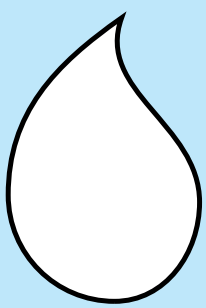
Water ON

Translate only the
hydrophilic amino acids:

E. Glutamate
D. Aspartate
G. Glycine
K. Lysine
N. Asparagine

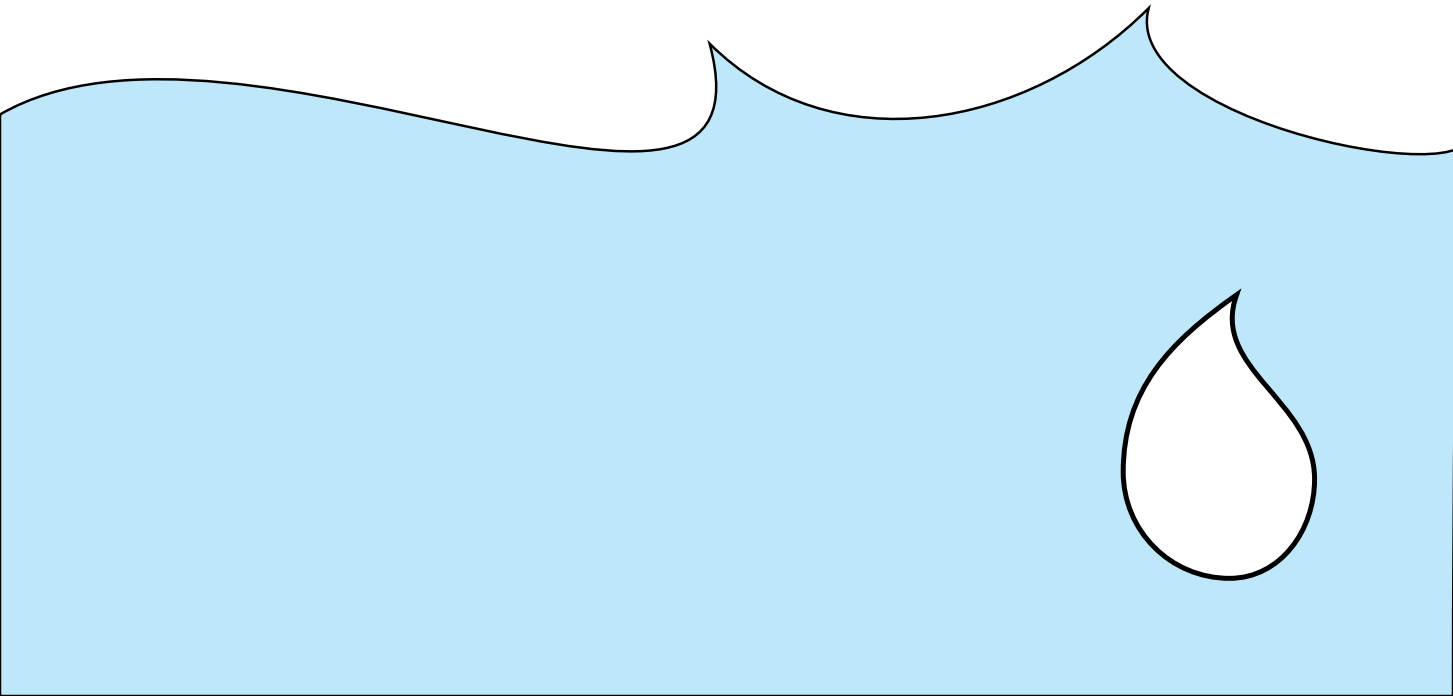
P. Proline
Q. Glutamine
R. Arginine
S. Serine
T. Threonine



Water OFF

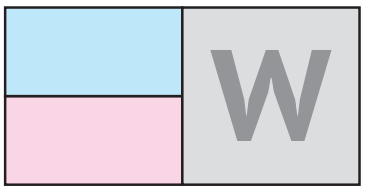
Translate only the
hydrophobic amino acids:

A. Alanine
C. Cysteine
H. Histidine
I. Isoleucine
F. Phenylalanine
L. Leucine
M. Methionine
W. Tryptophan
V. Valine
Y. Tyrosine

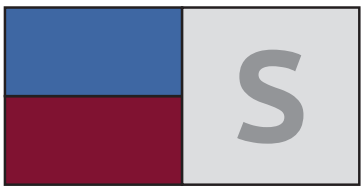


5’

