

SBS2

C > A

C > G

$C > T$

T > A

$T > C$

T>G

Mutation probability

0.3

0.2

o

0

[illegible]

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 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 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

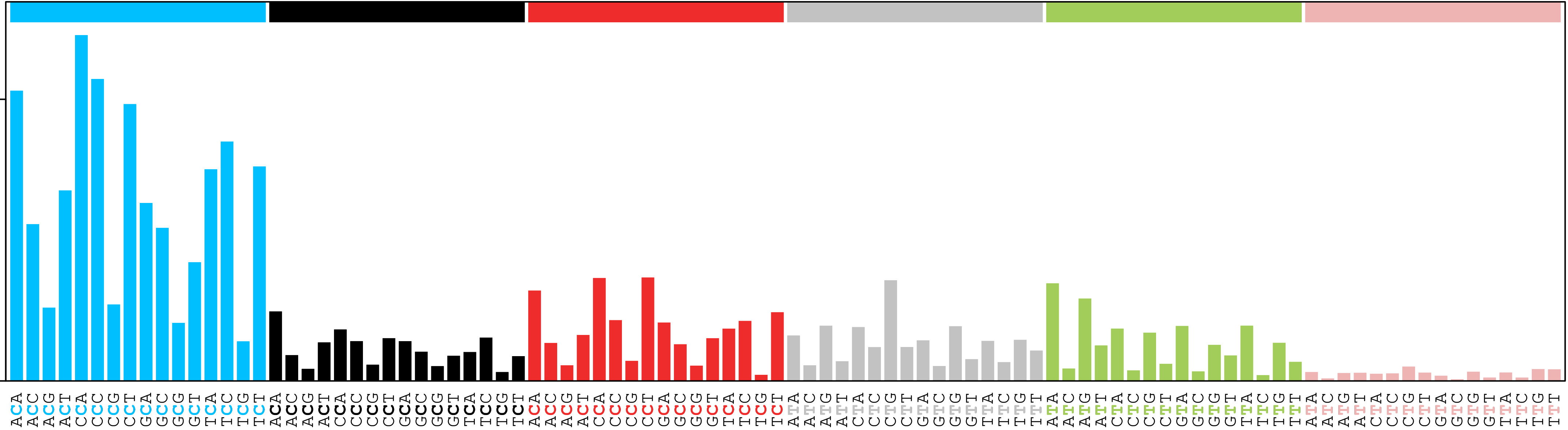
$T > C$

T>G

Mutation probability

0.05

0.00



SBS5



SBS7c

C>A

C>G

C>T

T>A

T>C

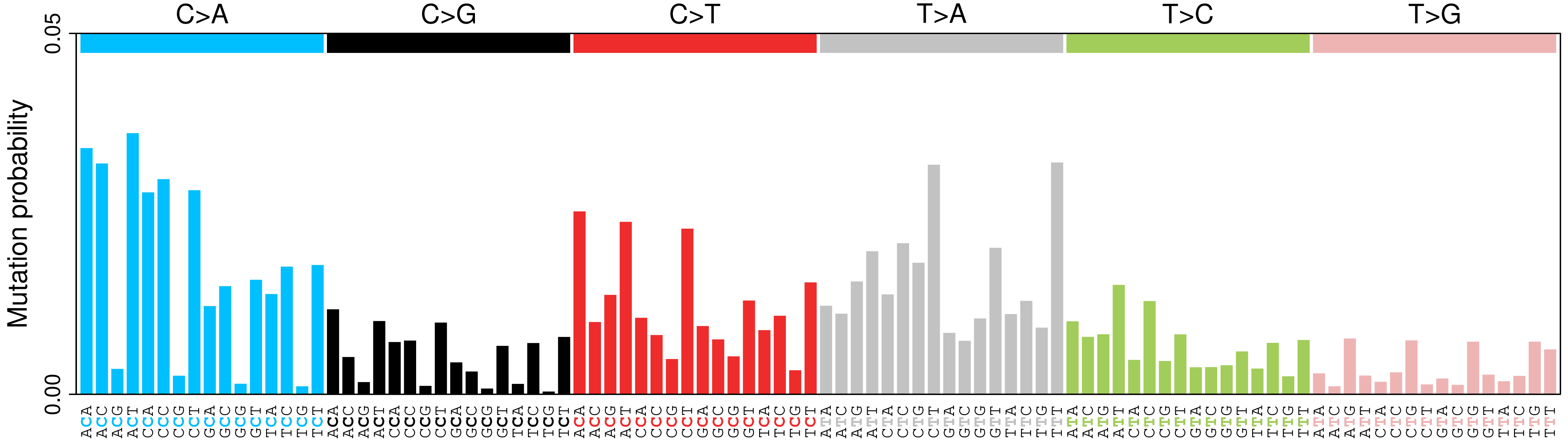
T>G

Mutation probability

0.20
0.15
0.10
0.05
0.00

ACA ACC AGC ATT CCA CCC CCG CCT CTA 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 GCA GCC GGT GTC TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GCA GCC GGT GTC TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT

SBS8



SBS9

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 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 GTA GTC GTG GTT TTA TTC TTG TTT

SBS10a

$C > A$

C > G

$C > T$

T > A

$$T > C$$

T>G

Mutation probability

၈

0.2

0.1

0

[illegible]

