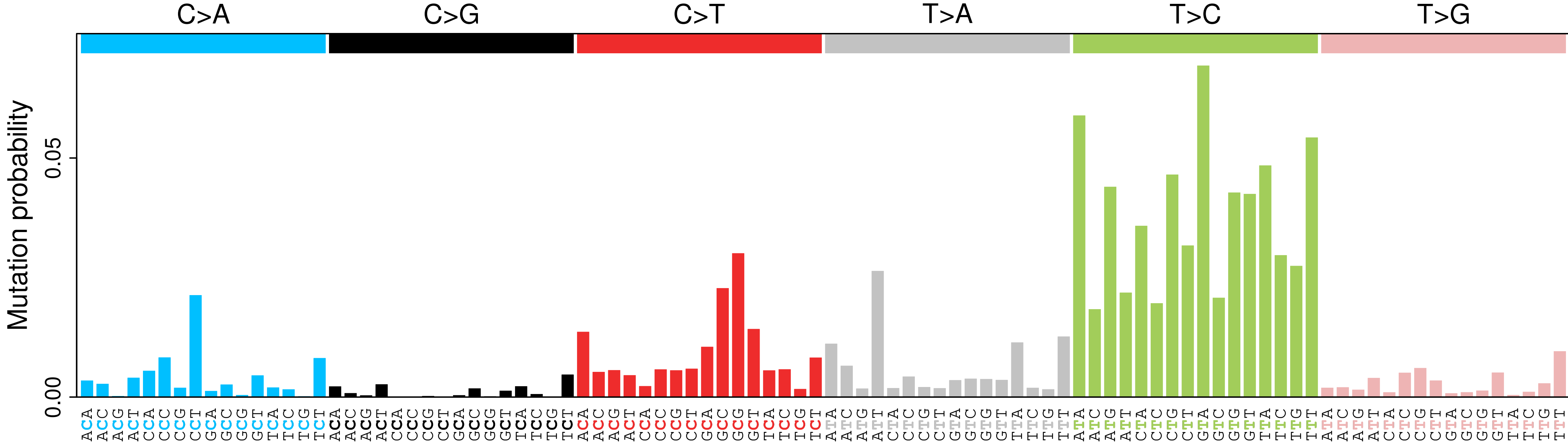
SBS23



SBS24



SBS26



SBS28



SBS30

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

SBS33

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.2

0.1

0.0

ACA ACC AGC AAT CCA CCC CCG CCT GCA GCC GGT GTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CTT 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

SBS35



SBS44

$C > A$

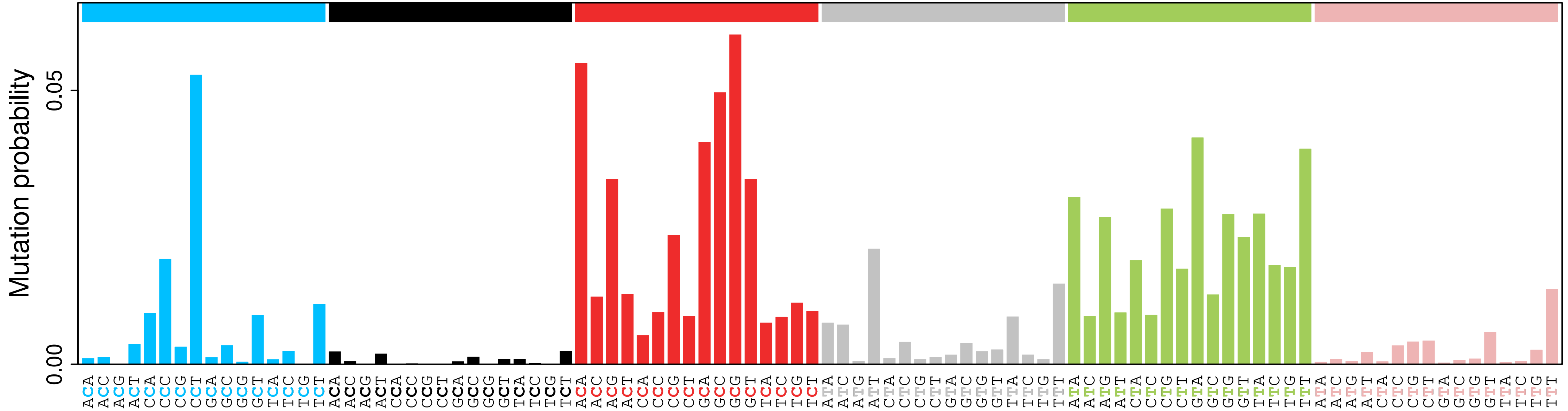
C > G

$$C > T$$

T > A

$T > C$

T>G



SBS53

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

SBS57

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 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 ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