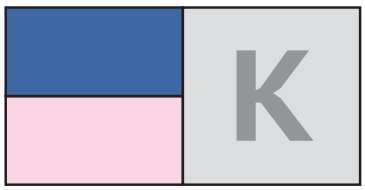
5’



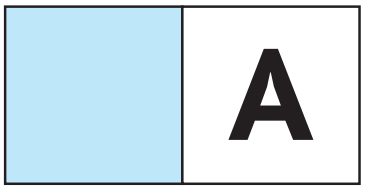
Weak



Strong



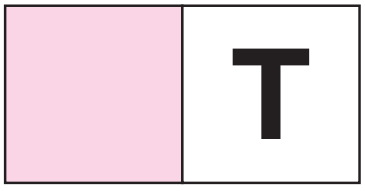
Keto



Adenine

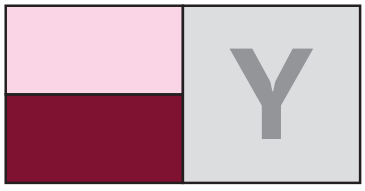
Guanine

Purine

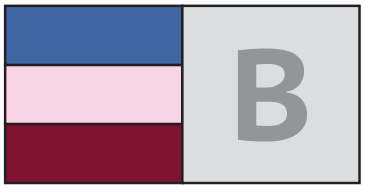


Thymine

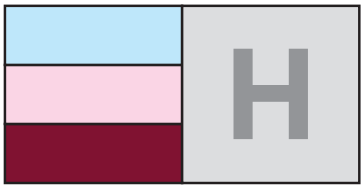
Cytosine



Pyrimidine

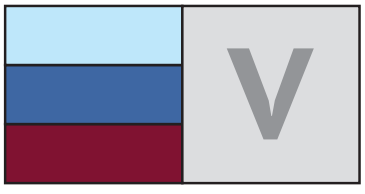


Not A

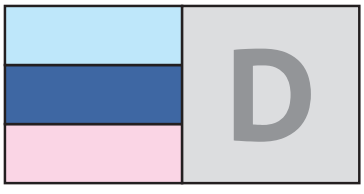


Not G

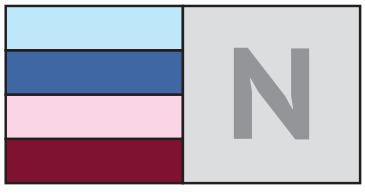