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

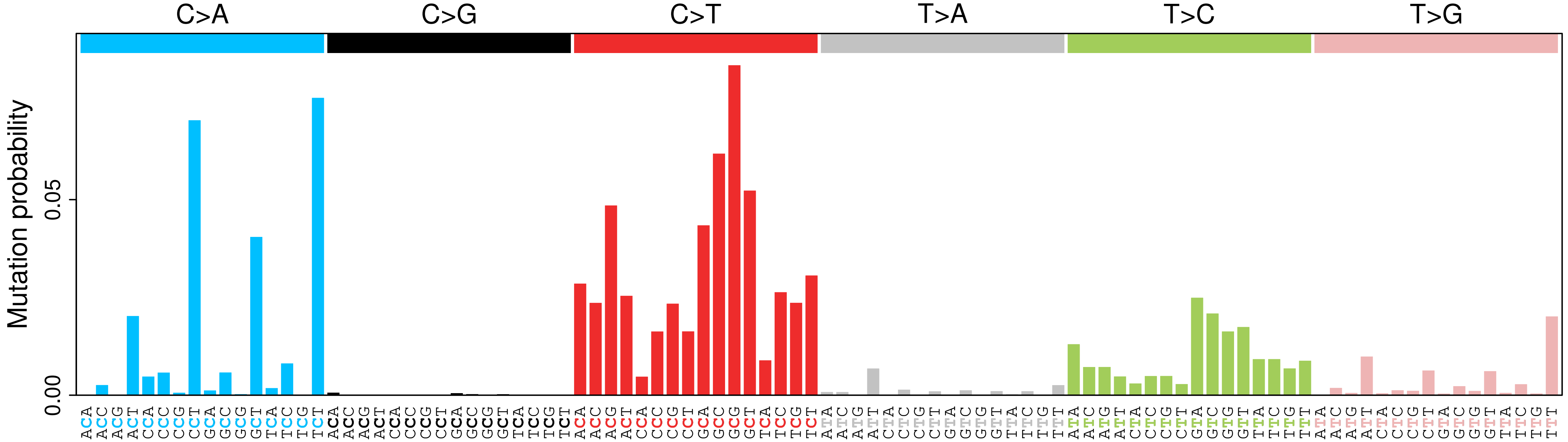
T>G

Mutation probability

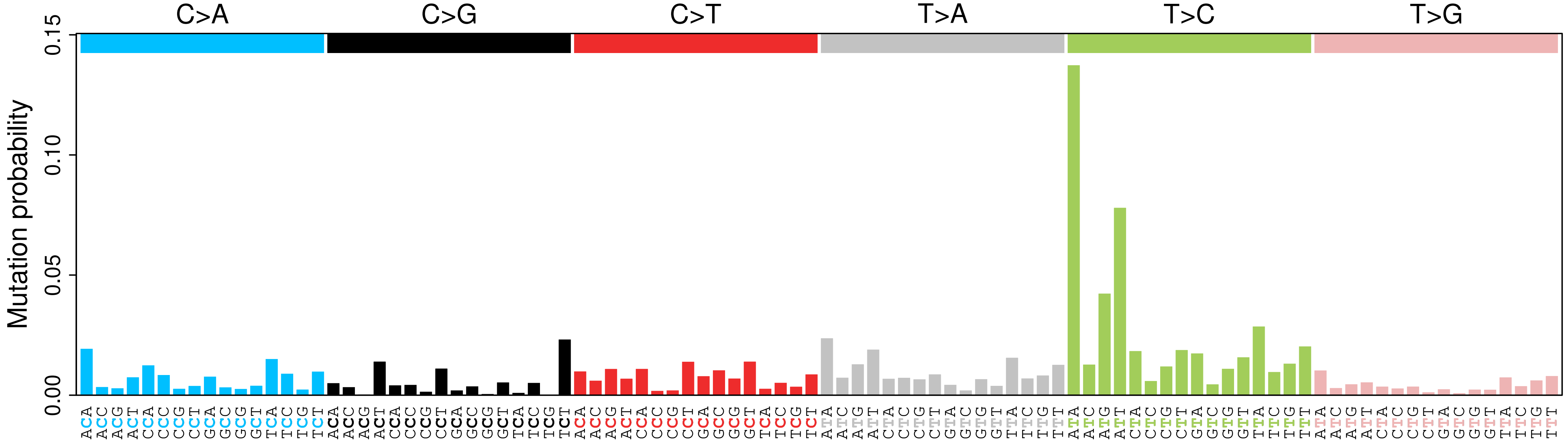
0.20
0.15
0.10
0.05
0.00

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SBS14



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



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

SBS20



SBS22

$C > A$

C > G

$C > T$

T > A

$T > C$

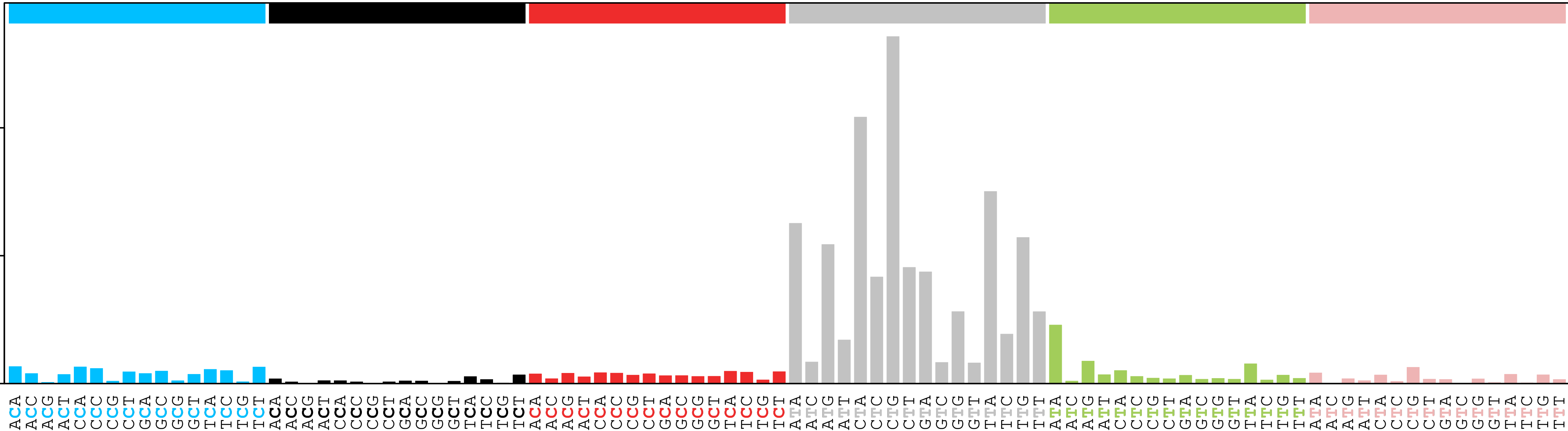
T>G

Mutation probability

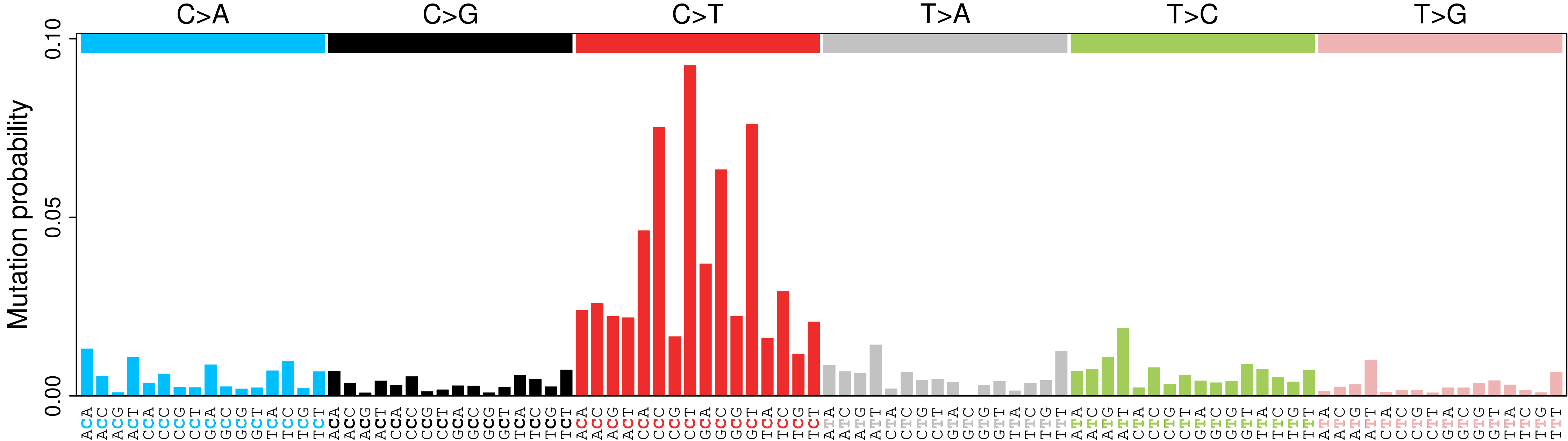
0.10

0

0.00



SBS23



SBS24

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.15

0.10

0.05

0.00

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

SBS28



SBS33

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.2
0.1
0.0



SBS35



SBS38

C > A

C > G

$C > T$

T > A

$$T > C$$

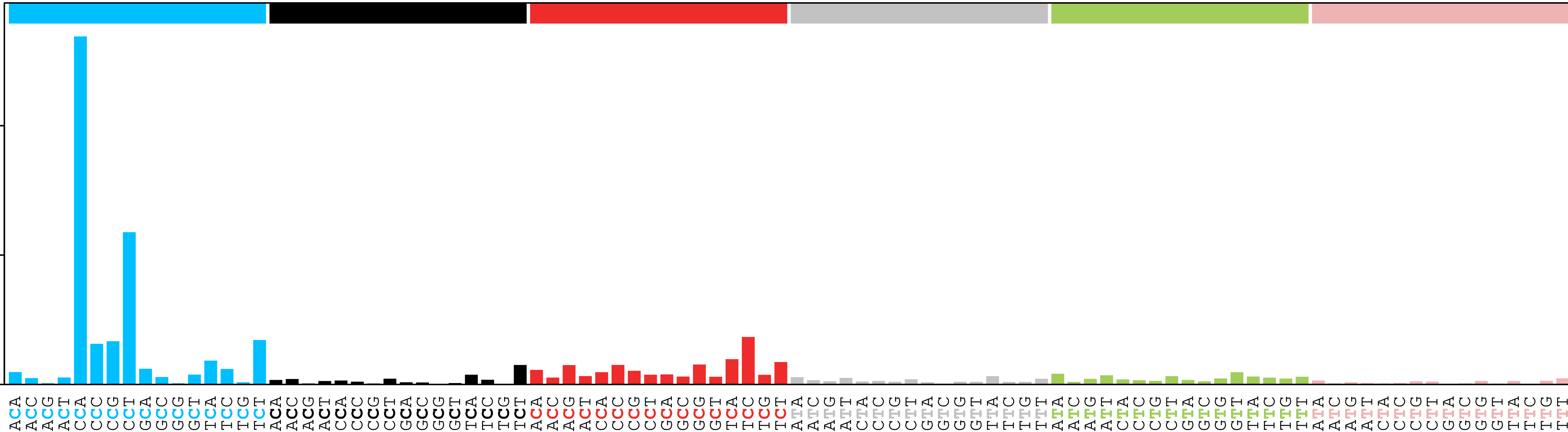
T>G

Mutation probability

0.2

0.1

0.0



SBS44

C > A

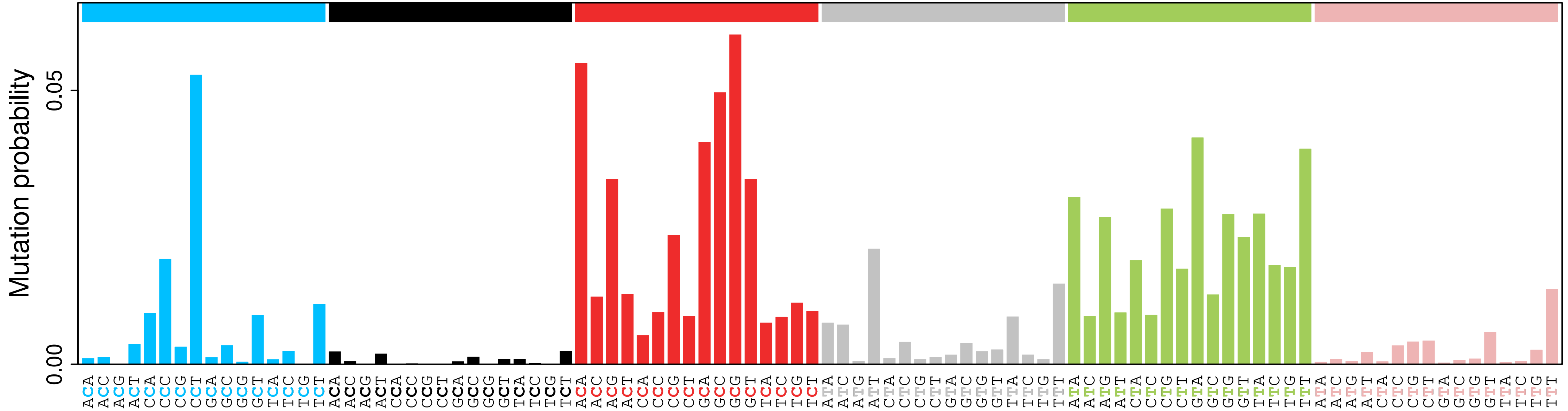
C > G

$C > T$

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 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

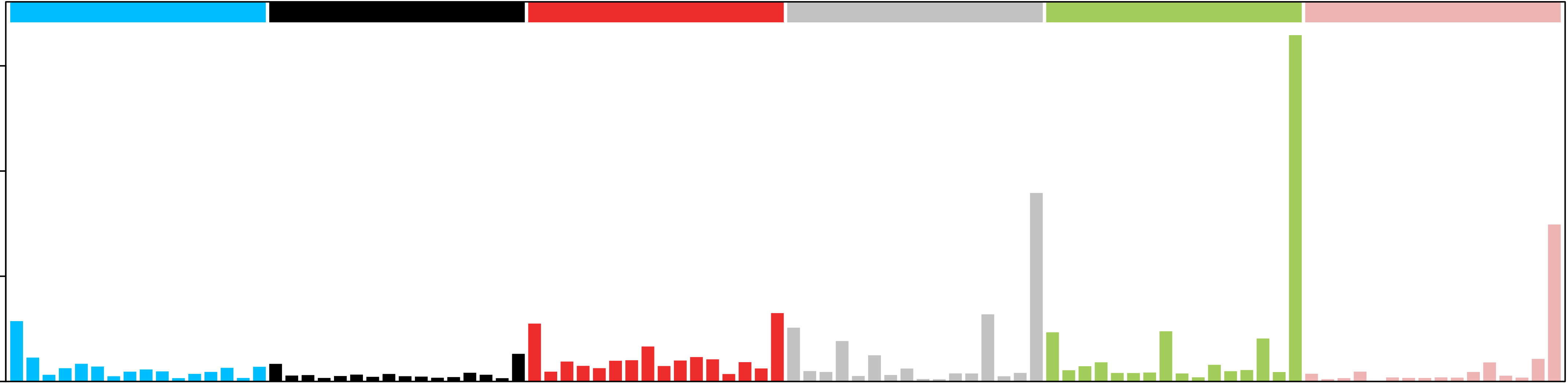
T>C

T>G

Mutation probability

0.15
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 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 TCC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TCC TTG TTT