SBS84

$$C > A$$

C > G

C>T

T > A

$T > C$

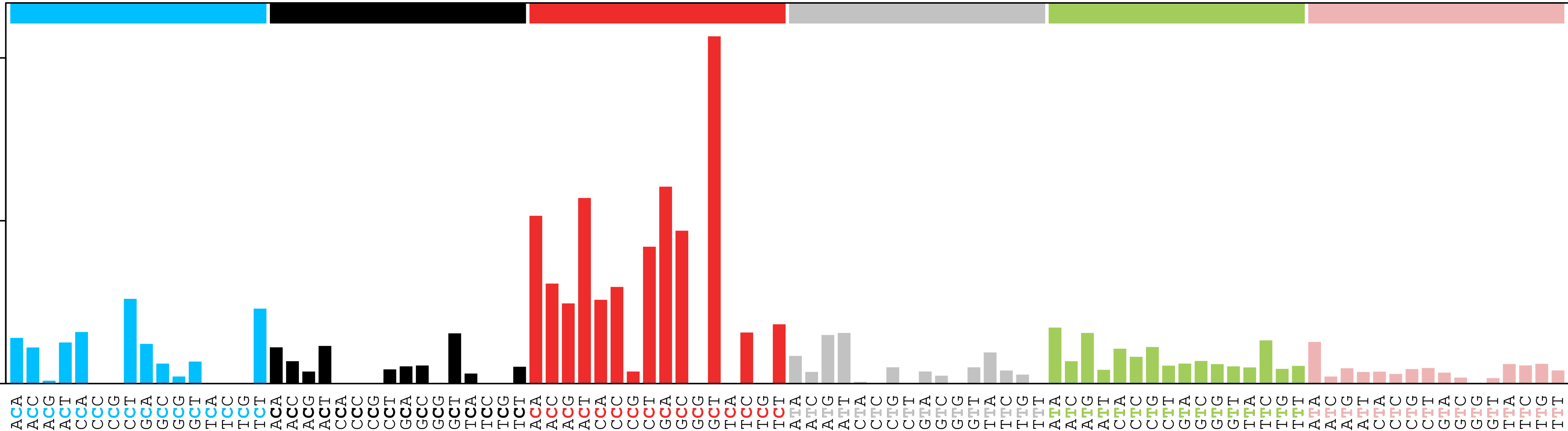
T>G

Mutation probability

0.10

0.05

0.00



SBS88

C>A

C>G

C>T

T>A

T>C

T>G

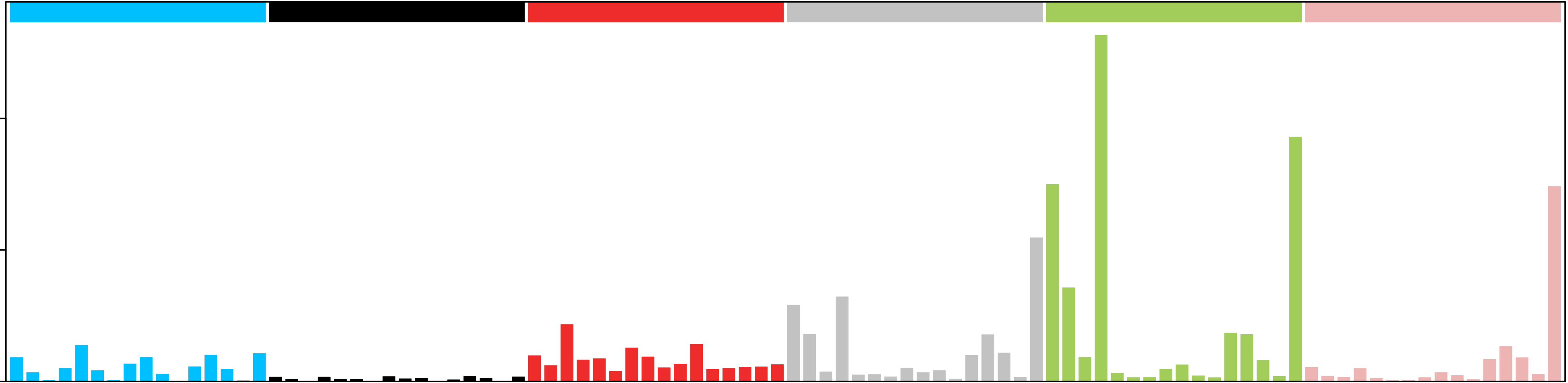
Mutation probability

0.10

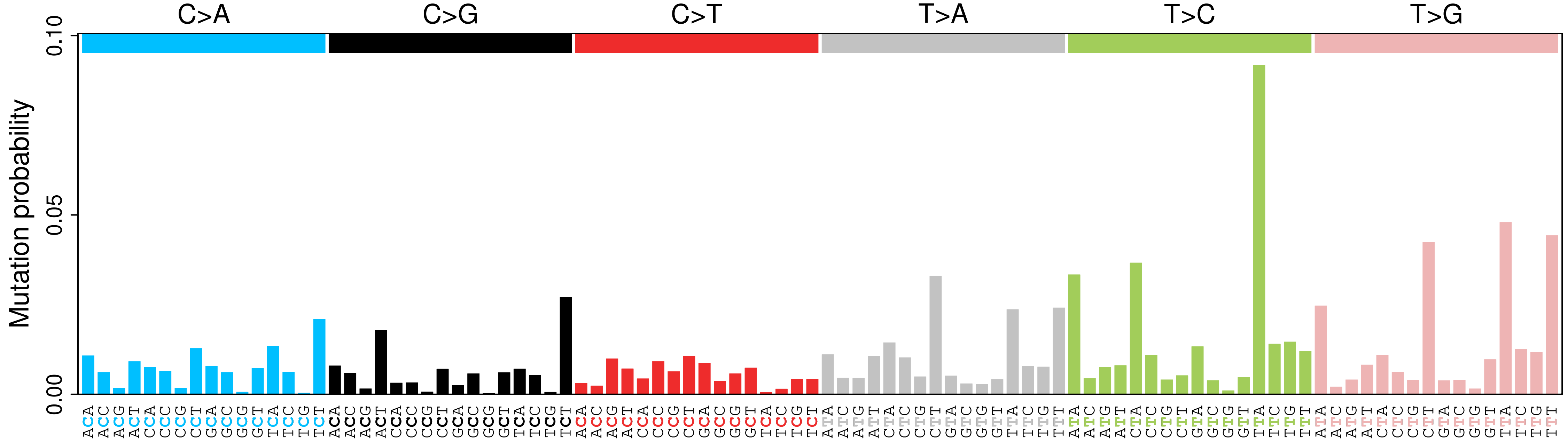
0.05

0.00

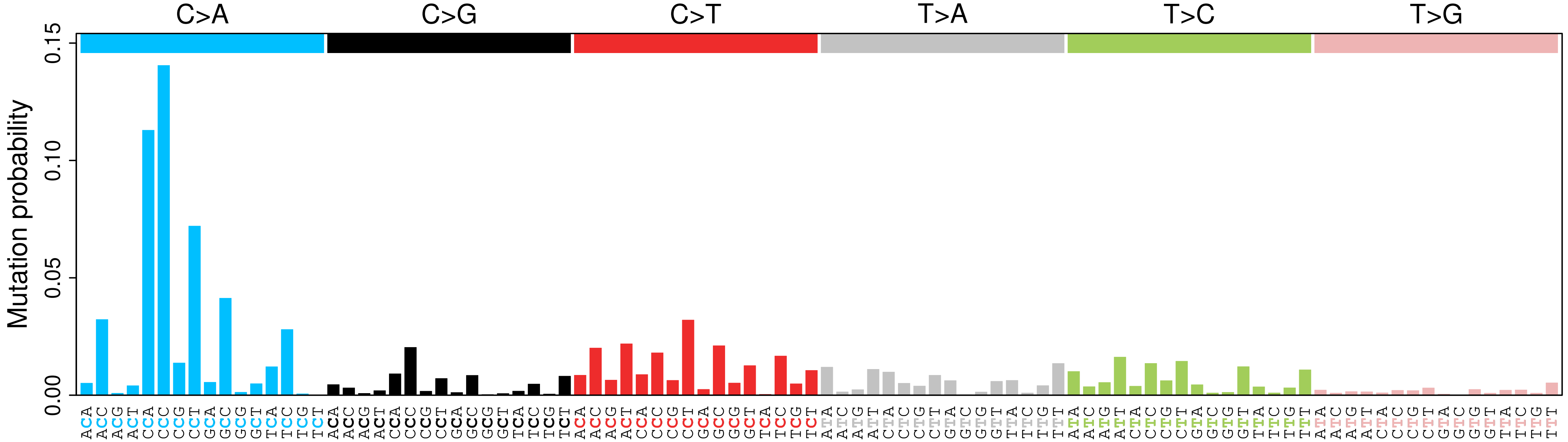
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SBS93



SBS94



SBS95

C>A

C>G

C>T

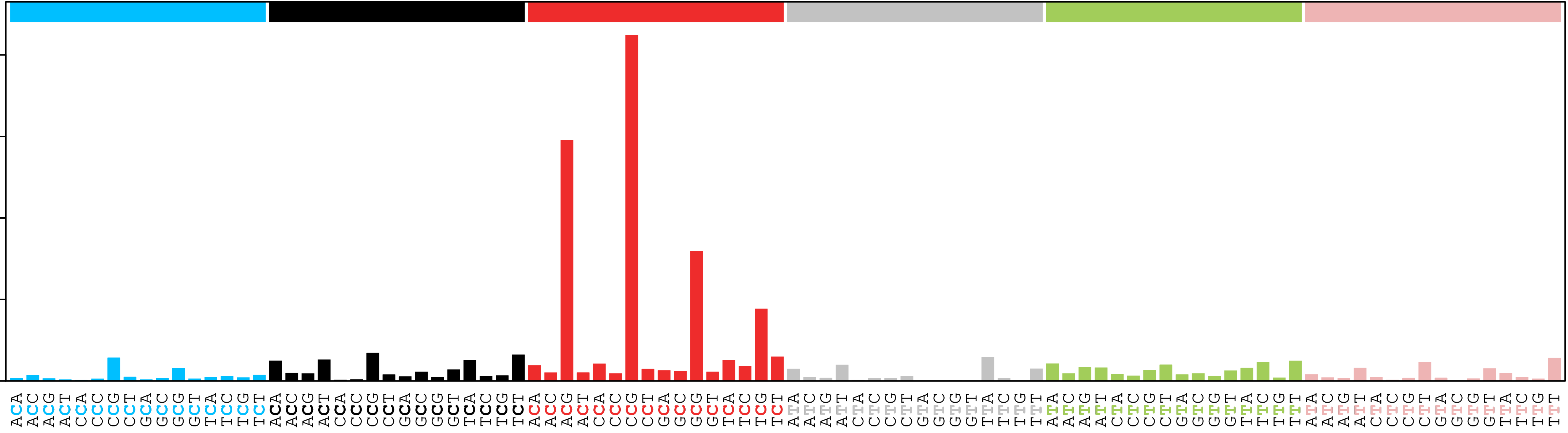
T>A

T>C

T>G

Mutation probability

0.20
0.15
0.10
0.05
0.00



SBS97

$C > A$

C > G

$C > T$

T > A

$T > C$

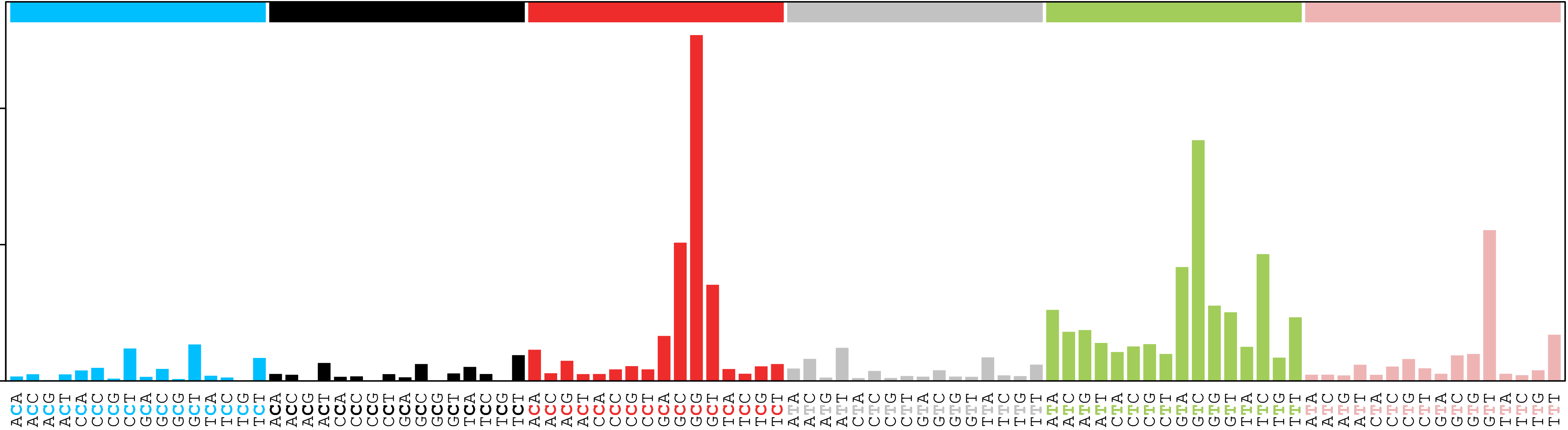
T > G

Mutation probability

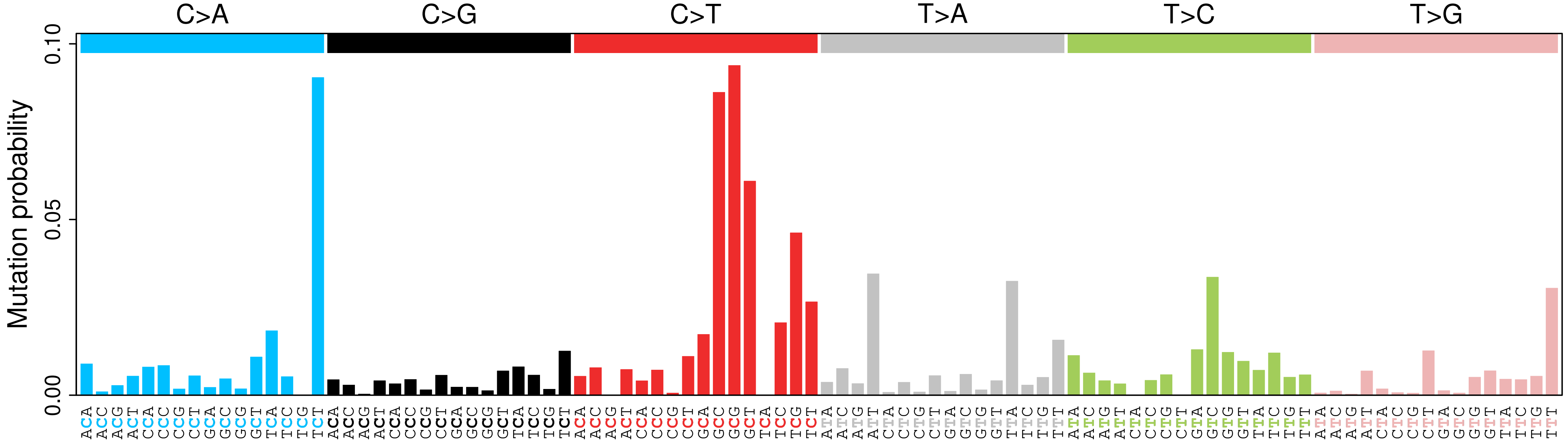
0.10

0.05

0.0



SBS98



SBS99

$C > A$

C > G

$C > T$

T > A

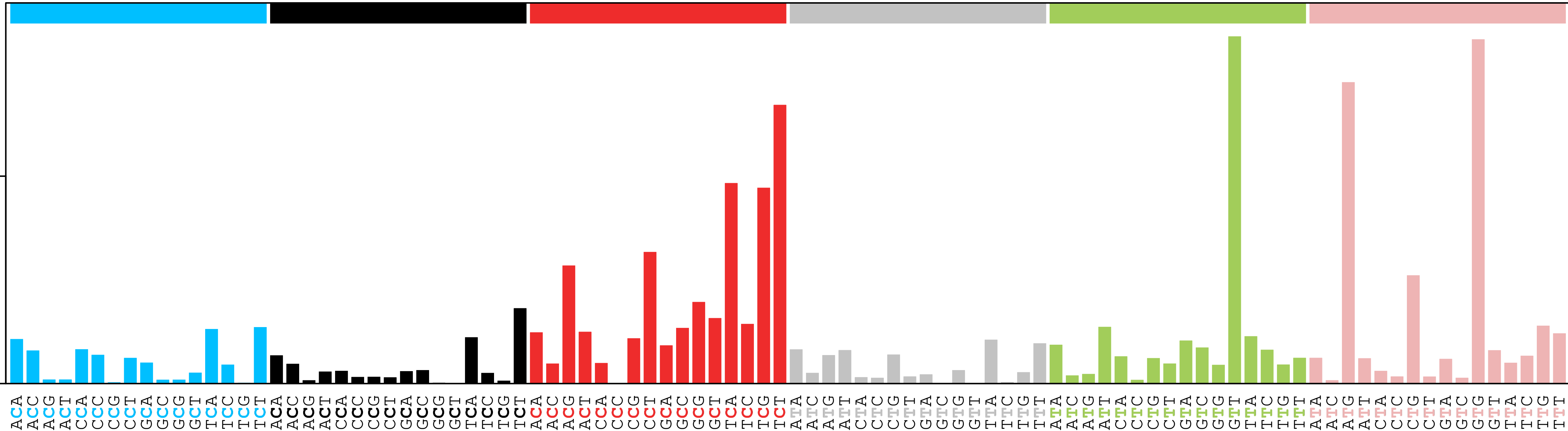
$T > C$

T>G

Mutation probability

0.05

0.00



SBS101

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 CTC TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CGC CTC GCA GCC GCG GGT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CGC CTC GCA GCC GCG 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