Amino



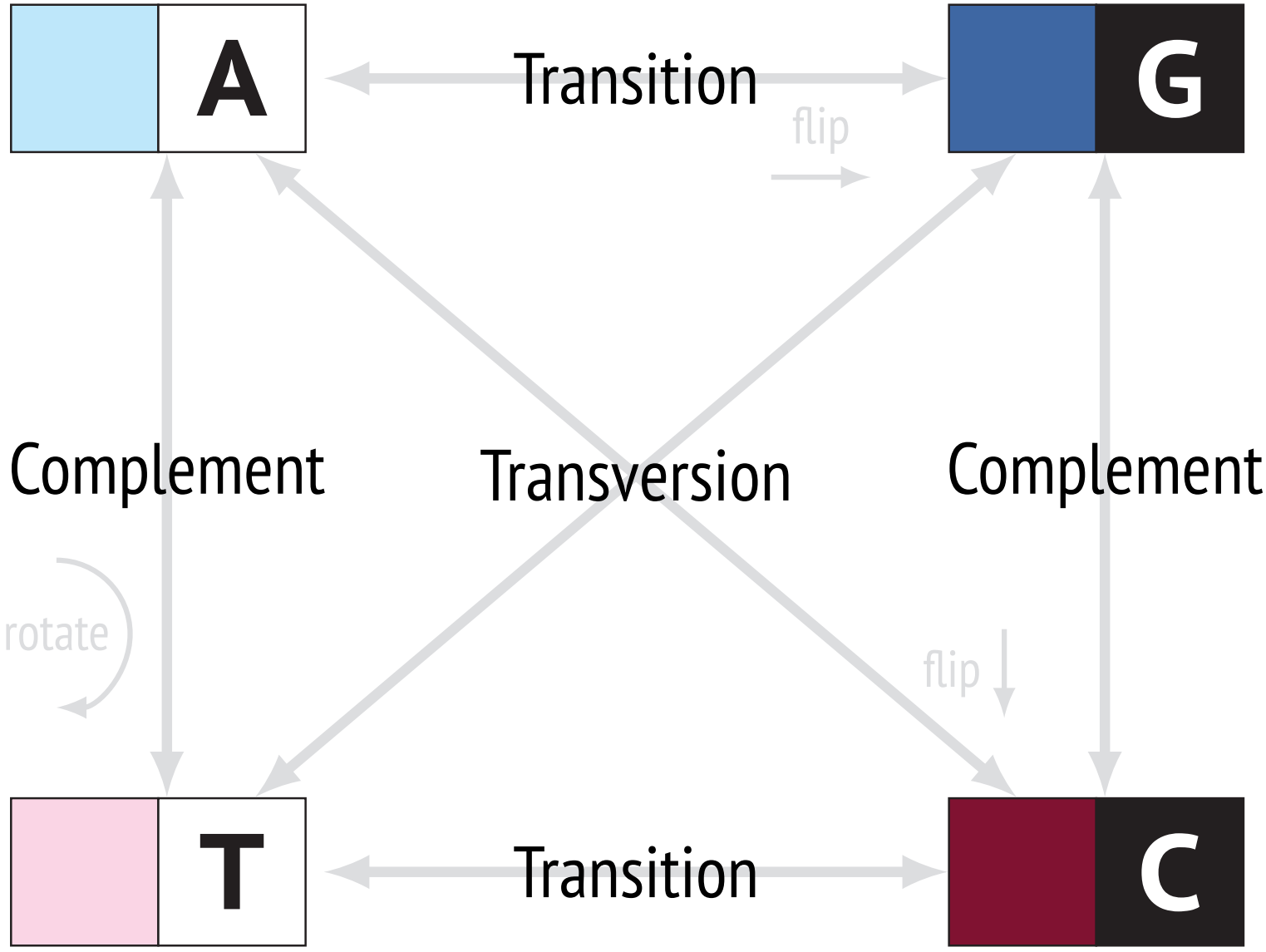
Not T

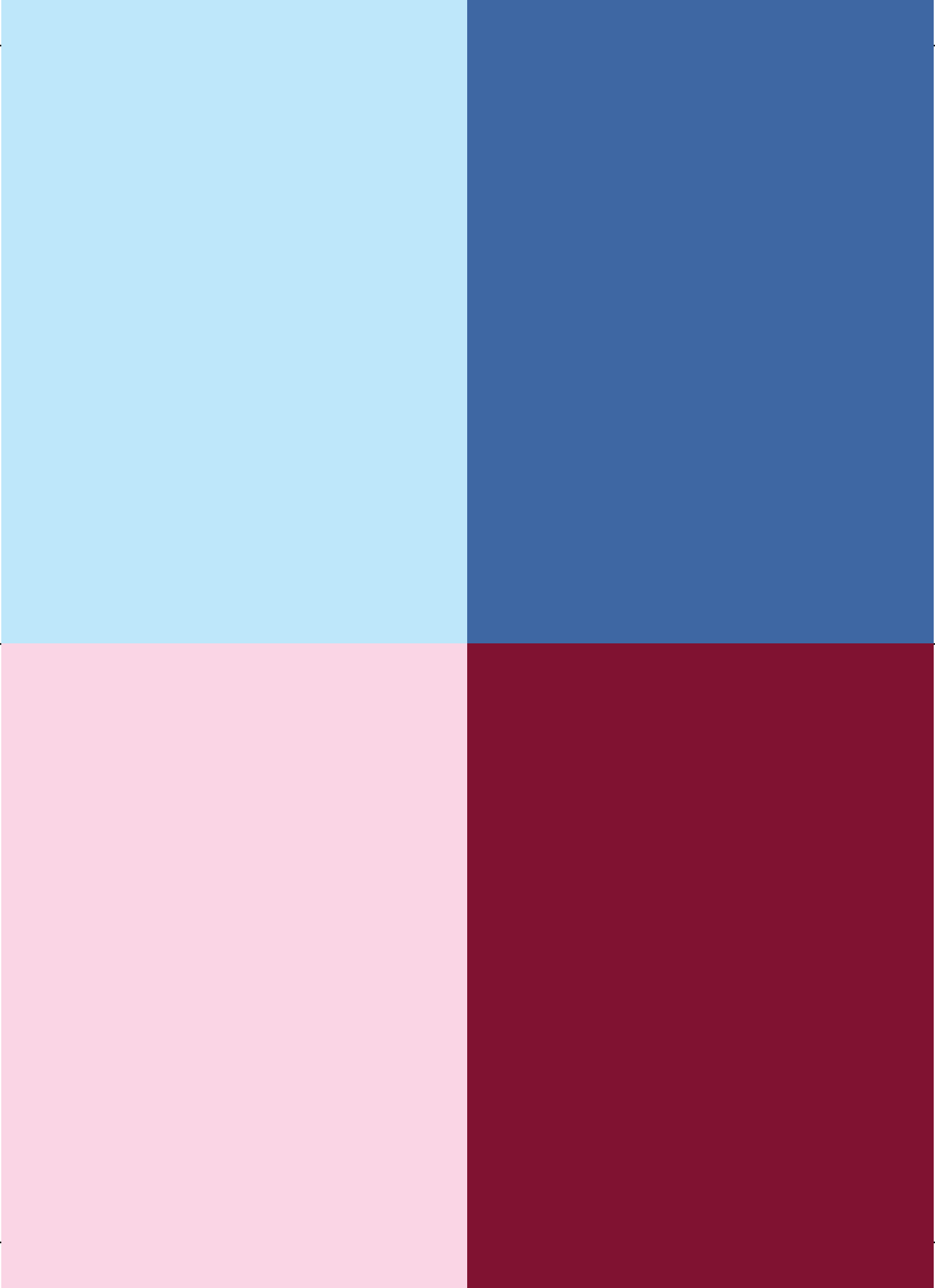


Not C



Any

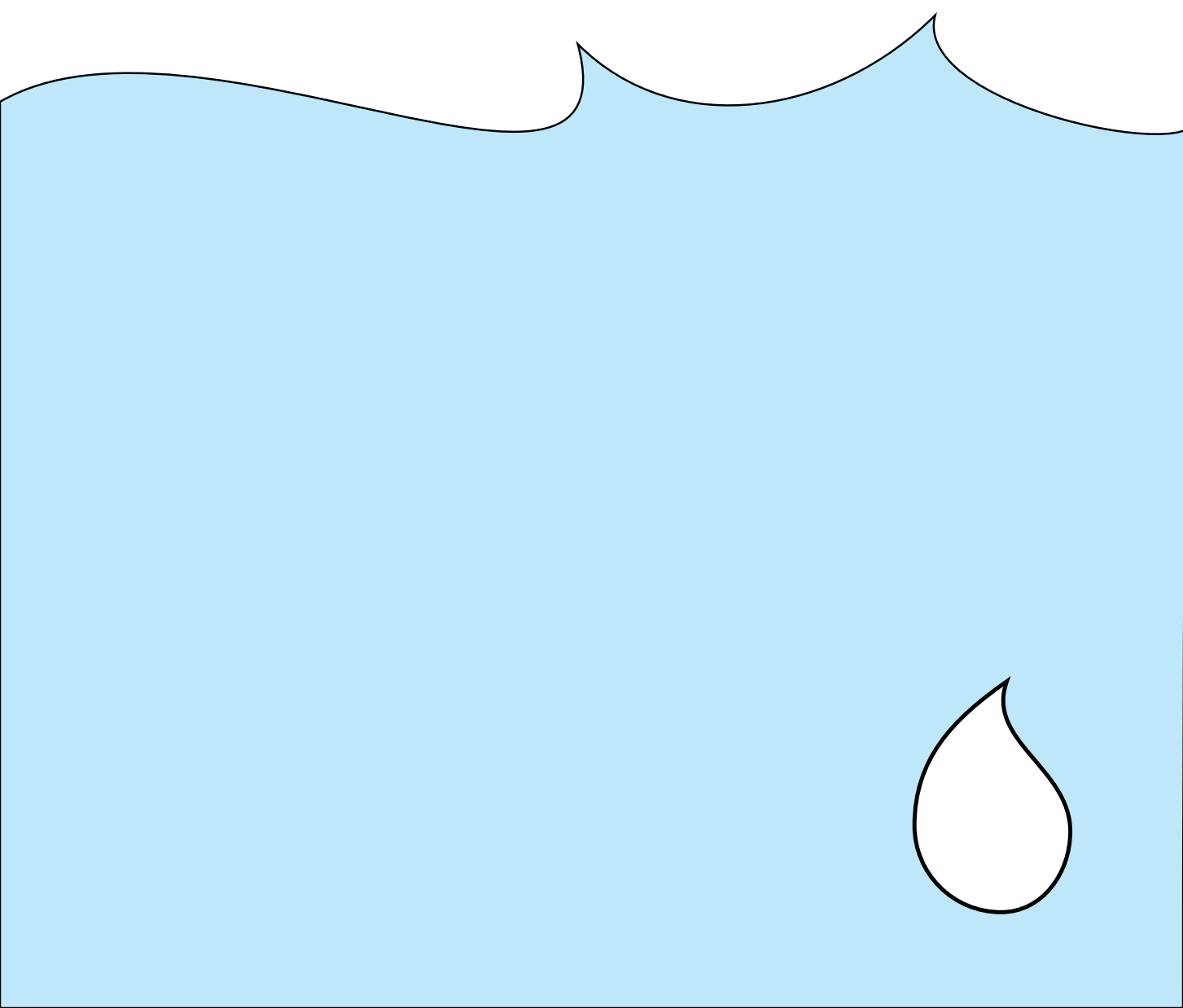

A
Transition
G
flip
Complement
Transversion
Complement
rotate
flip
T
Transition
C