SBS84

C > A

C > G

$C > T$

T > A

$$T > C$$

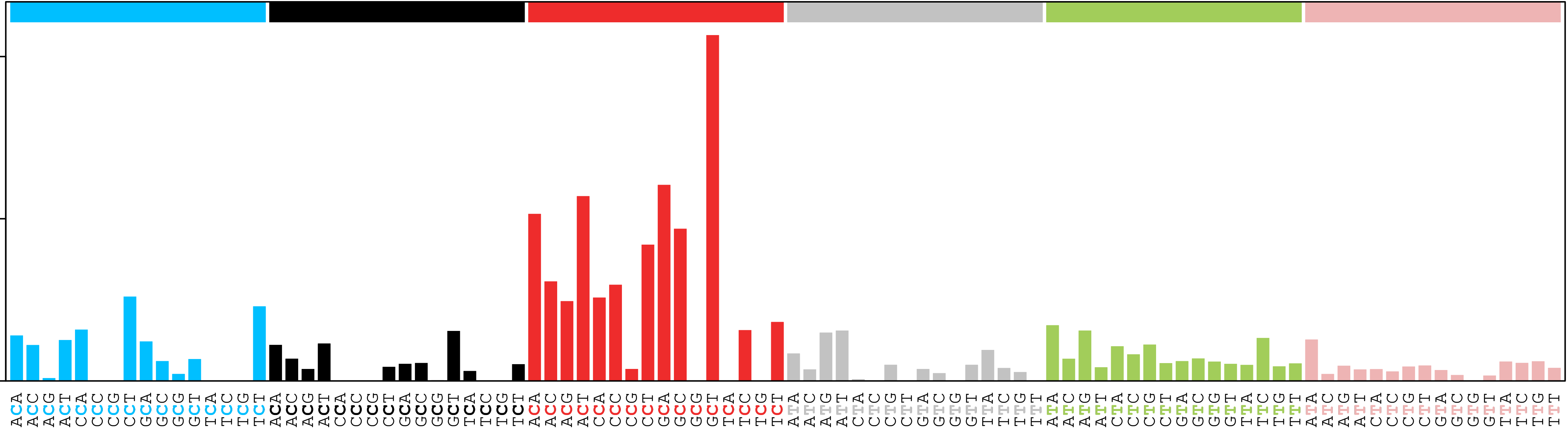
$T > G$

Mutation probability

0.10

0.05

0.0



SBS90

C > A

C > G

$C > T$

T > A

$T > C$

T>G

Mutation probability

0.00 0.05 0.10 0.15 0.20



SBS92

C > A

C > G

$$C > T$$

T > A

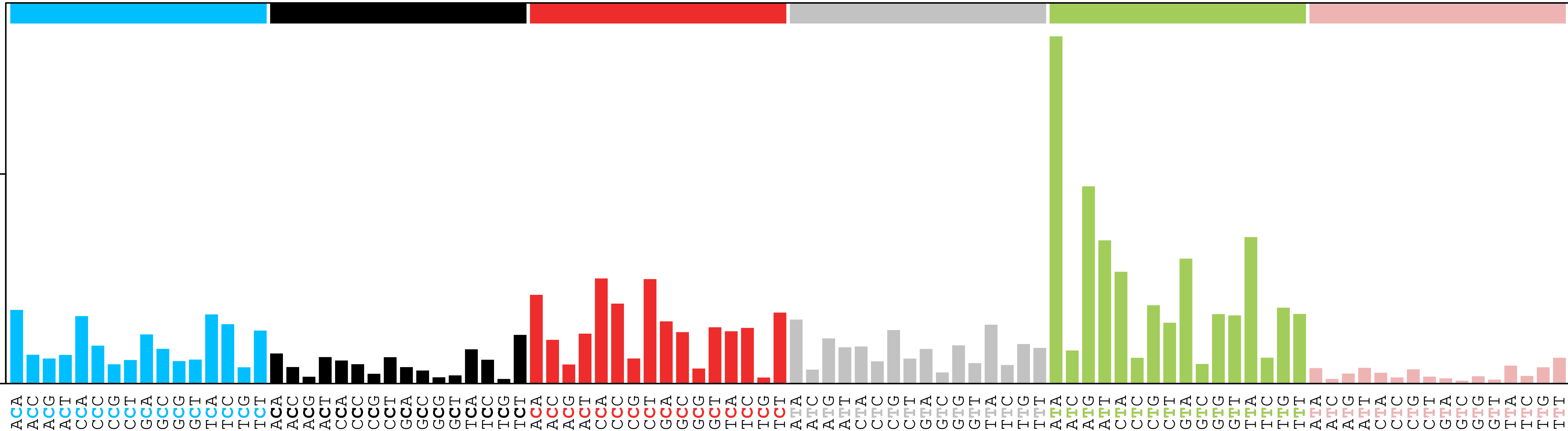
$$T > C$$

T>G

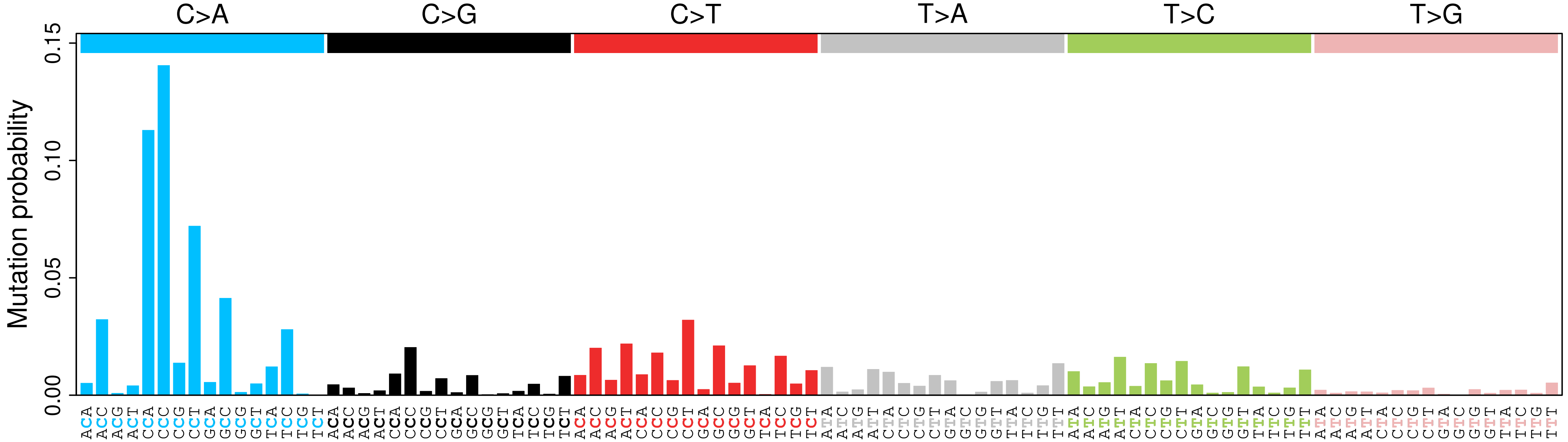
Mutation probability

0.05

0.00



SBS94



SBS98



SBS99

$C > A$

C > G

$C > T$

T > A

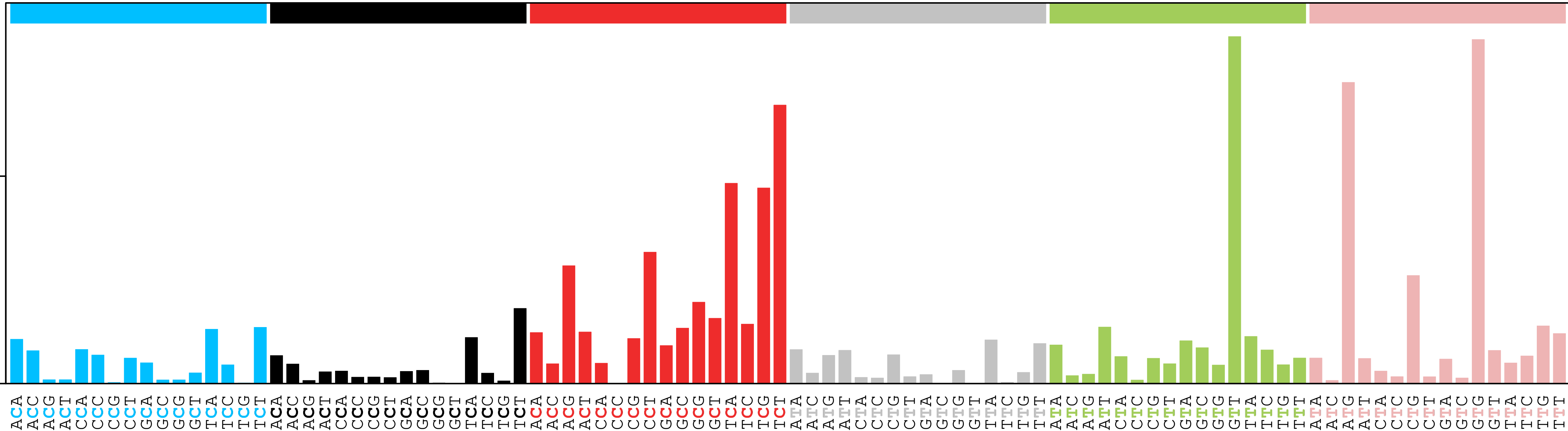
$$T > C$$

$T > G$

Mutation probability

0.05

0.00



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

Mutation probability

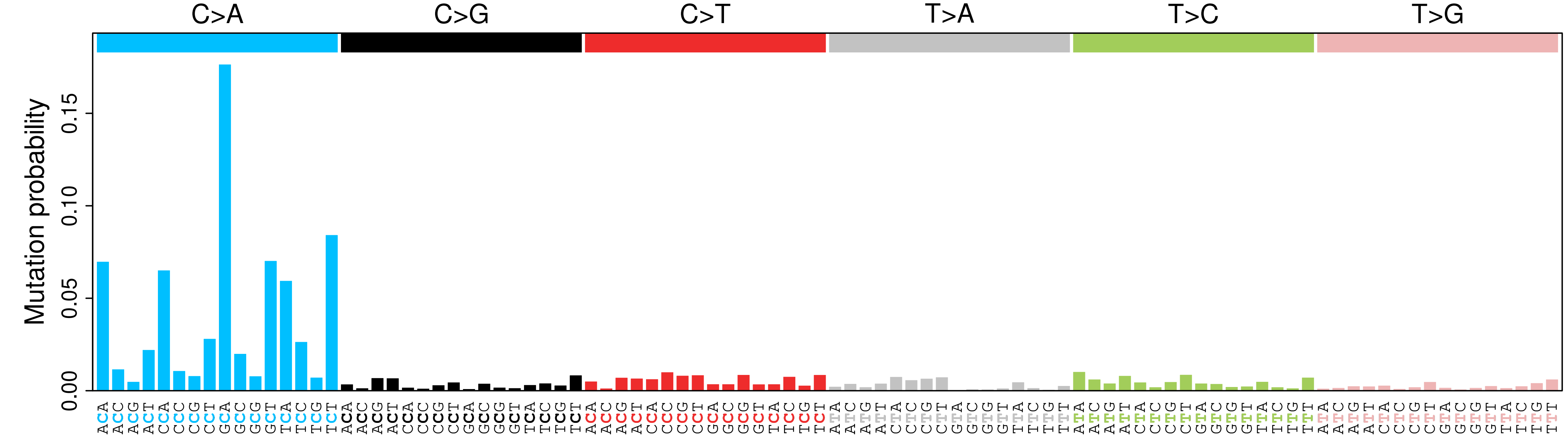
0.2

0.1

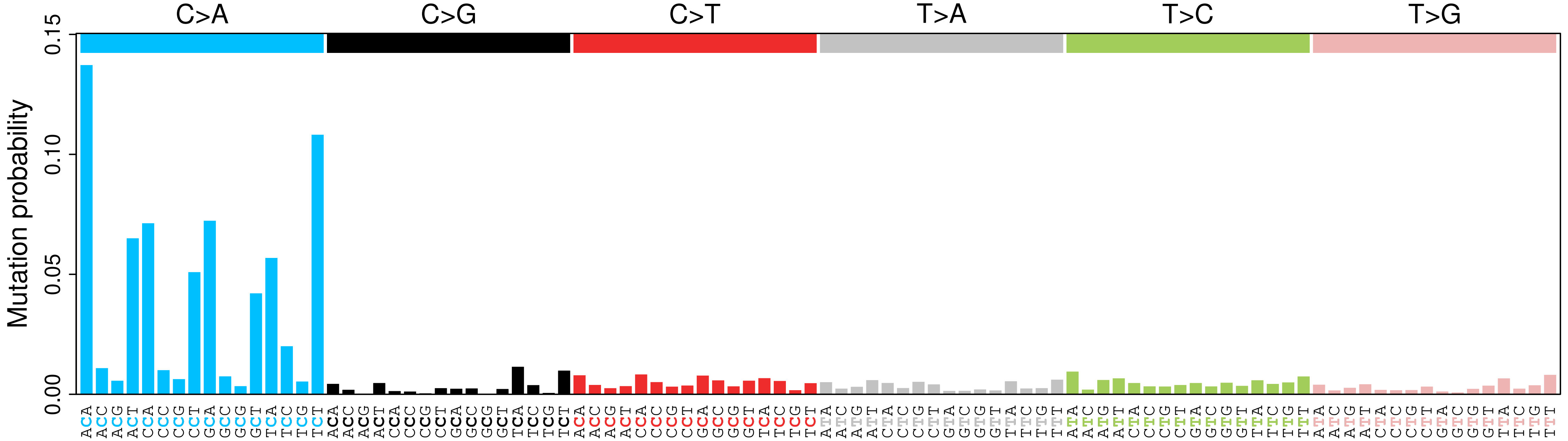
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ACA ACC AGT ACA CCC CGT CCA GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC AGT ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG TTT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC TTG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