SBS102

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 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



SBS103



SBS104

$C > A$

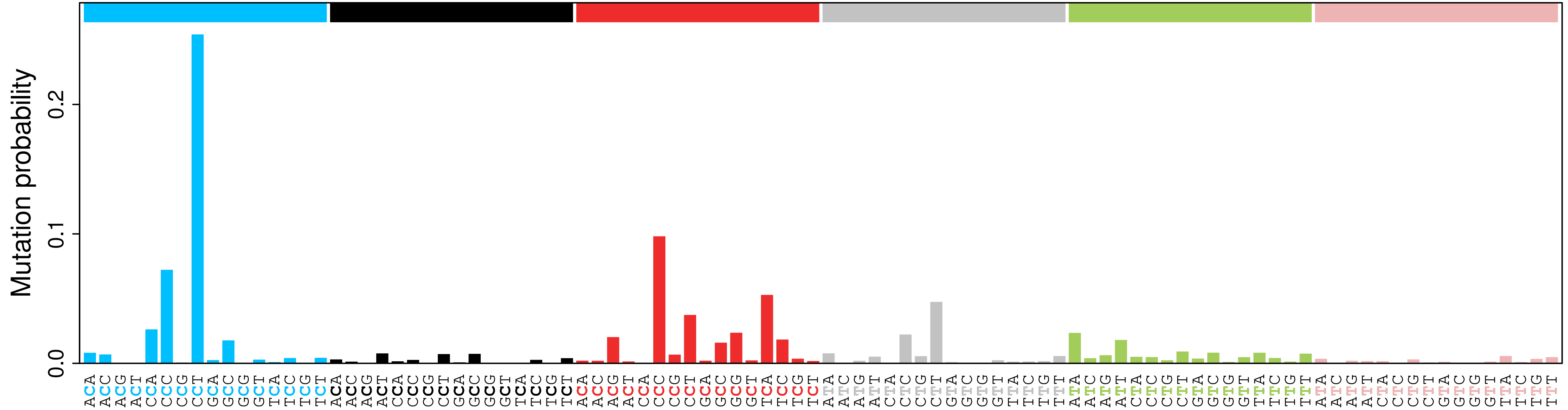
C > G

$$C > T$$

T > A

$T > C$

T>G



SBS105



SBS108

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

SBS111

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

SBS113

$C > A$

C > G

$$C > T$$

T > A

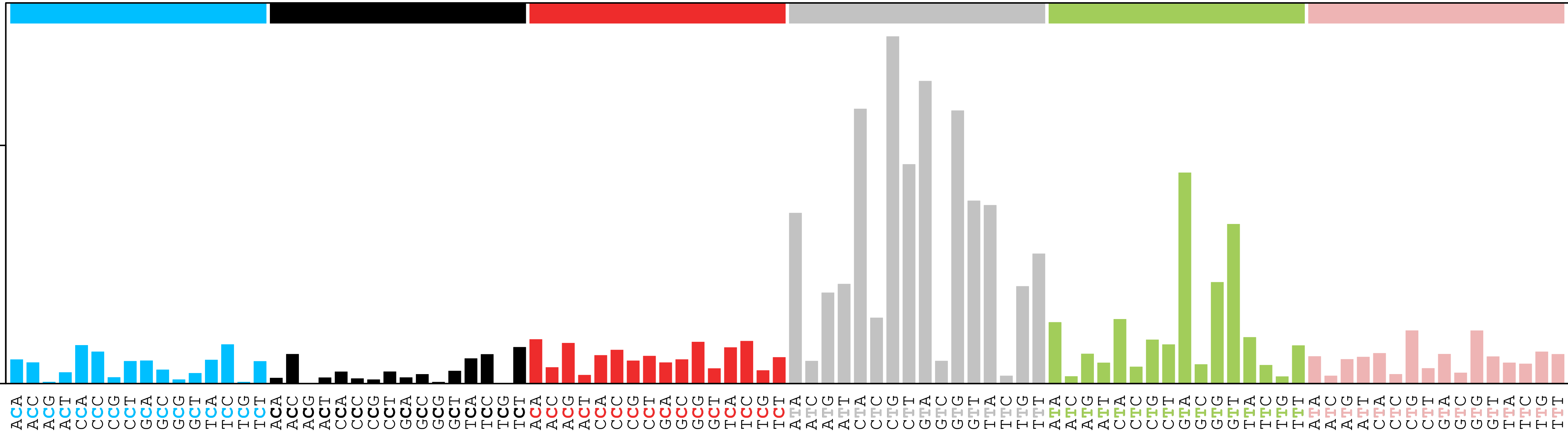
$$T > C$$

T>G

Mutation probability

0.05

0.00



SBS115

C > A

C > G

$$C > T$$

T > A

$$T > C$$

T > G

Mutation probability

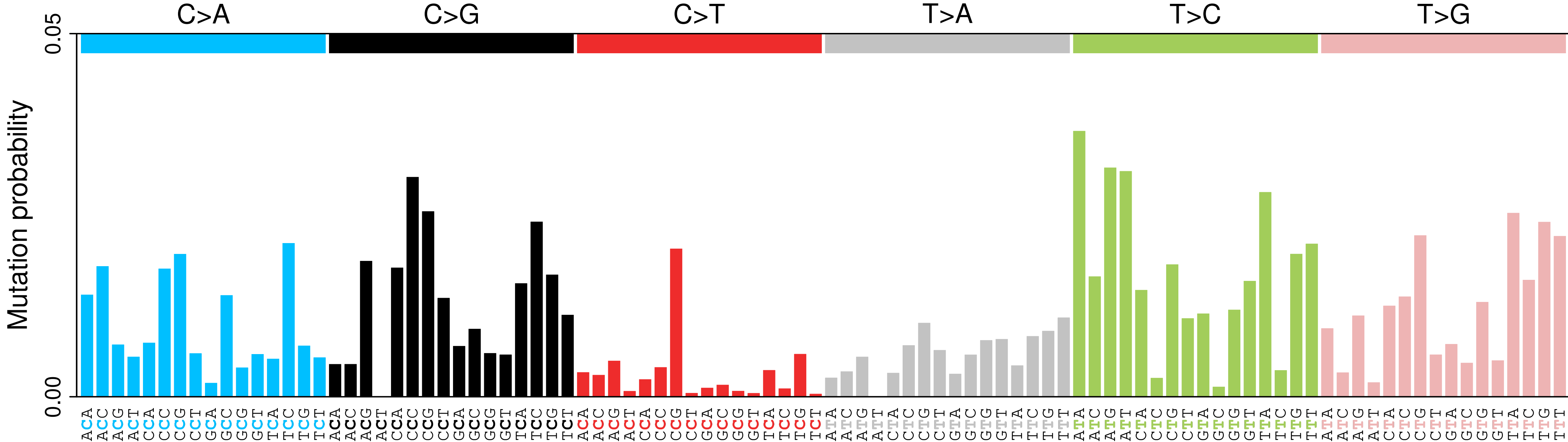
0.00 0.05 0.10 0.15 0.20

[illegible]