Toggle Water ON/OFF

Buy: 0

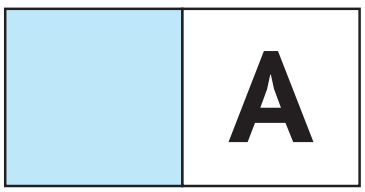
Use: 1

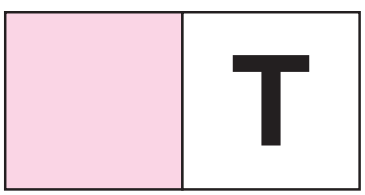


Extend

Buy: 0

Use: 1





Roll the white die to insert a random nucleotide at the end of the sequence. May be used multiple times in one round.

Delete

Buy: 2

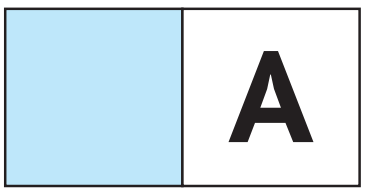
Use: 1

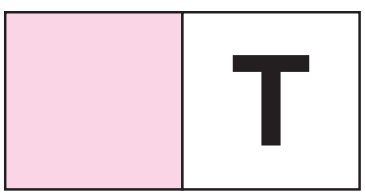
Delete any nucleotide
in the sequence.

Insert

Buy: 3

Use: 1



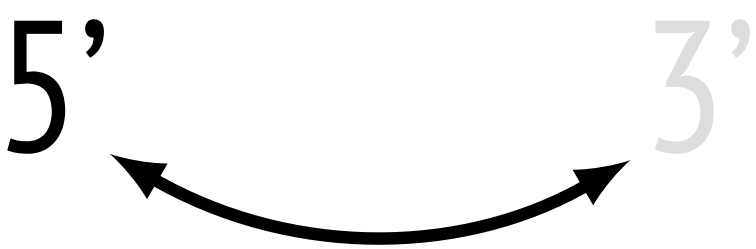


Roll the black die to insert a random nucleotide anywhere in the sequence.

Reverse Complement

Buy: 3

Use: 1

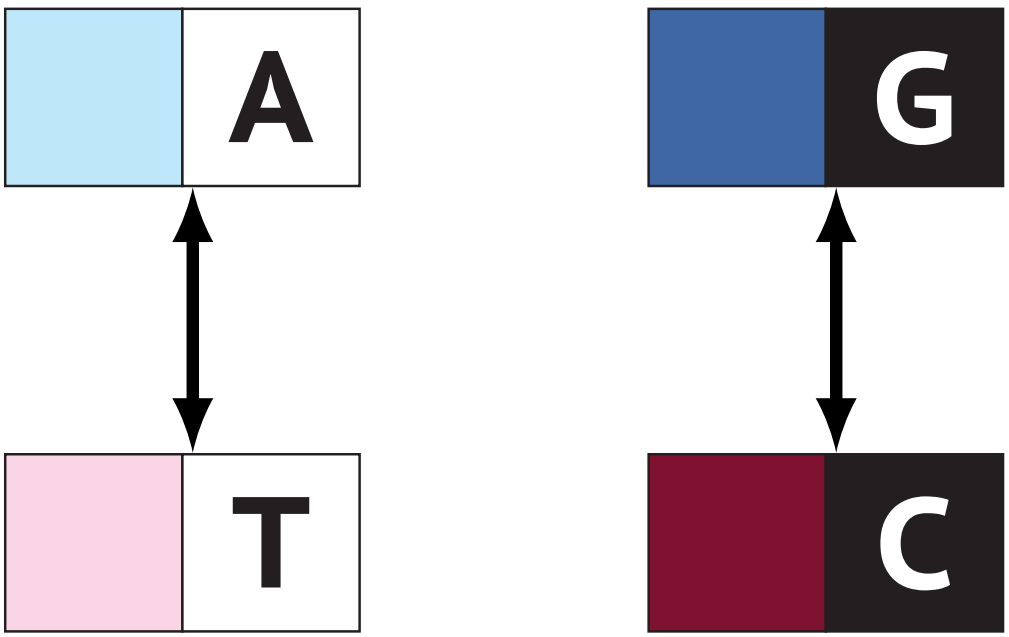


Swap the 5’ and 3’ ends
to read the sequence in
the opposite direction
on the opposite strand.