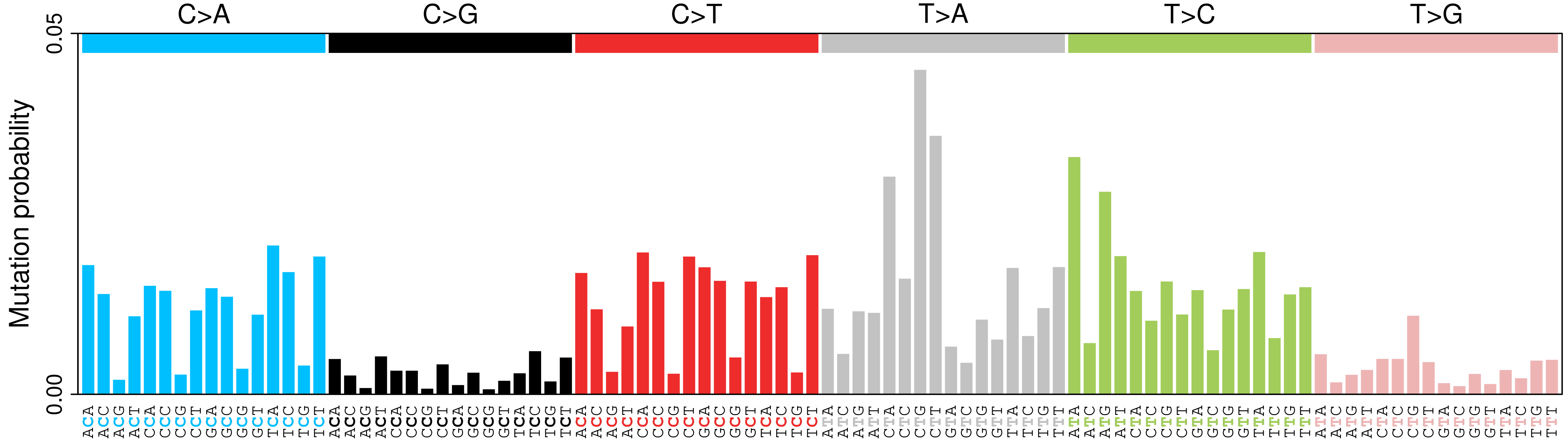
SBS108



SBS109



SBS110



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

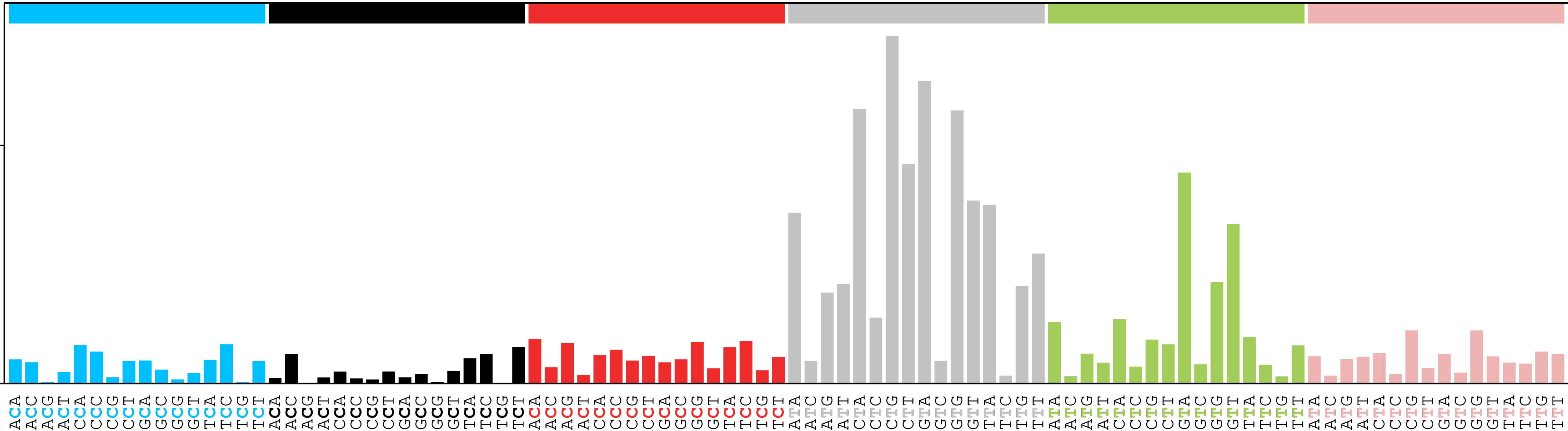
$$T > C$$

$T > G$

Mutation probability

0.05

0.00



SBS114

$C > A$

C > G

$C > T$

T > A

$T > C$

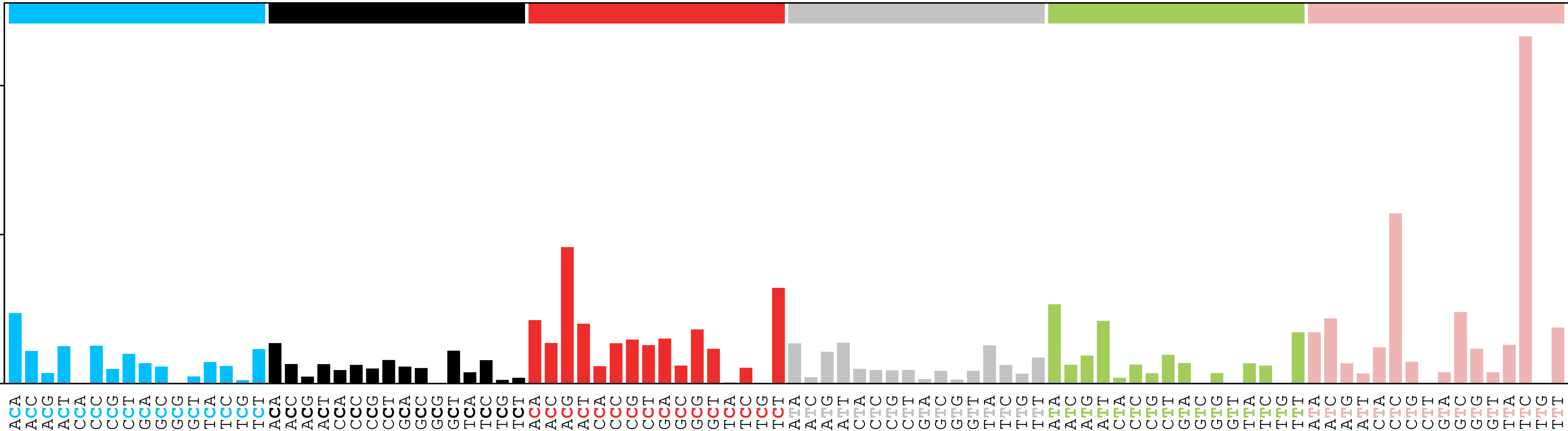
T>G

Mutation probability

0.10

0.05

0.00



SBS115

$C > A$

C > G

$C > T$

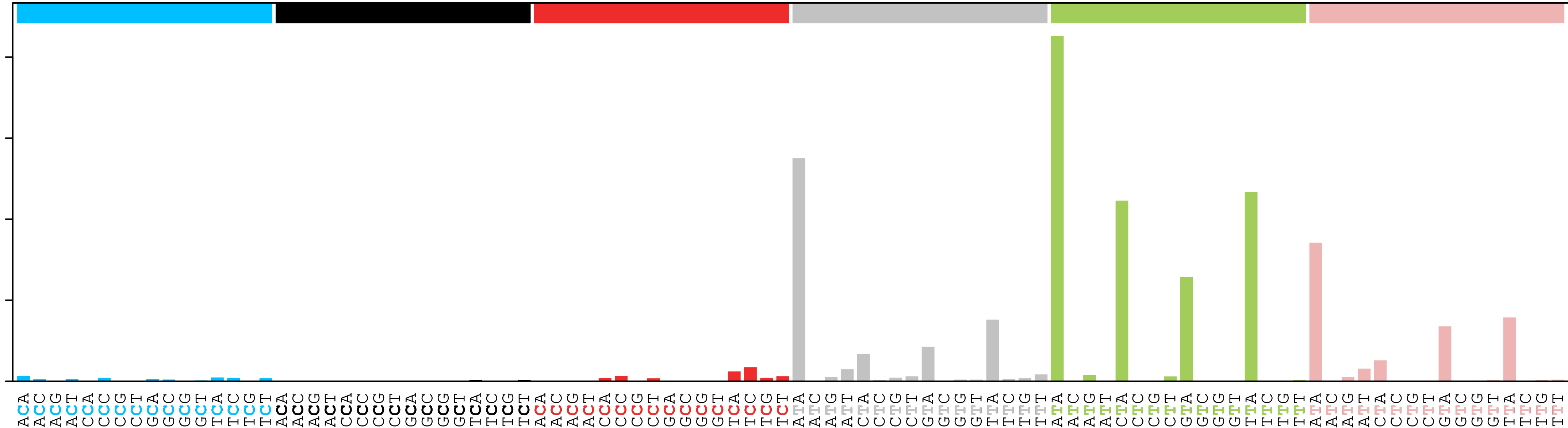
T > A