SBS116



SBS117



SBS118

$C > A$

C > G

$$C > T$$

T > A

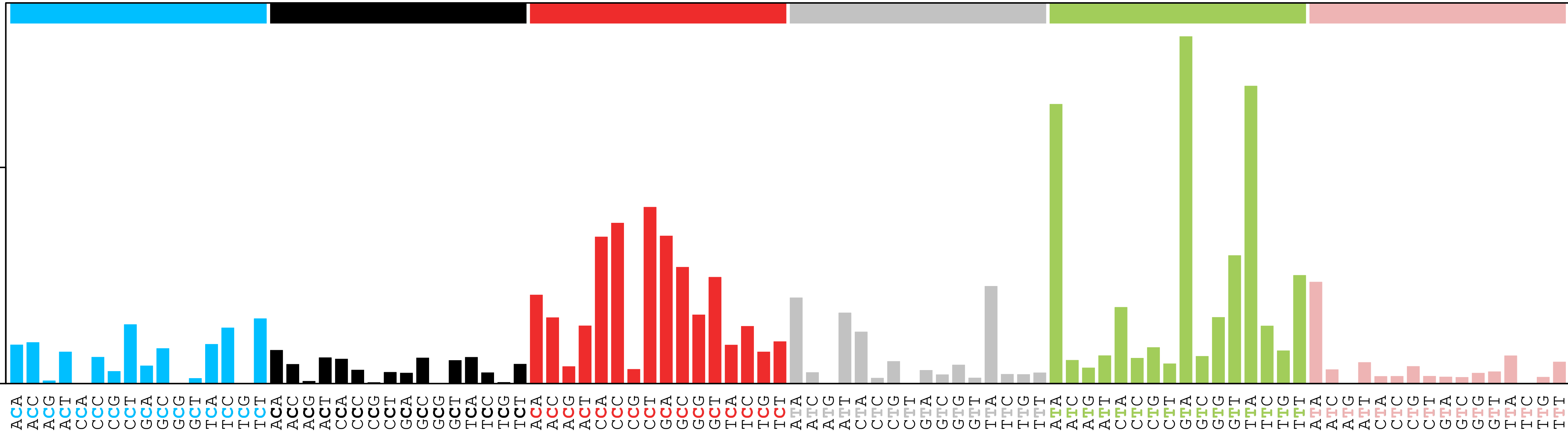
$T > C$

T>G

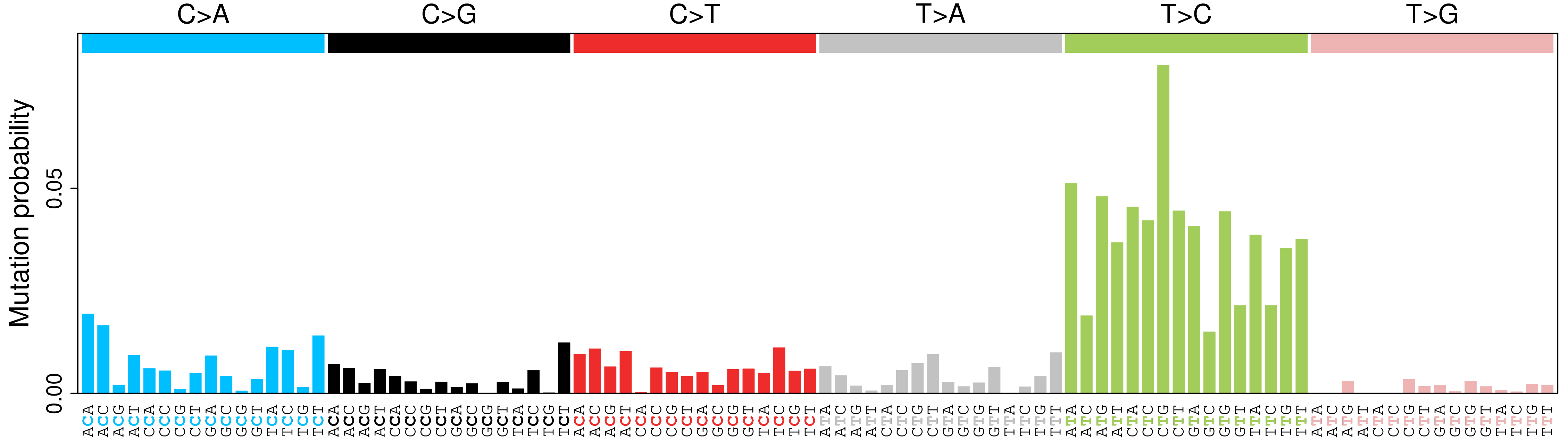
Mutation probability

0.05

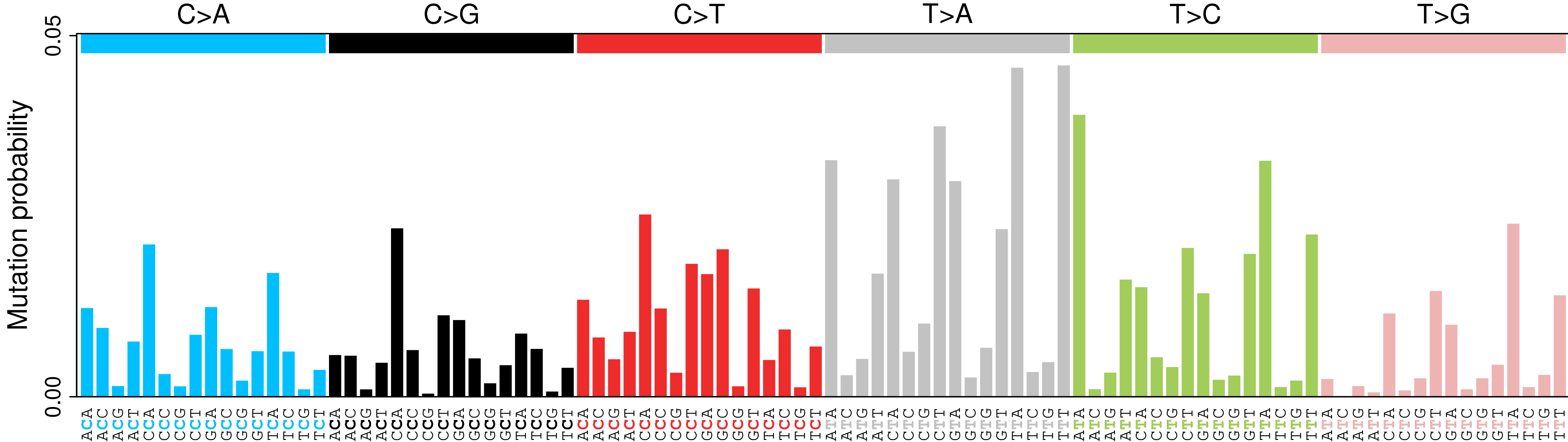
0.00



SBS123



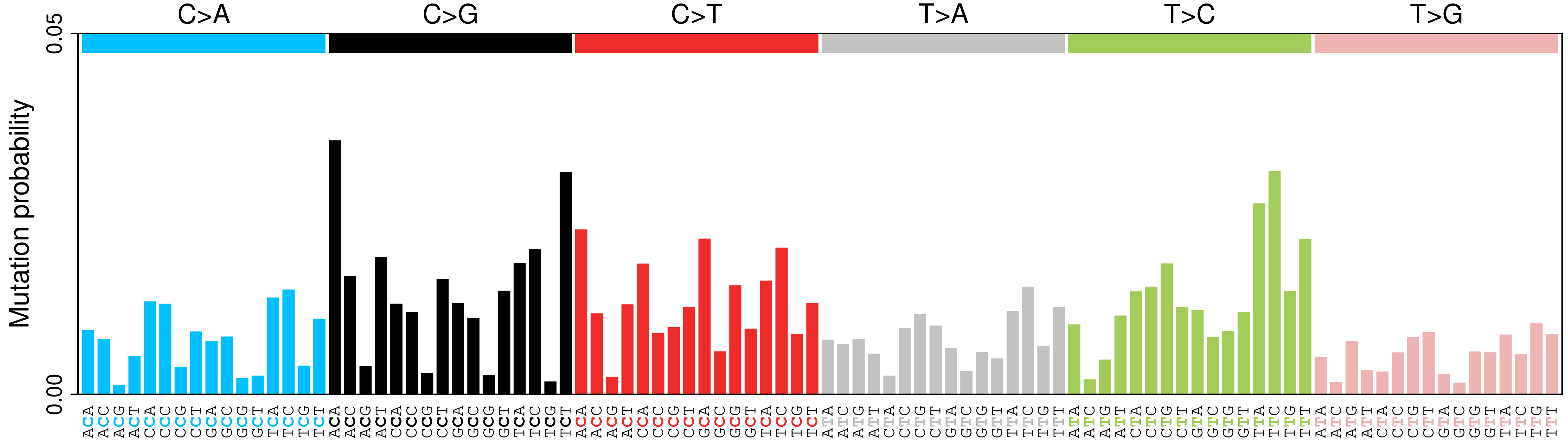
SBS124



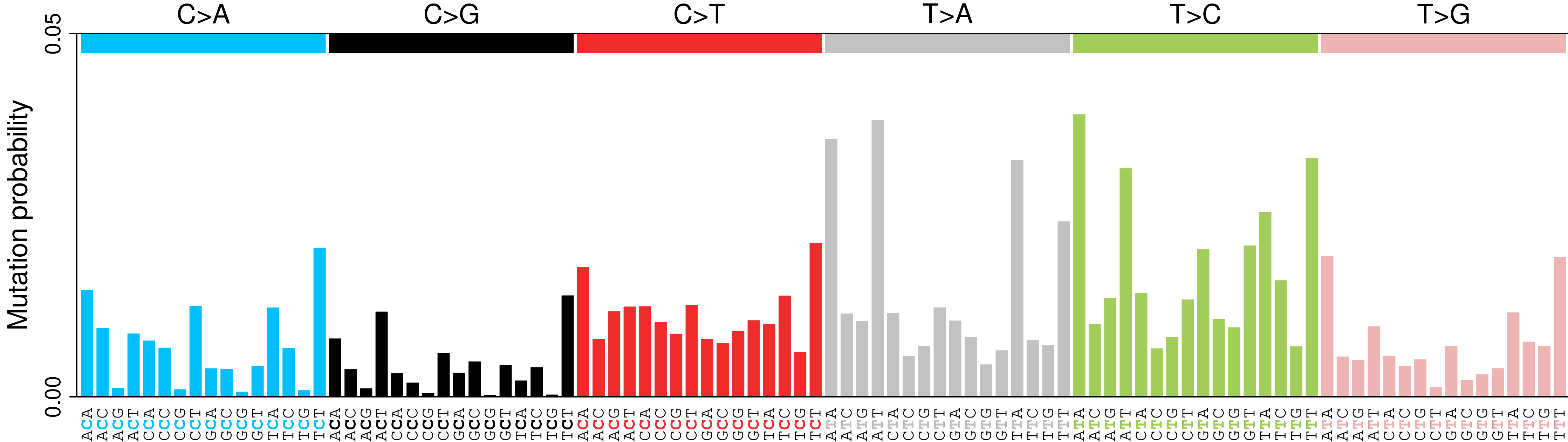
SBS125



SBS126



SBS127



SBS132

$C > A$

C > G

$C > T$

T > A

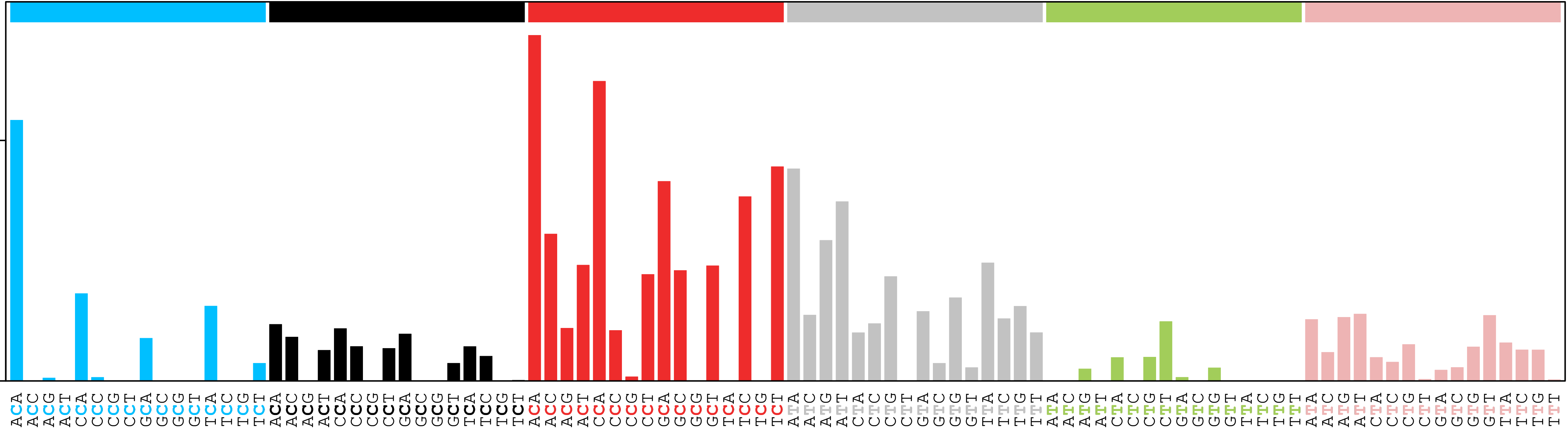
$T > C$

T>G

Mutation probability

0.05.

0.00.