Complement

Buy: 3

Use: 2

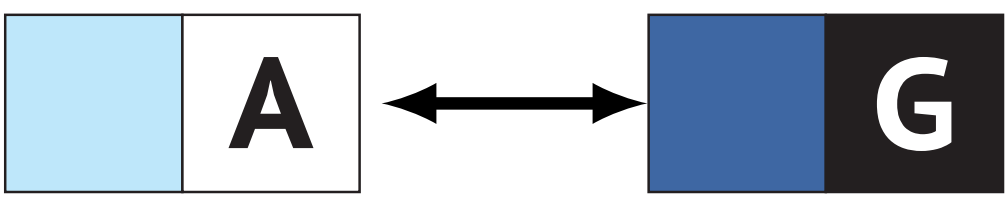


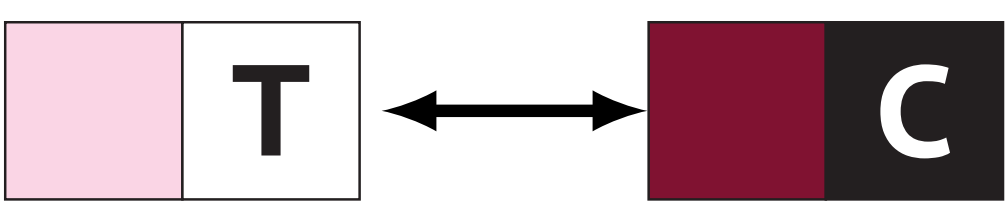
Rotate
any nucleotide
180 degrees.

Transition

Buy: 3

Use: 2



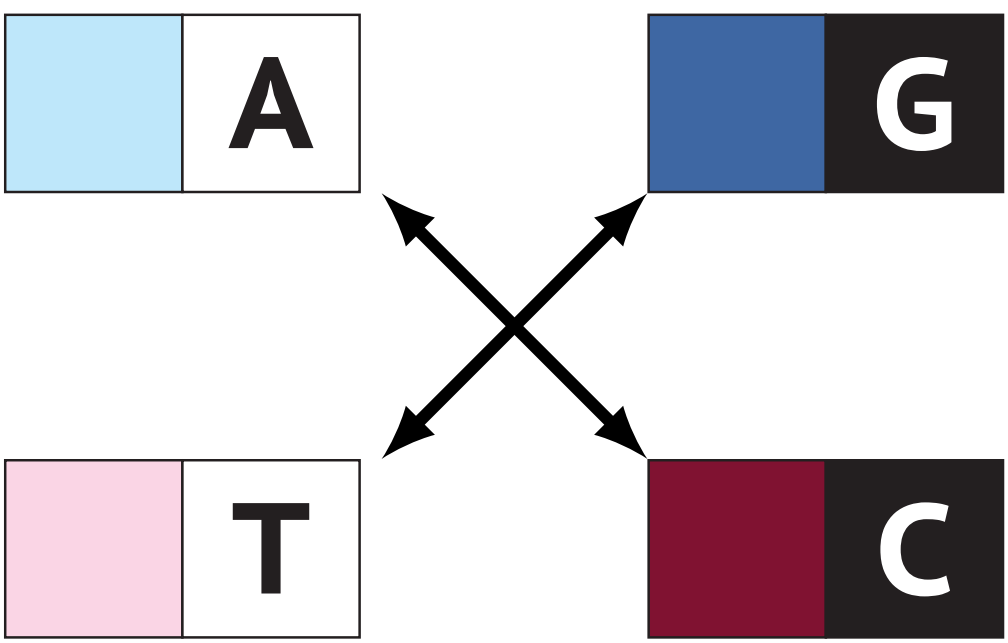


Flip
any nucleotide
horizontally.