$T > C$

T>G

Mutation probability

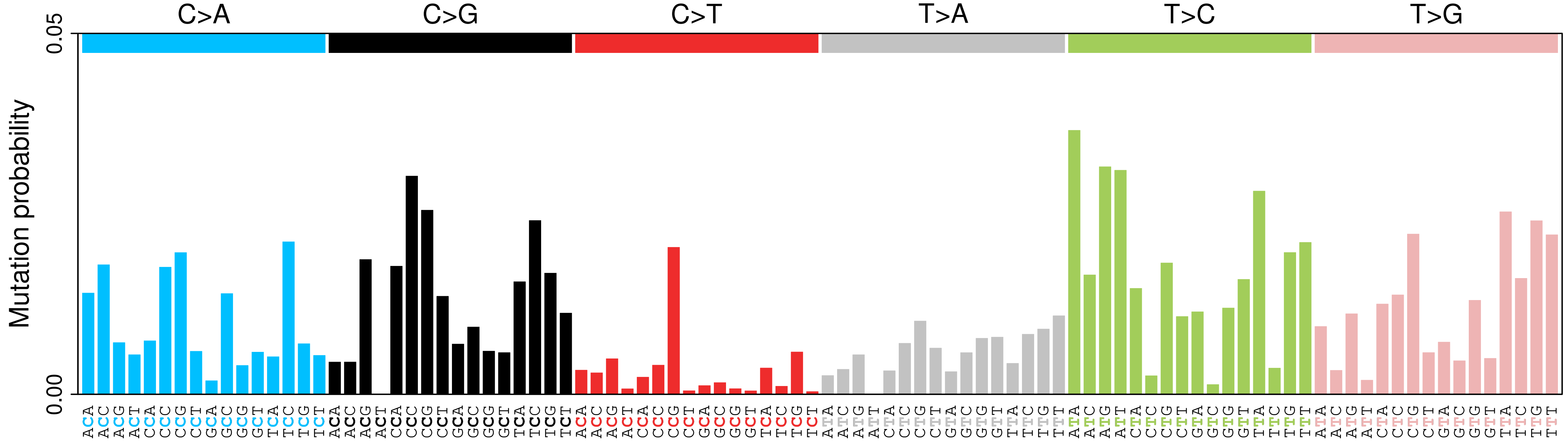
0.00 0.05 0.10 0.15 0.20



SBS116



SBS117



SBS118

C > A

C > G

$$C > T$$

T > A

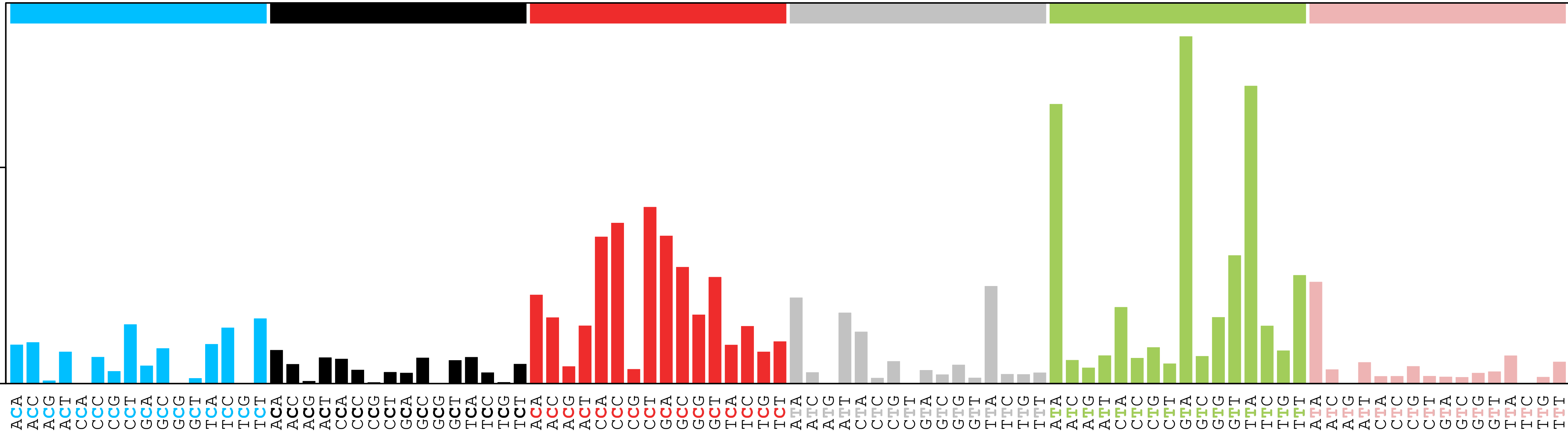
$T > C$

$T > G$

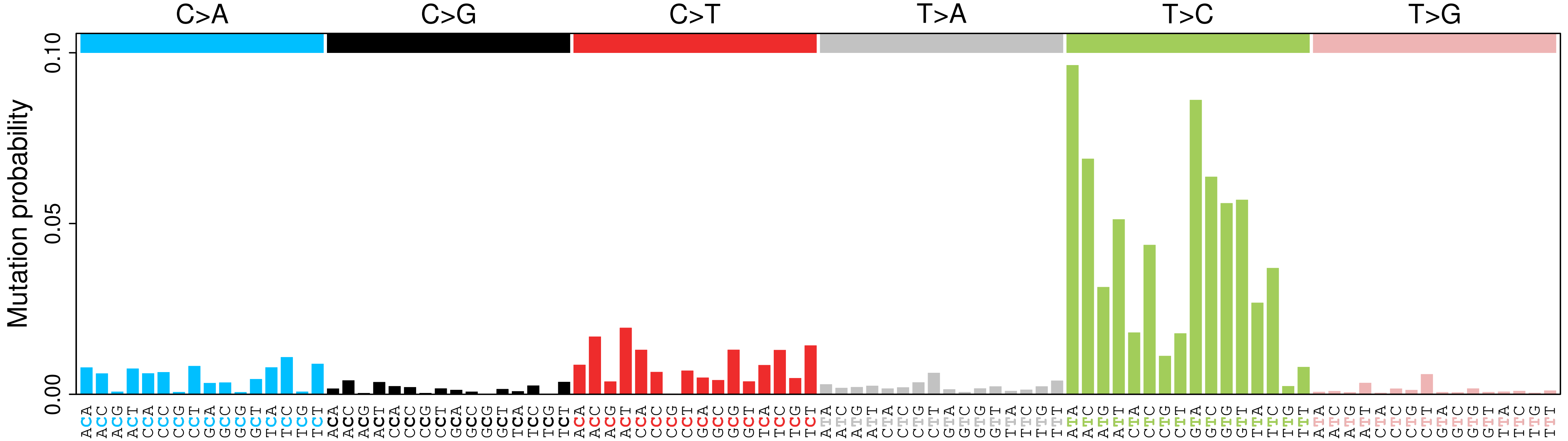
Mutation probability

0.05

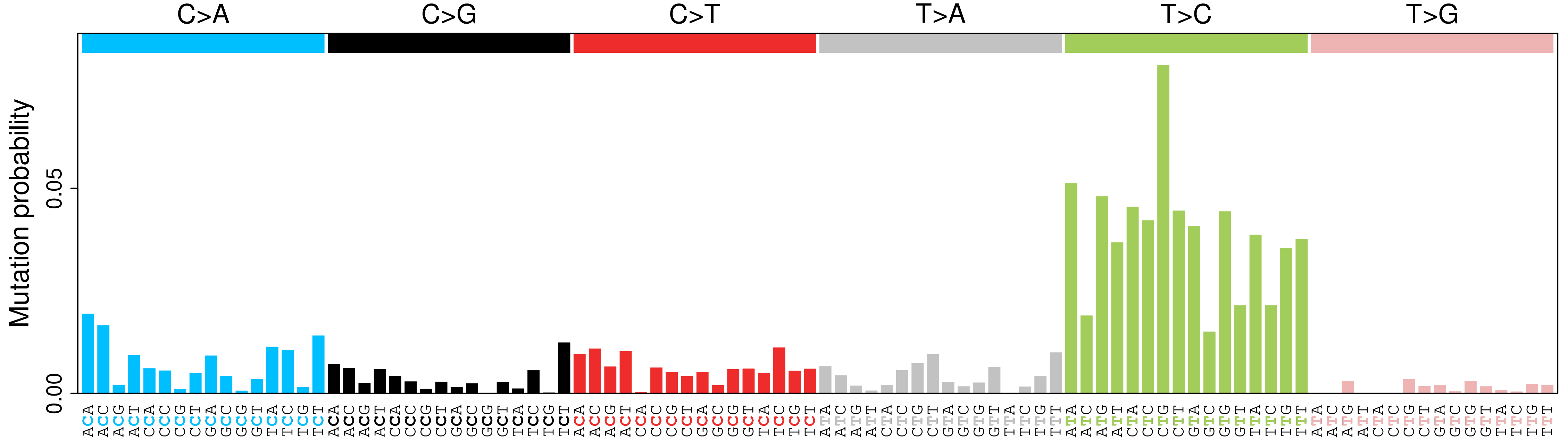
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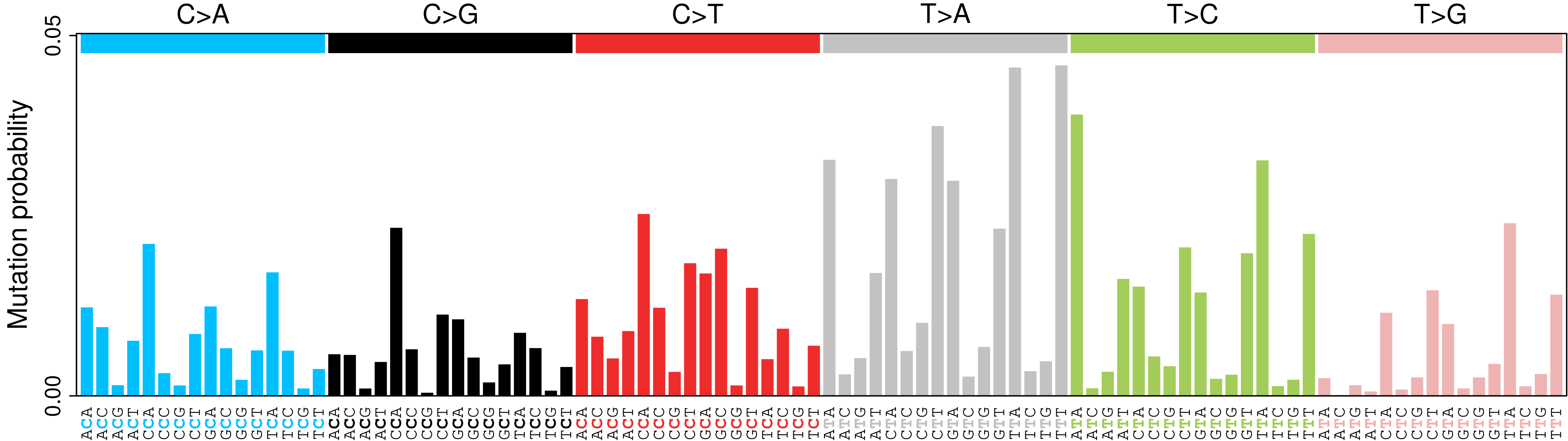
SBS119