SBS133

$C > A$

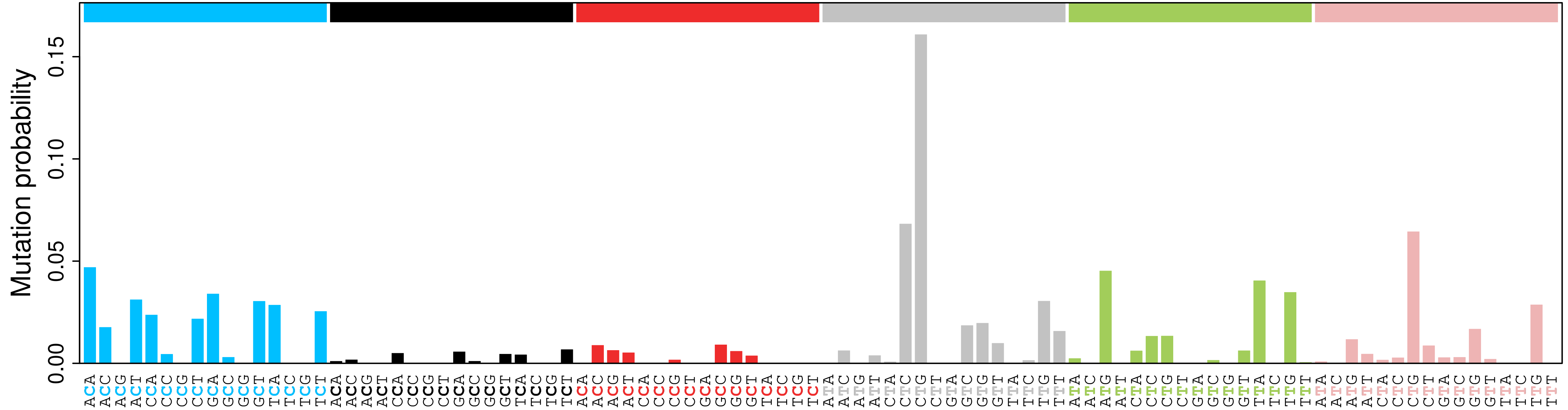
C > G

$$C > T$$

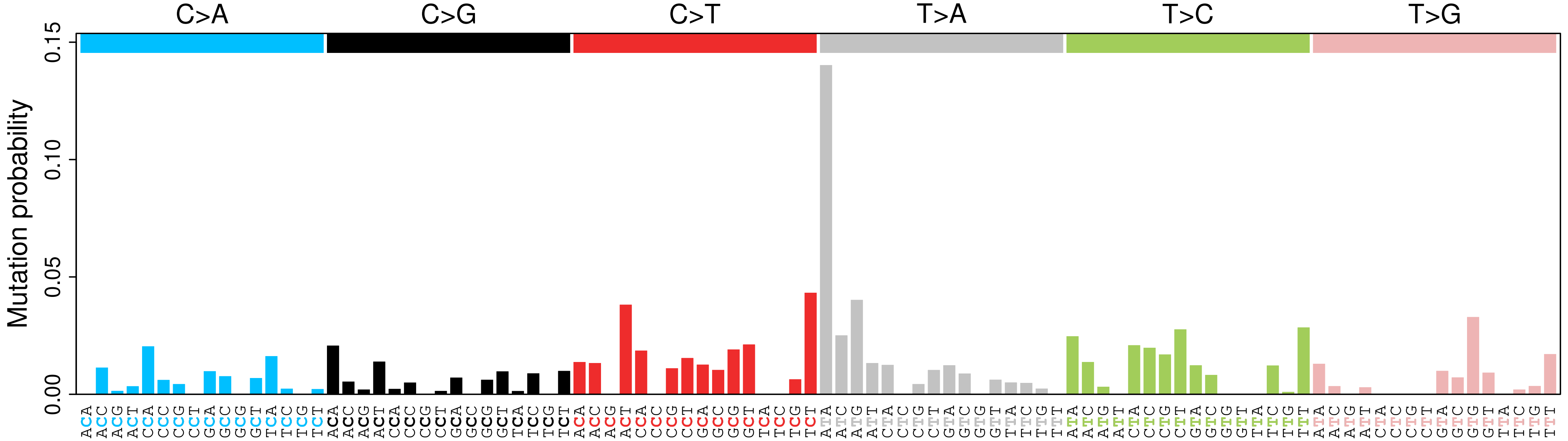
$T > A$

$T > C$

$T > G$



SBS135



SBS136

$C > A$

C > G

$$C > T$$

T > A

$$T > C$$

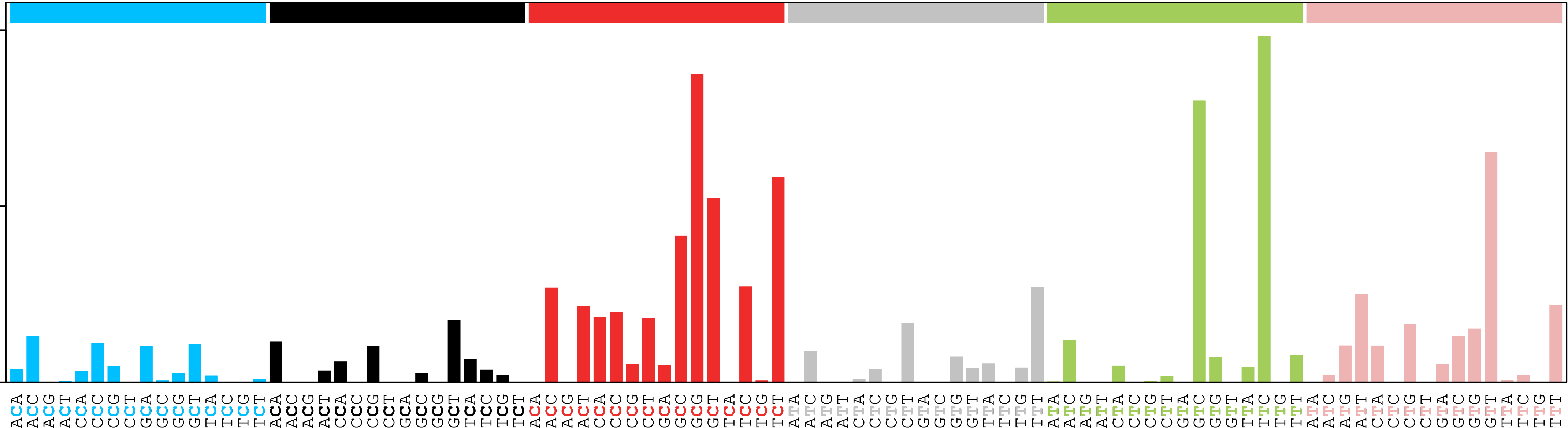
T > G

Mutation probability

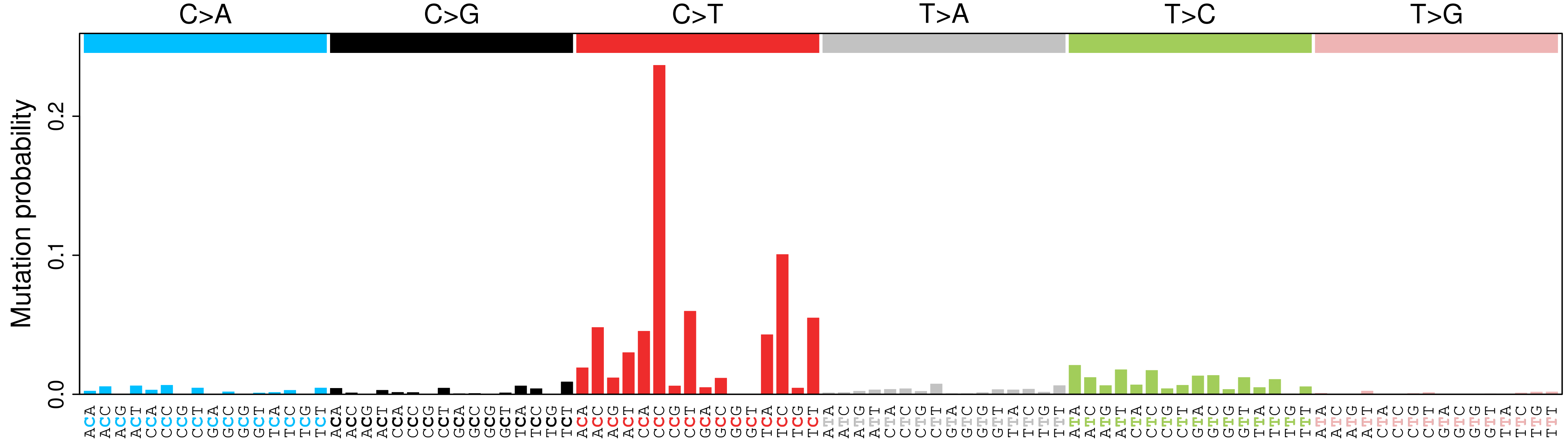
0.10

0.05

0.00



SBS137



SBS139

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 ATG ATT CTA CTC CTG CTT GTC GTG GTT TTA TTC TTG TTT ATA ATG ATT CTA CTC CTG CTT GTC GTG GTT TTA TTC TTG TTT