Transversion

Buy: 3

Use: 2

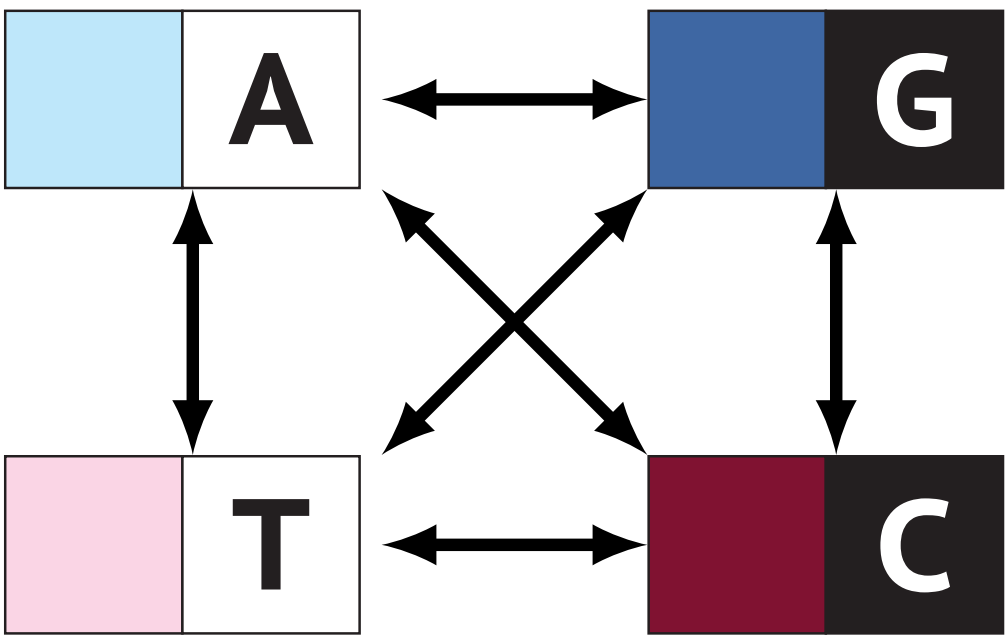


Flip
any nucleotide
vertically.

Mutate

Buy: 5

Use: 3



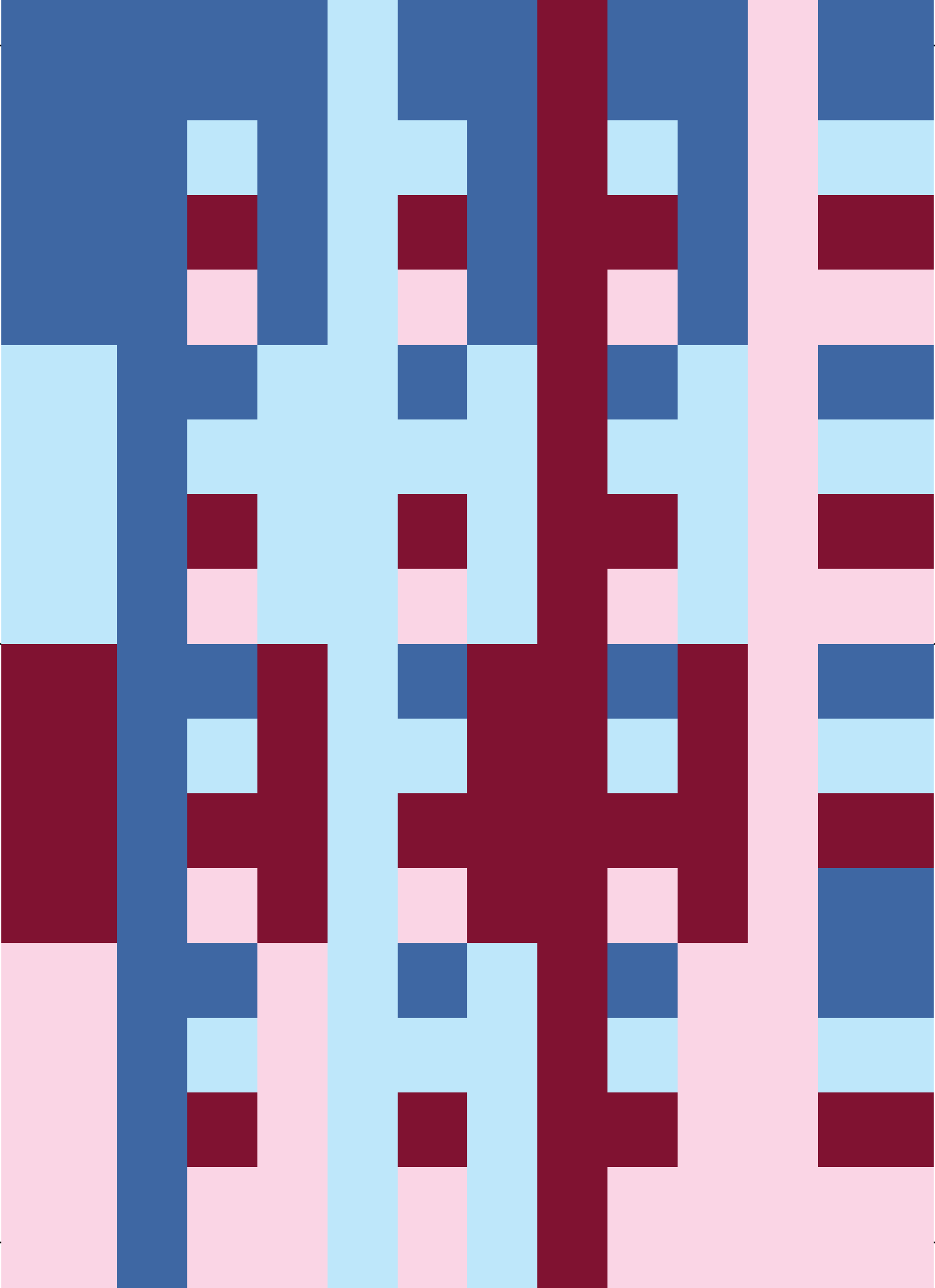
Rotate or Flip
any nucleotide
in any direction.