SBS123



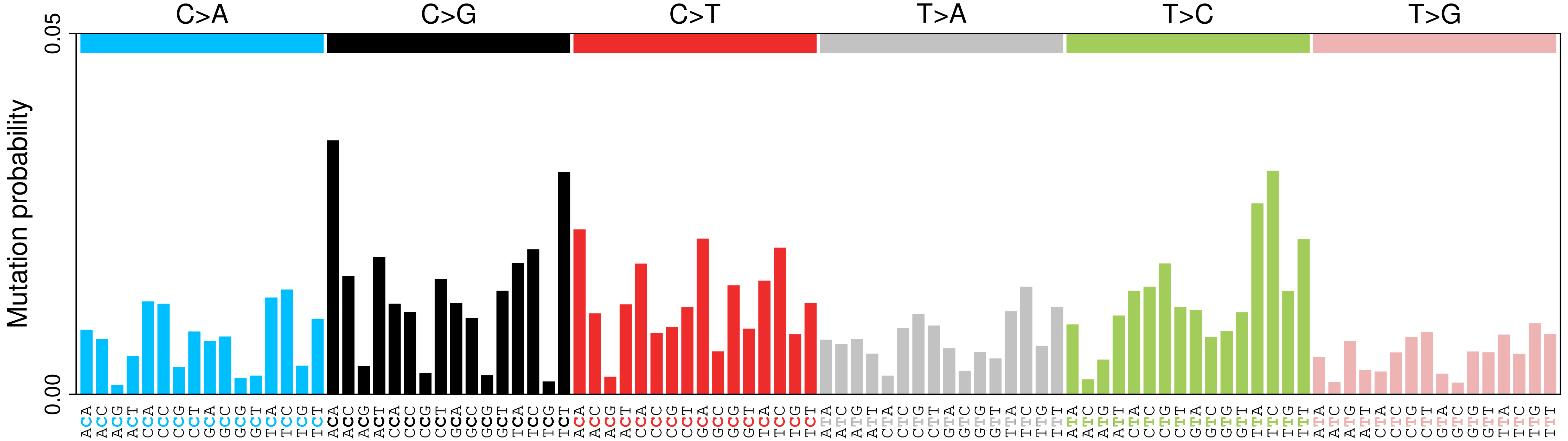
SBS124



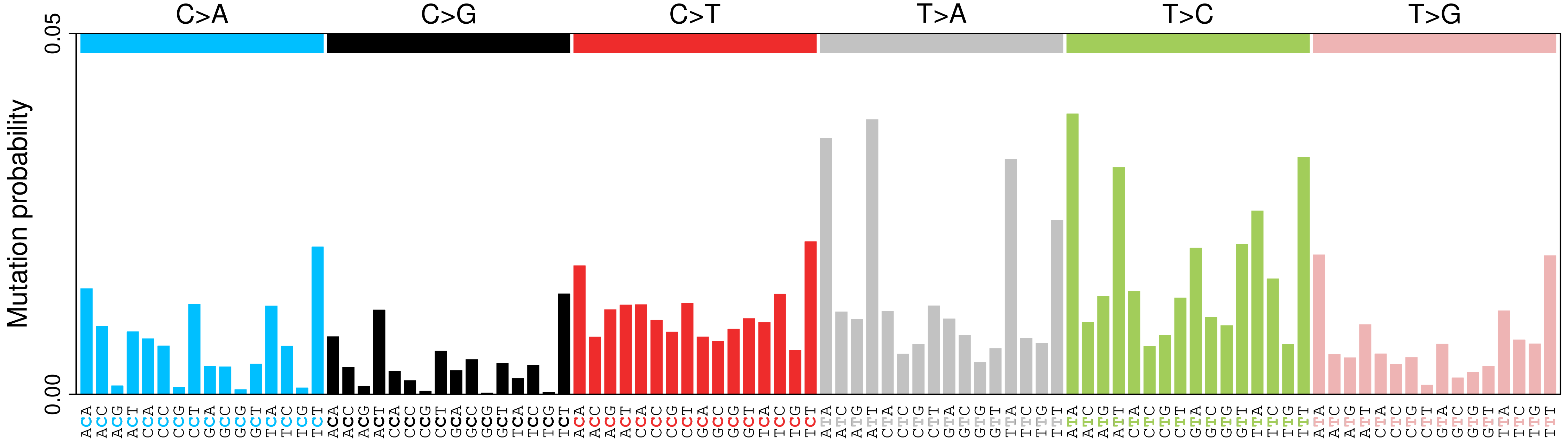
SBS125



SBS126



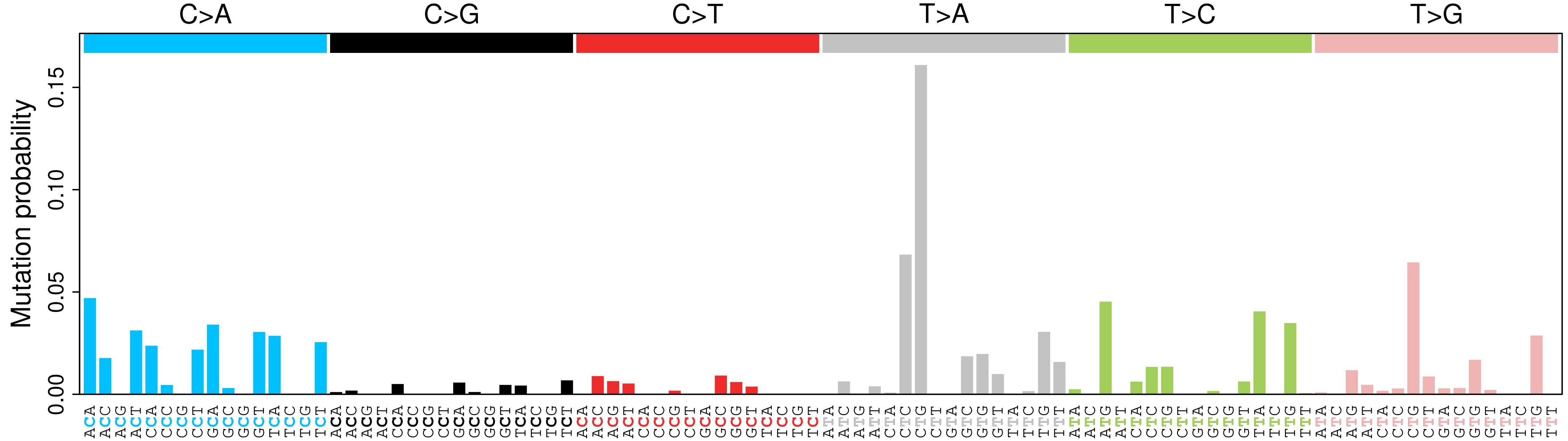
SBS127



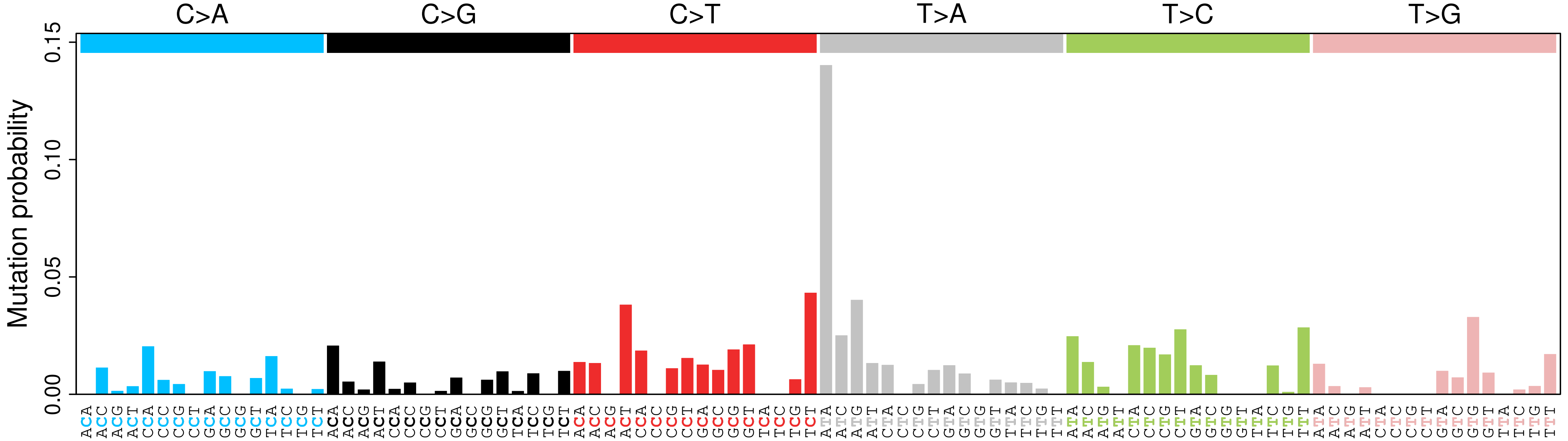
SBS132



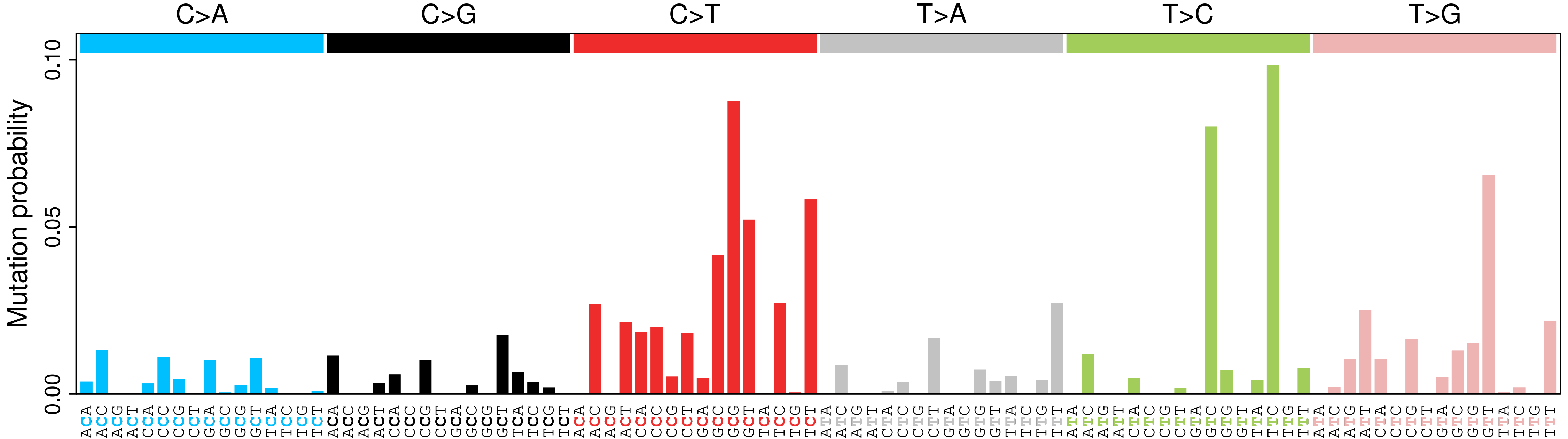
SBS133



SBS135



SBS136



SBS140

C > A

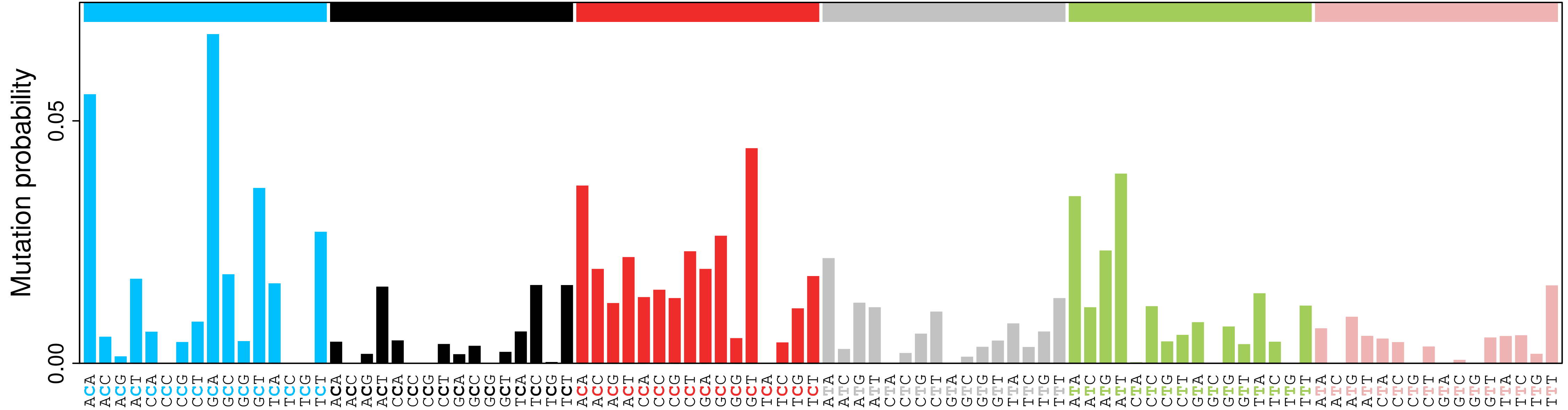
C > G

$C > T$

T > A

$T > C$

T>G



SBS141

C>A

C>G

C>T

T>A

T>C

T>G

Mutation probability

0.05

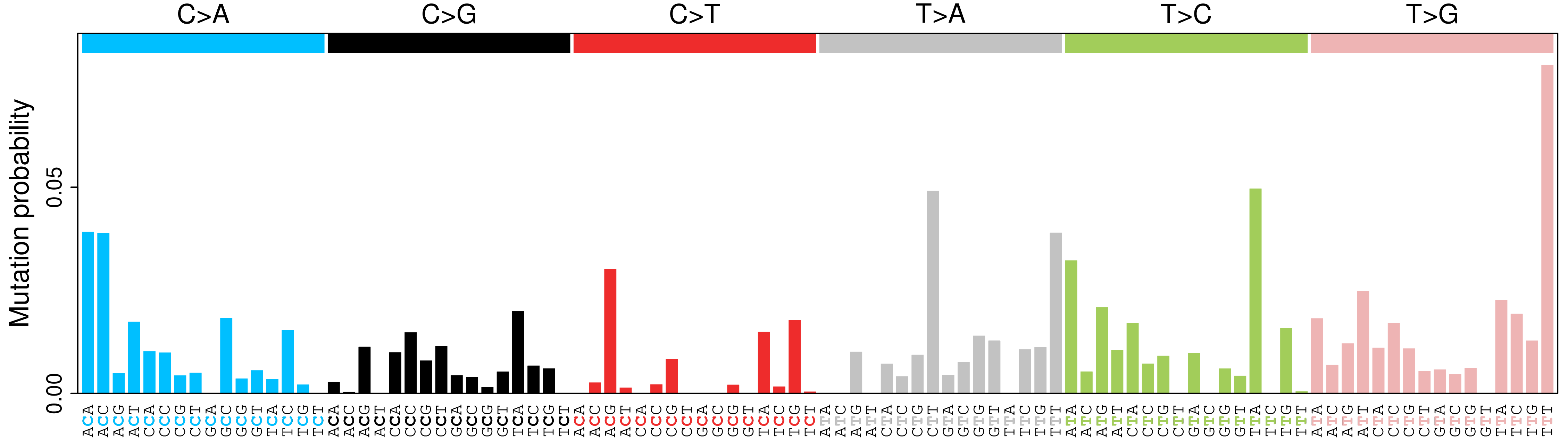
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ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ACA ACC ACG ACT CCA CCC CCG CCT GCA GCC GGT GCT TCA TCC TCG TCT ATA ATC ATG ATT CTA CTC CTG CTT GTA GTC GTG GTT TTA TTC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