SBS140

$C > A$

C > G

$C > T$

T > A

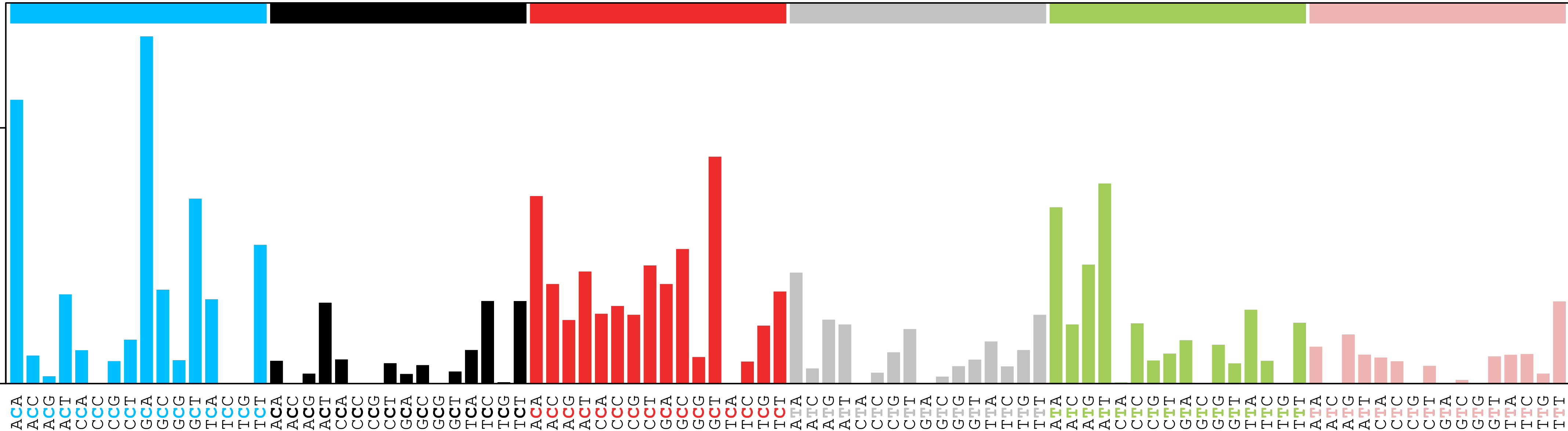
$T > C$

T>G

Mutation probability

0.05

0.00



SBS141

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

SBS142

C > A

C > G

$C > T$

T > A

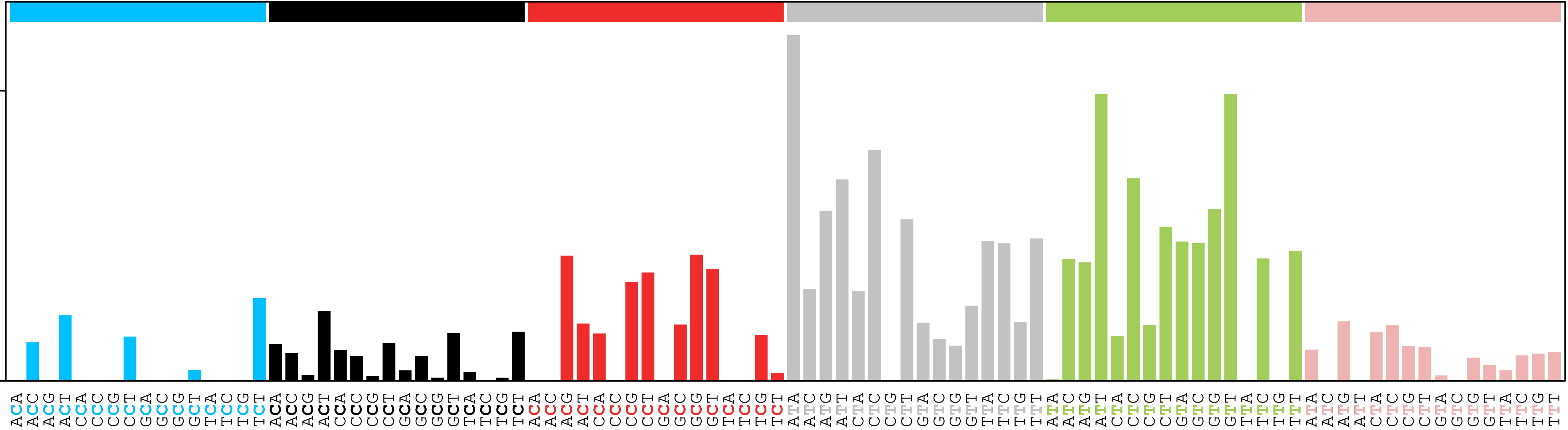
$T > C$

T>G

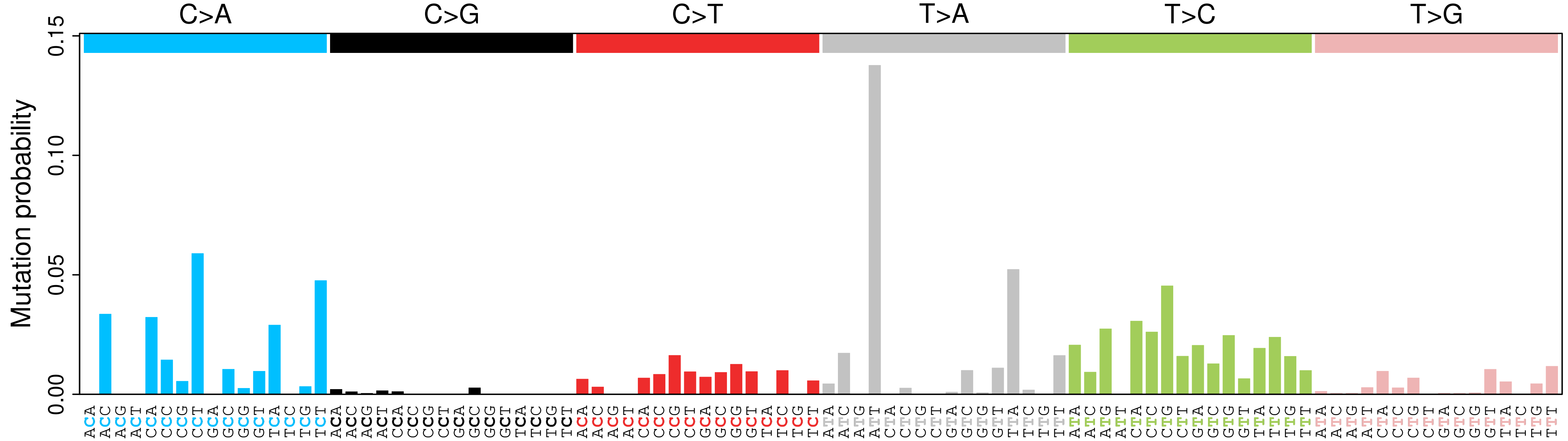
Mutation probability

0.05

0.00.



SBS143



SBS145

$C > A$

C > G

C>T

T>A

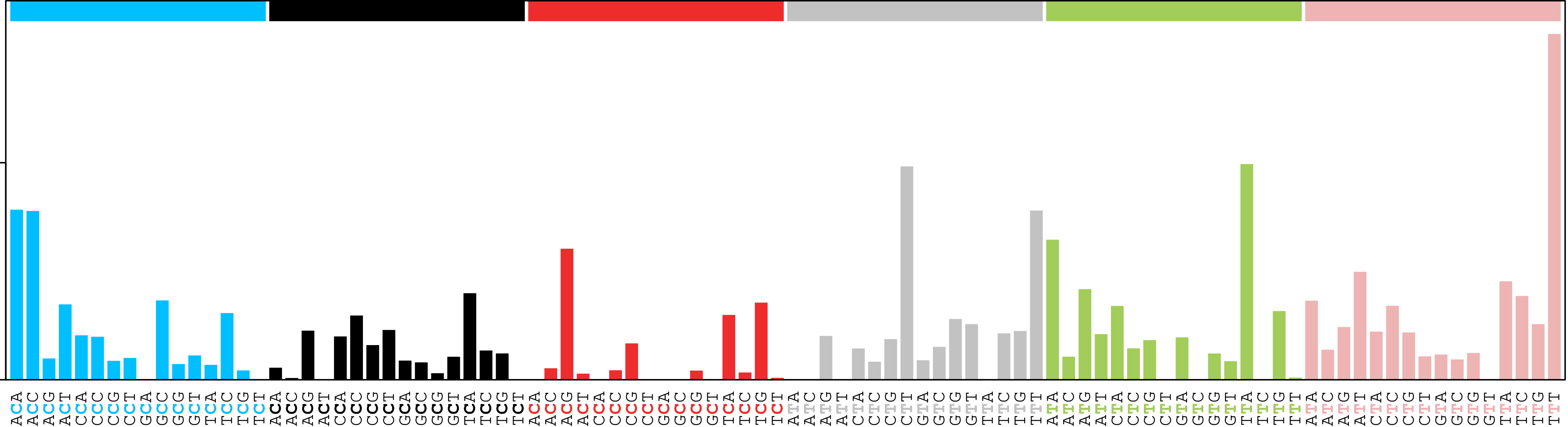
$$T > C$$

T>G

Mutation probability

0.05

0.00



SBS148

C>A

C>G

C>T

T>A

T>C

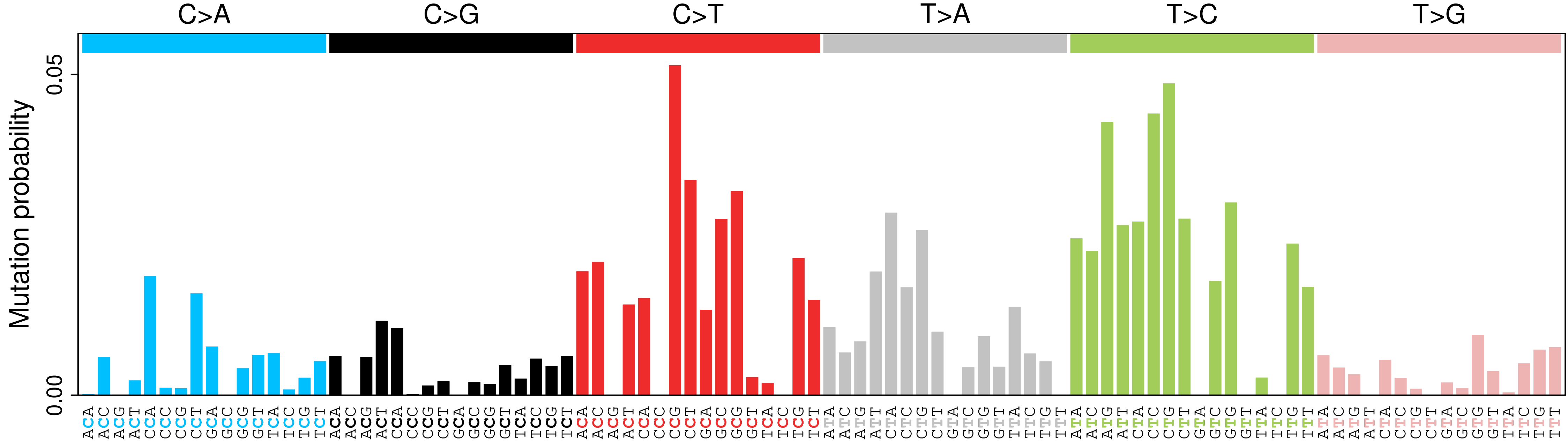
T>G

Mutation probability

0.10
0.05
0.00



SBS150



SBS151

$$C > A$$

C > G

C>T

T > A

$T > C$

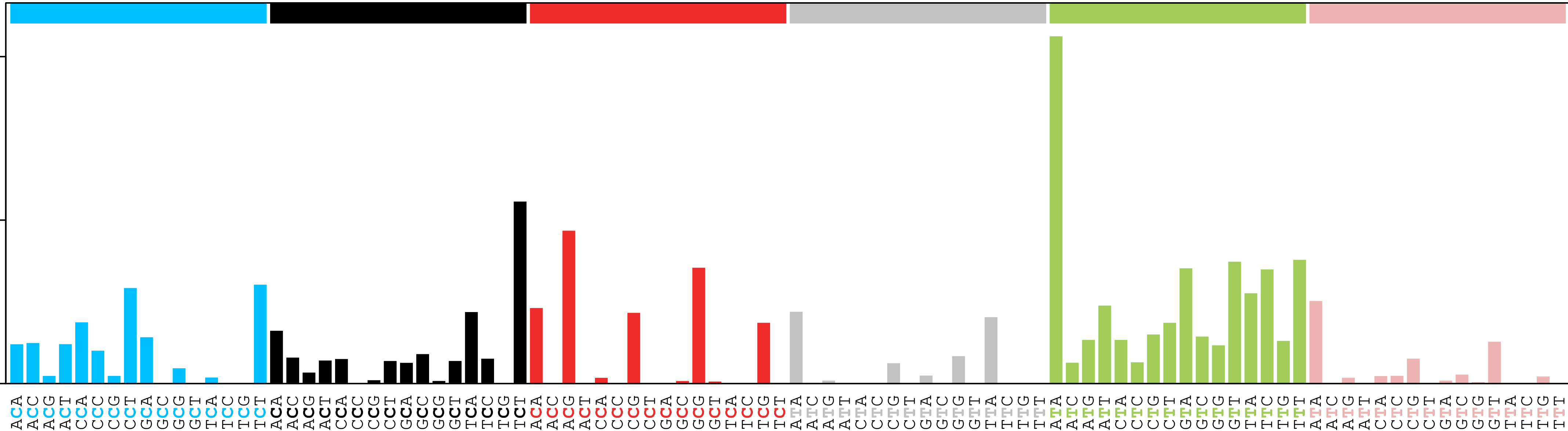
T>G

Mutation probability

0.10

0.05

0.00



SBS153

C>A

C>G

C>T

T>A

T>C

T>G

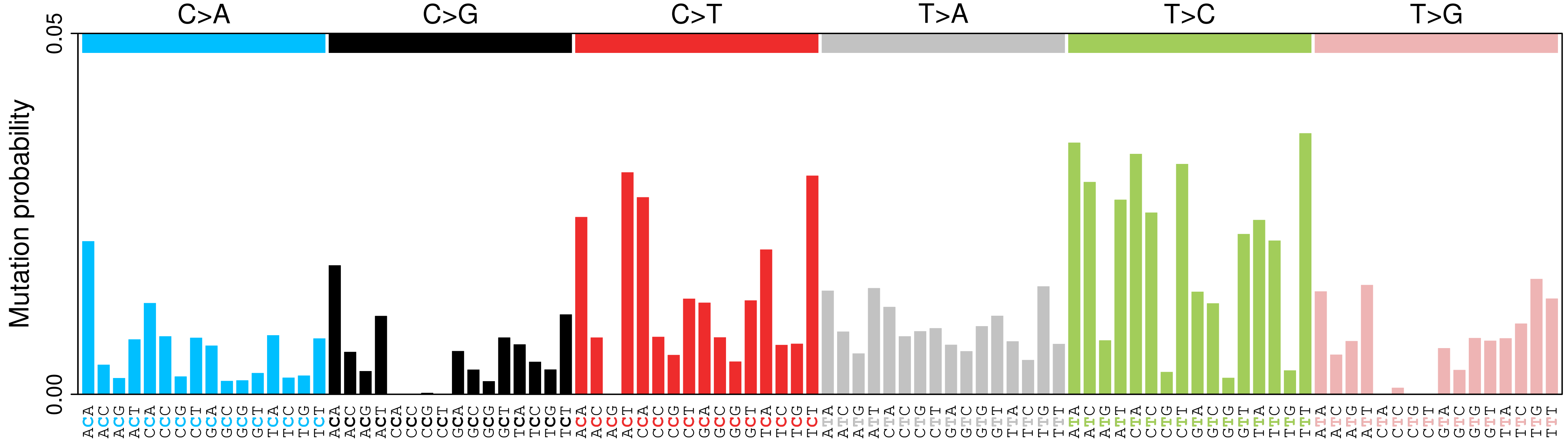
Mutation probability

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 GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

SBS154



SBS156

$C > A$

C > G

$$C > T$$

T > A

$T > C$

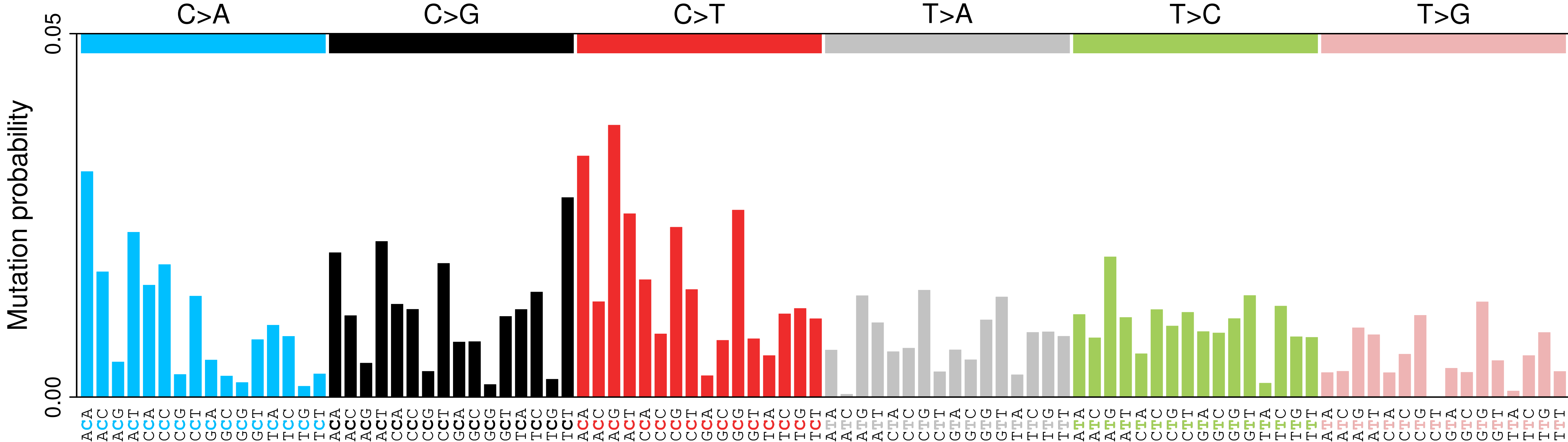
T>G

0.05

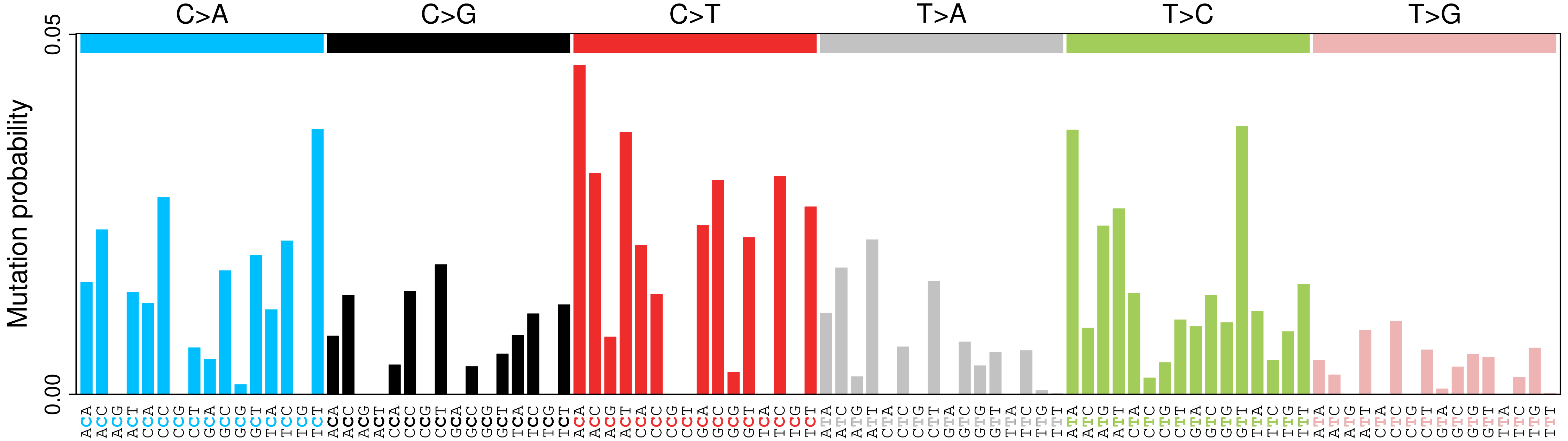
0.00

[illegible]

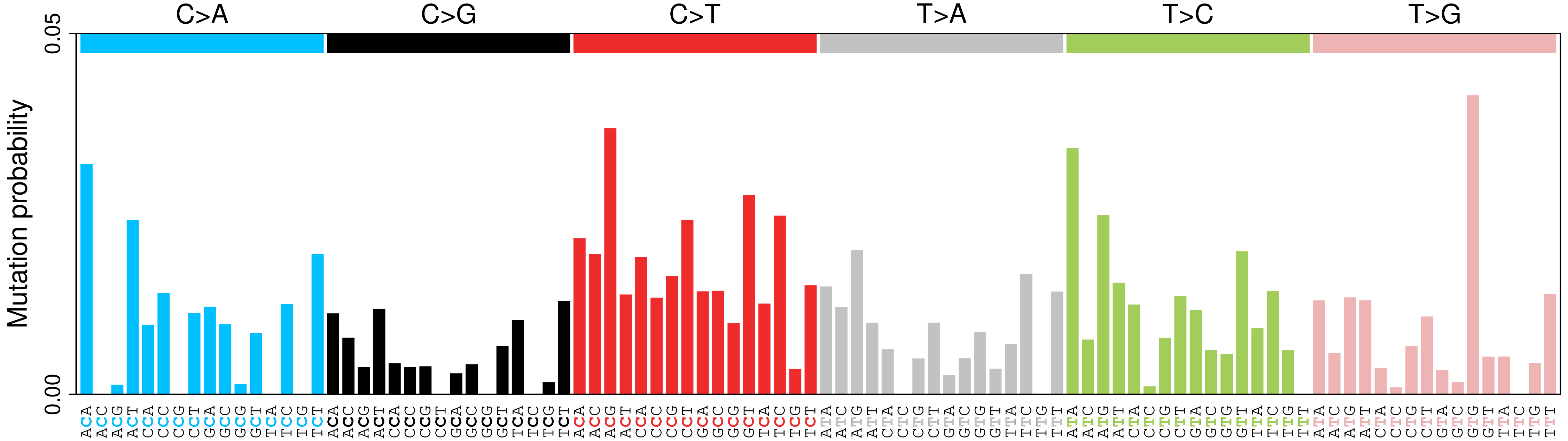
SBS157



SBS159



SBS160



SBS161

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 TCA 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 ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT

SBS162

C > A

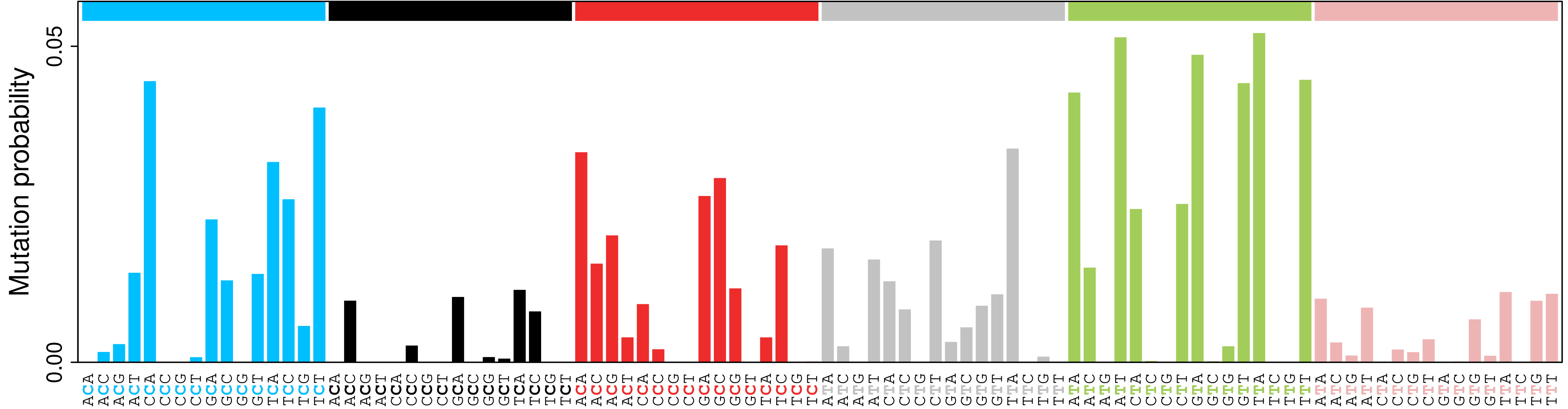
C > G

$C > T$

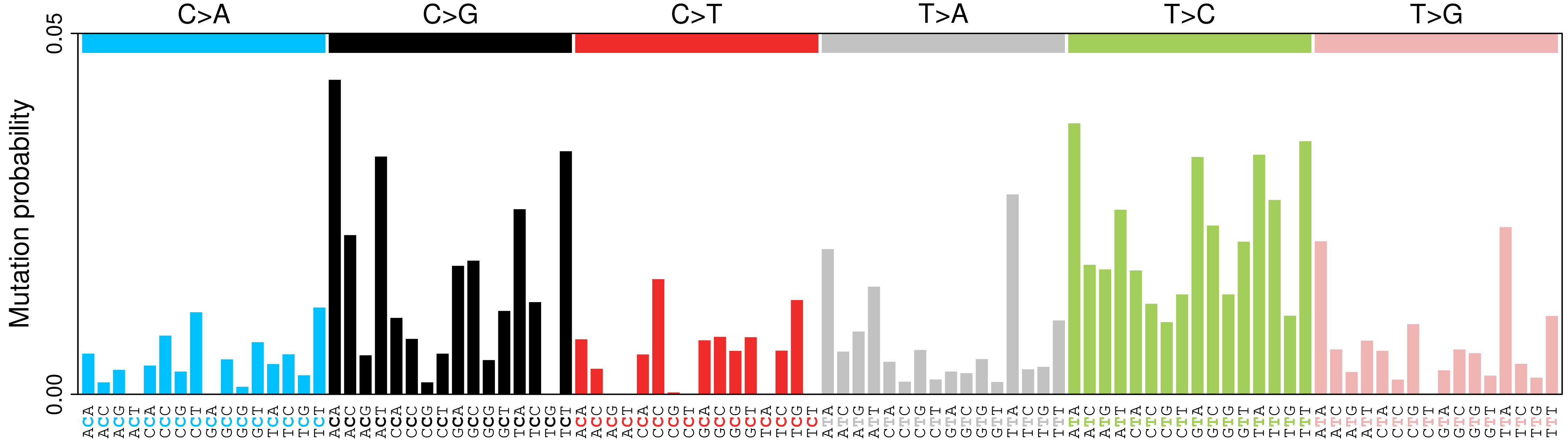
T>A

$$T > C$$

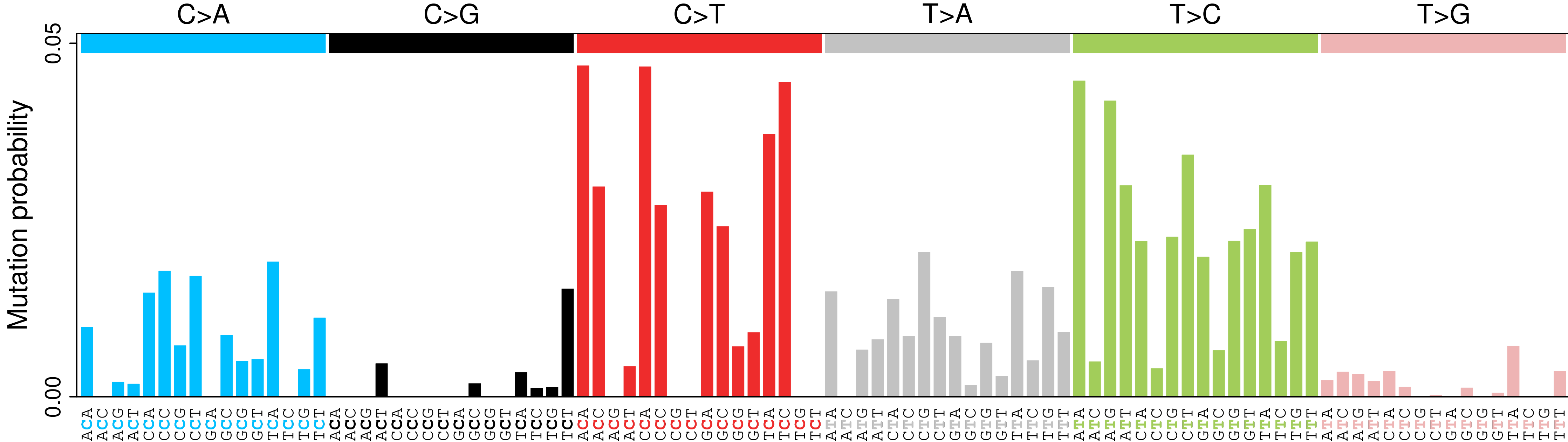
$T > G$



SBS163



SBS164



SBS166

$$C > A$$

C > G

$C > T$

T > A

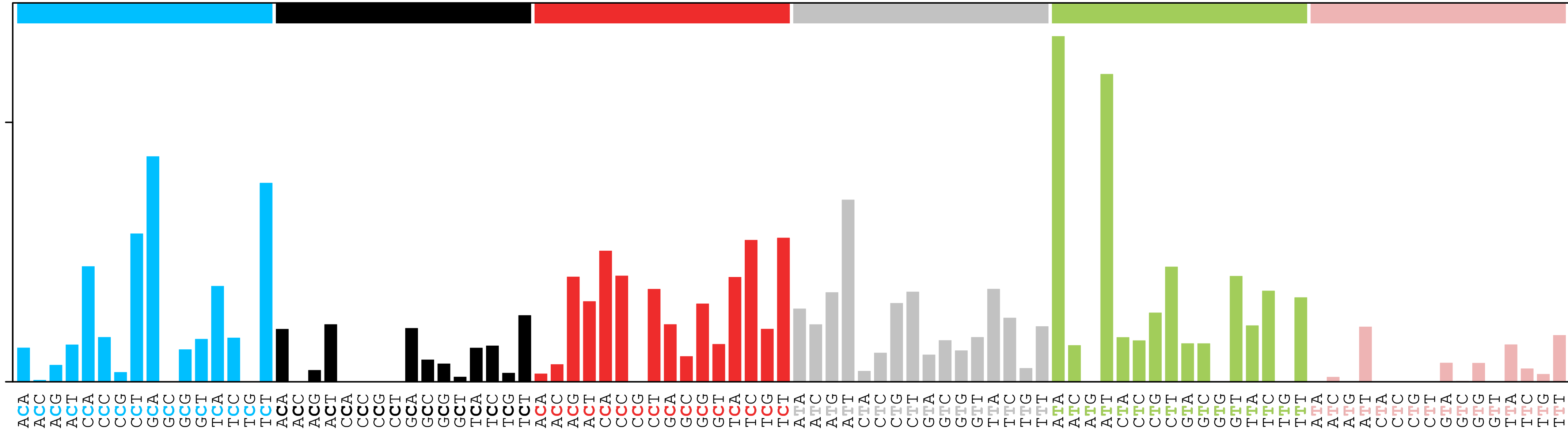
$T > C$

T>G

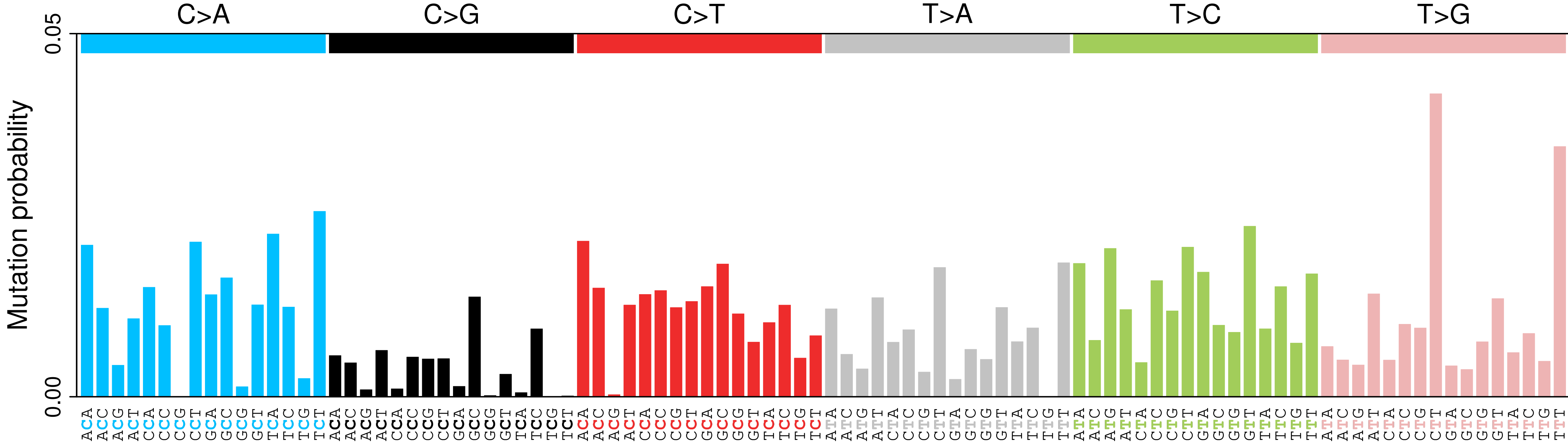
Mutation probability

0.05

0.00



SBS167



SBS168

$C > A$

C > G

$$C > T$$

T > A

$T > C$

T>G

Mutation probability

0.05

0.00