SBS143



SBS145



SBS146

$C > A$

C > G

C>T

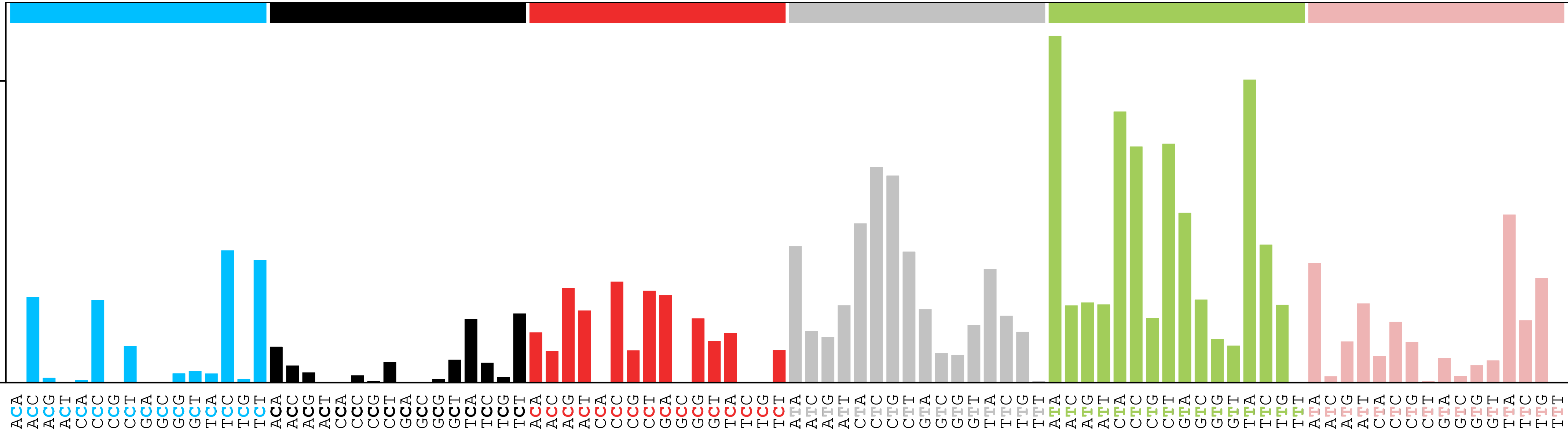
T > A

$$T > C$$

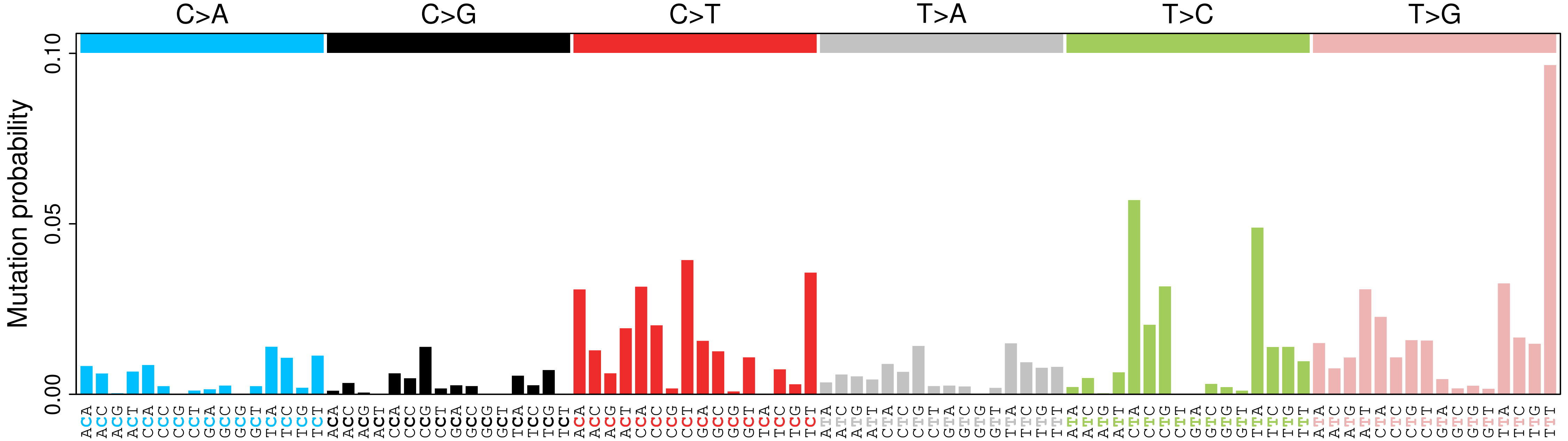
T>G

0.05

0.00



SBS147



SBS148

C > A

C > G

$$C > T$$

T > A

$T > C$

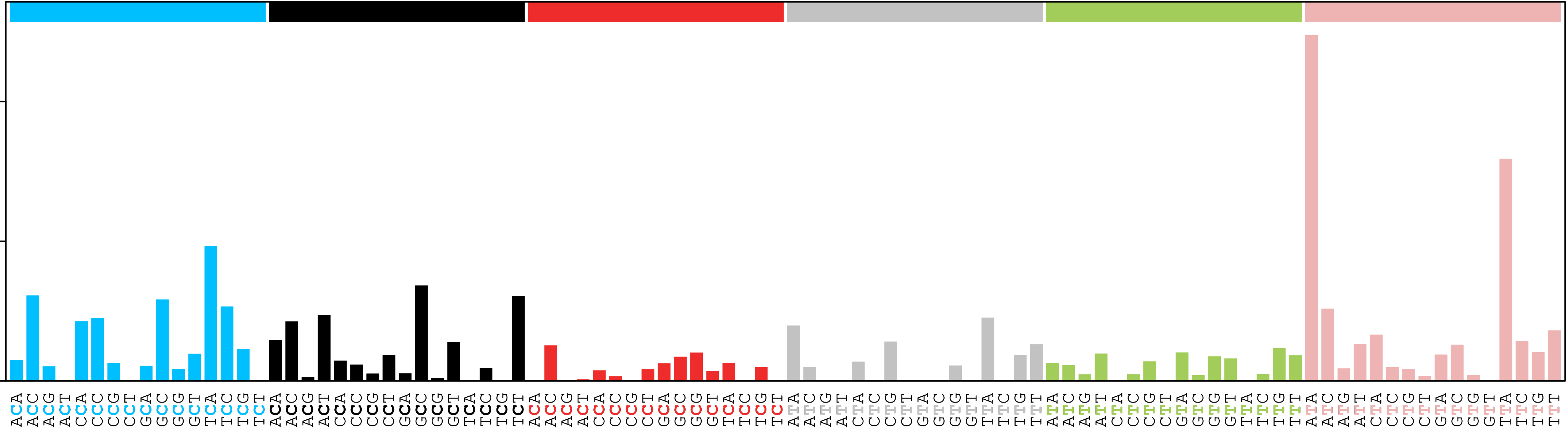
T>G

Mutation probability

0.10

5

0.00



SBS149

C > A

C > G

$C > T$

T > A

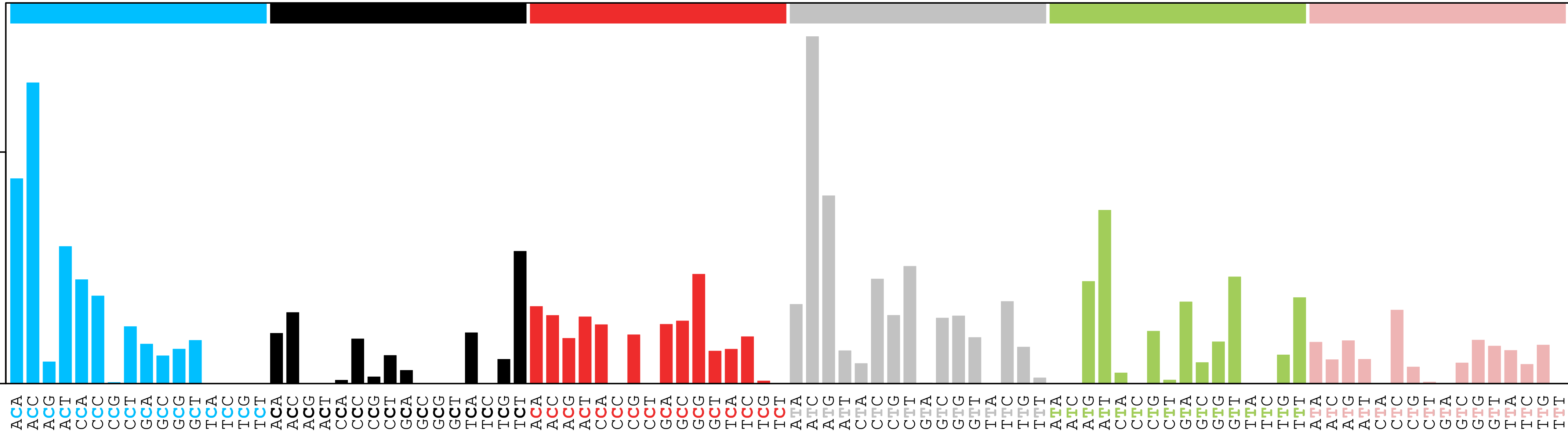
$T > C$

T>G

Mutation probability

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 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

SBS154



SBS156

$C > A$

C > G

$C > T$

T > A

$$T > C$$

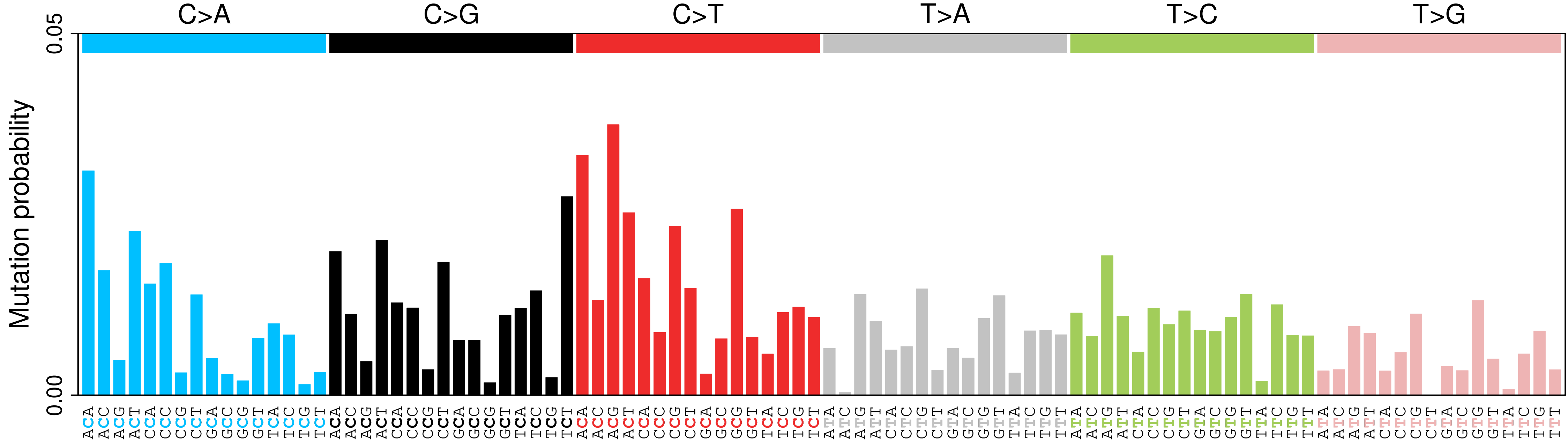
$T > G$

0.05

0.00

[illegible]

SBS157



SBS158

C > A

C > G

$C > T$

T > A

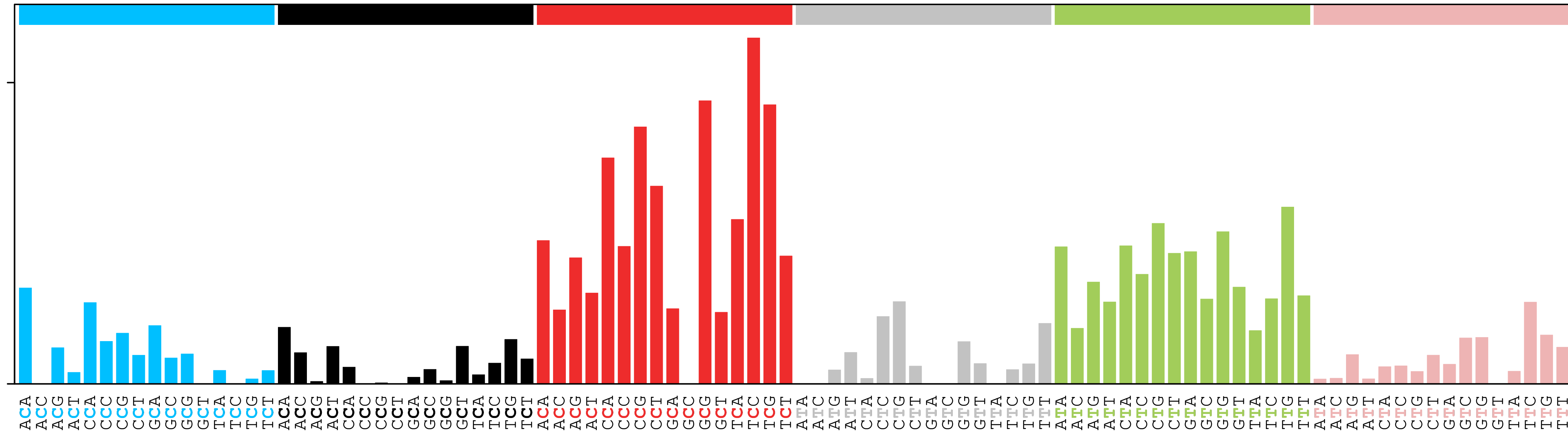
$$T > C$$

$T > G$

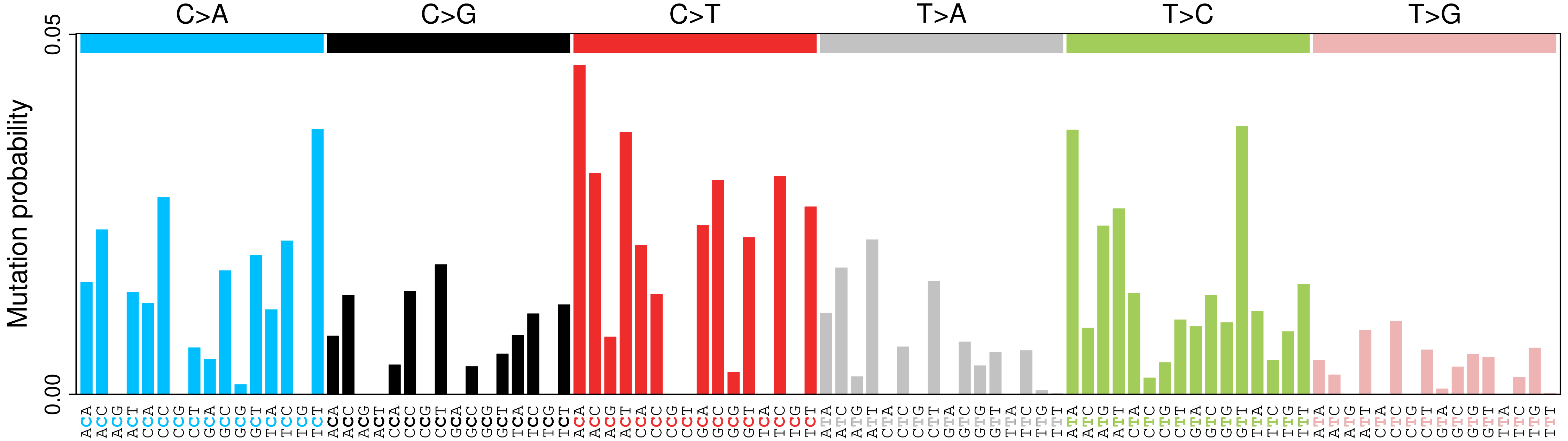
Mutation probability

0.05

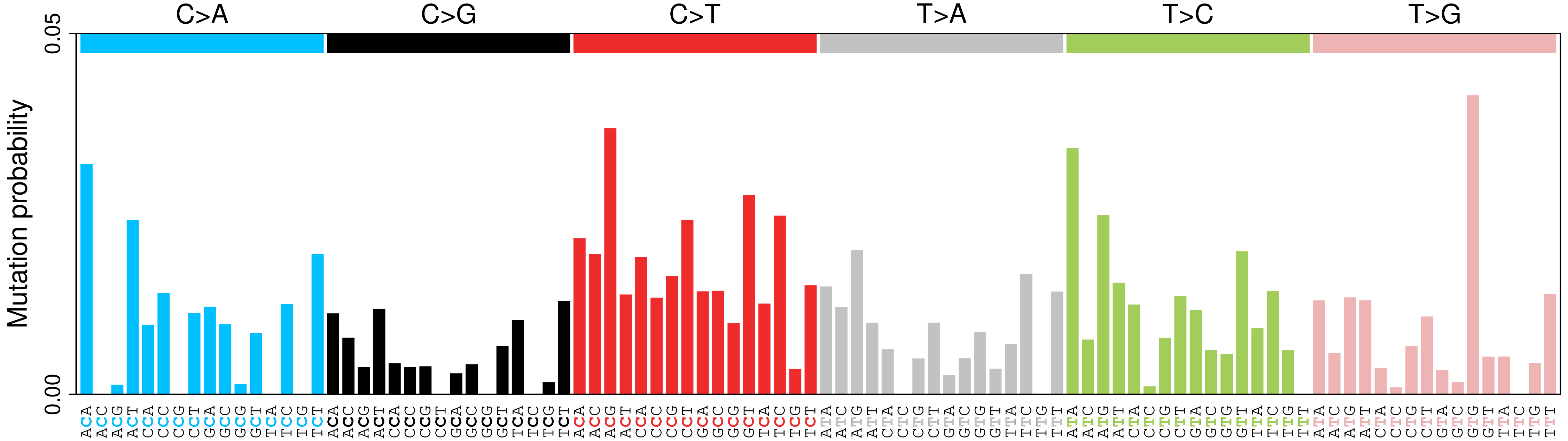
0.00



SBS159



SBS160



SBS161

C>A

C>G

C>T

T>A

T>C

T>G

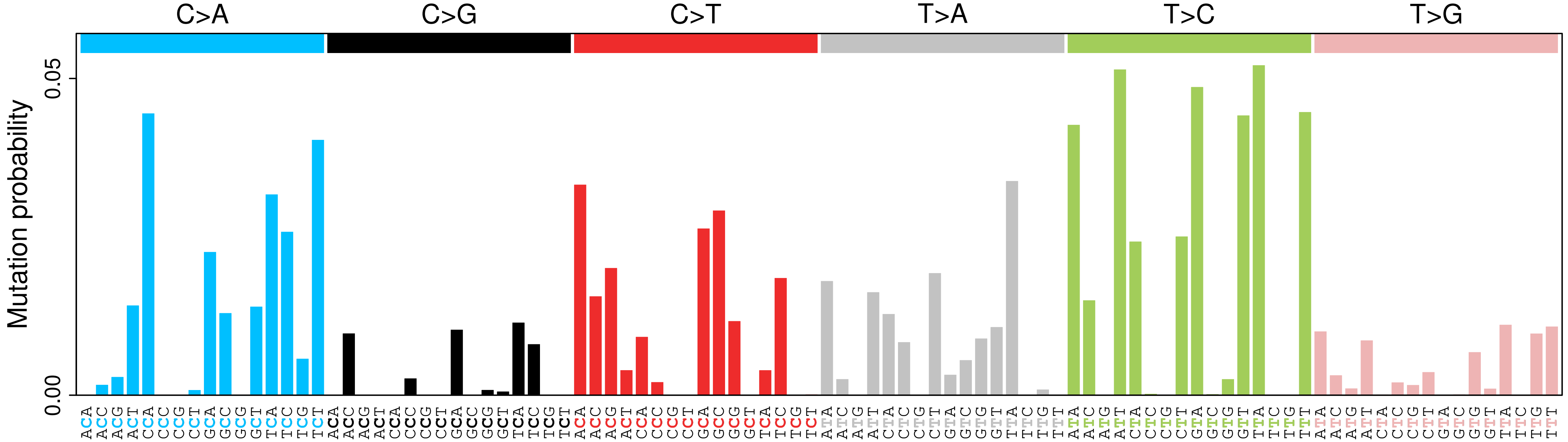
Mutation probability

0.05

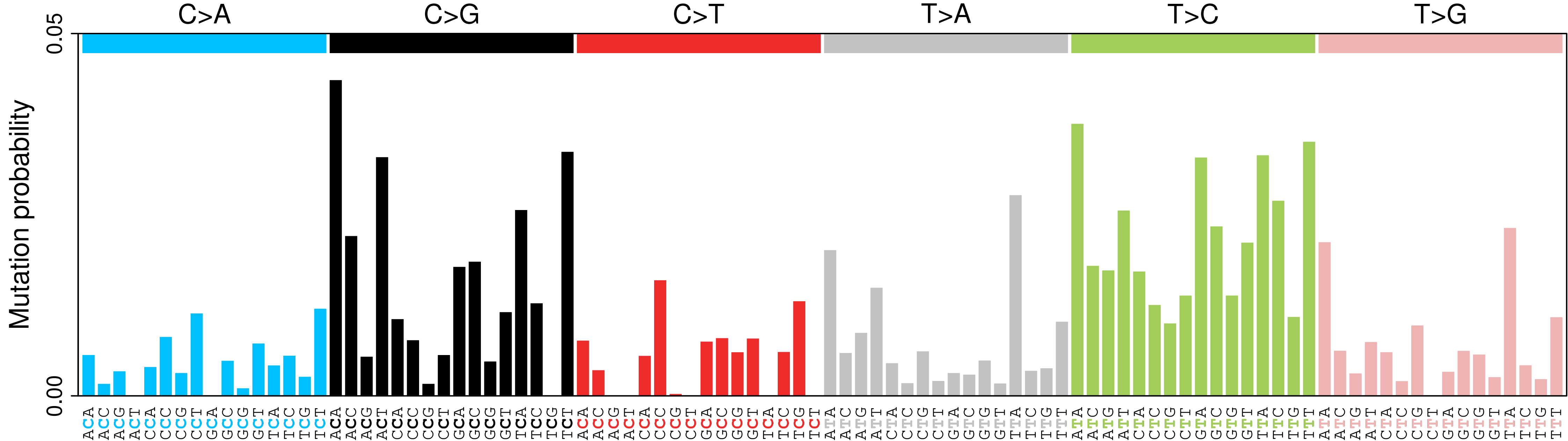
0.00

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 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

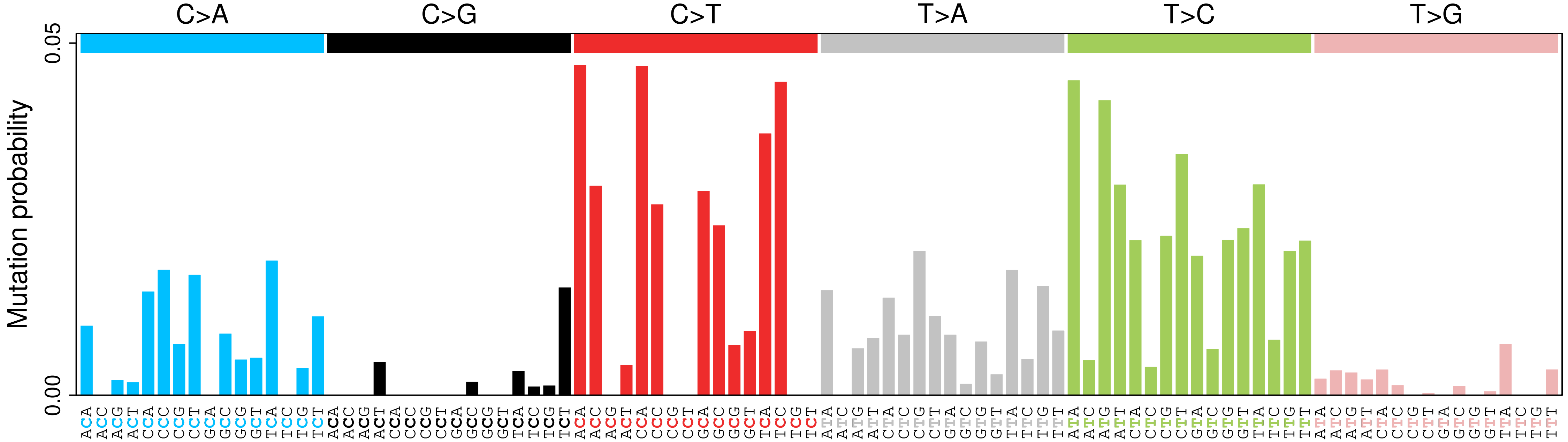
SBS162



SBS163



SBS164



SBS166

C > A

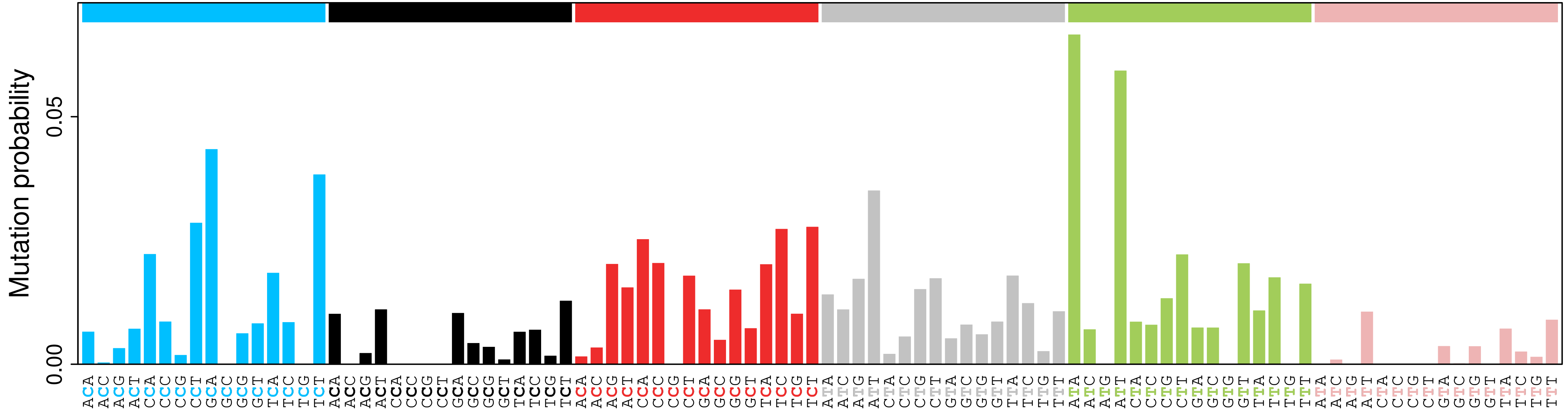
C > G

$C > T$

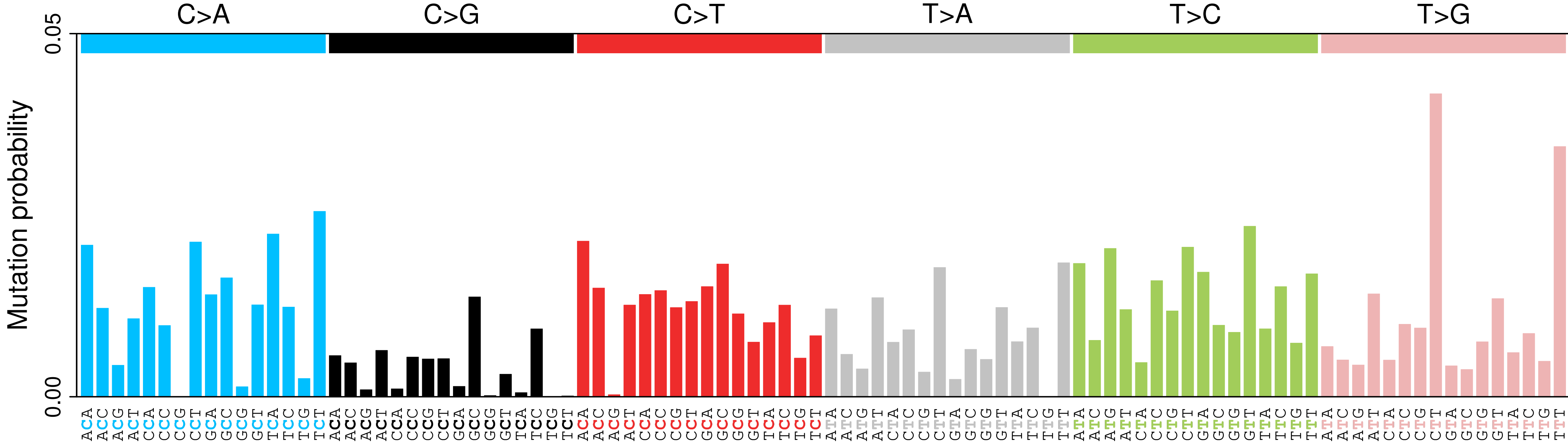
T > A

$T > C$

T>G



SBS167



SBS169

C > A

C > G

$$C > T$$

$T > A$

$T > C$

$T > G$

Mutation probability

0.10

0.05

0.00