A

T

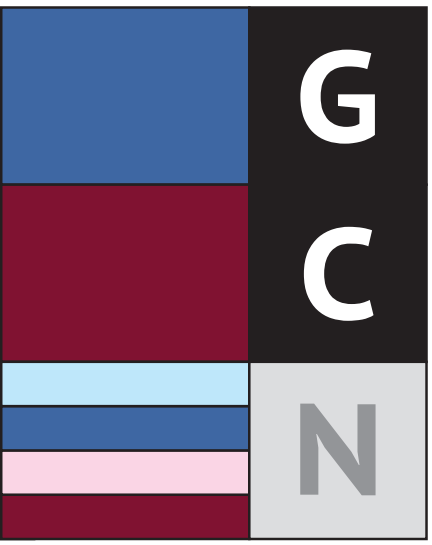
G

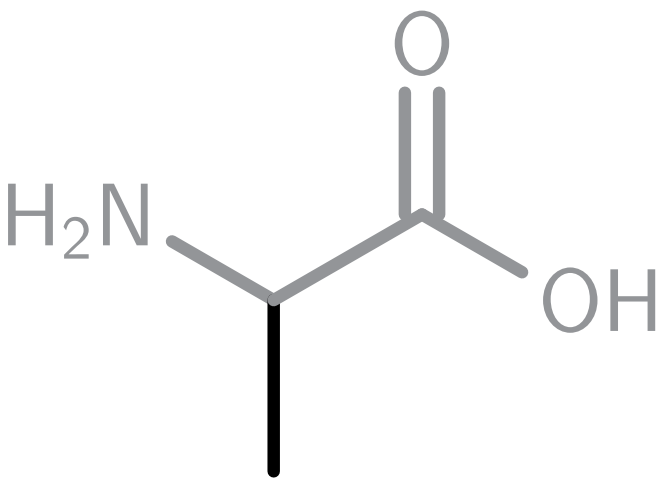
C



A Ala

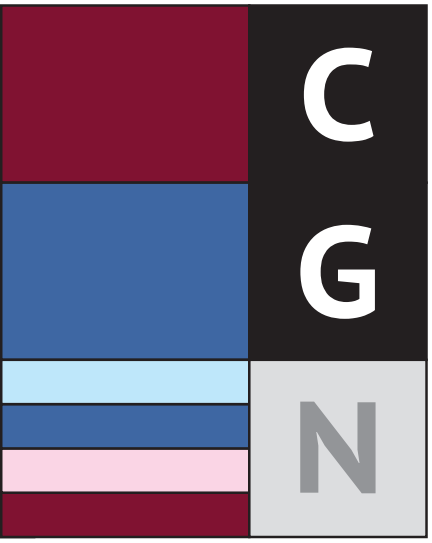
Alan Alanine

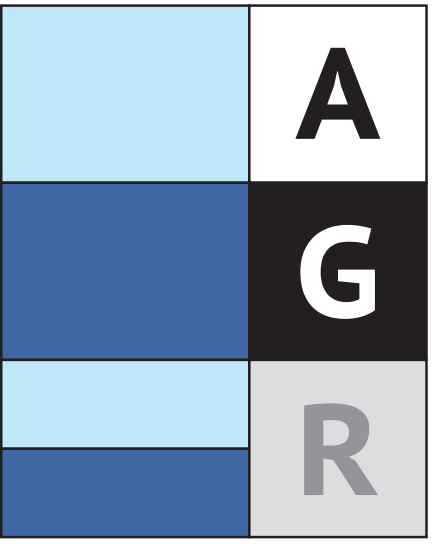


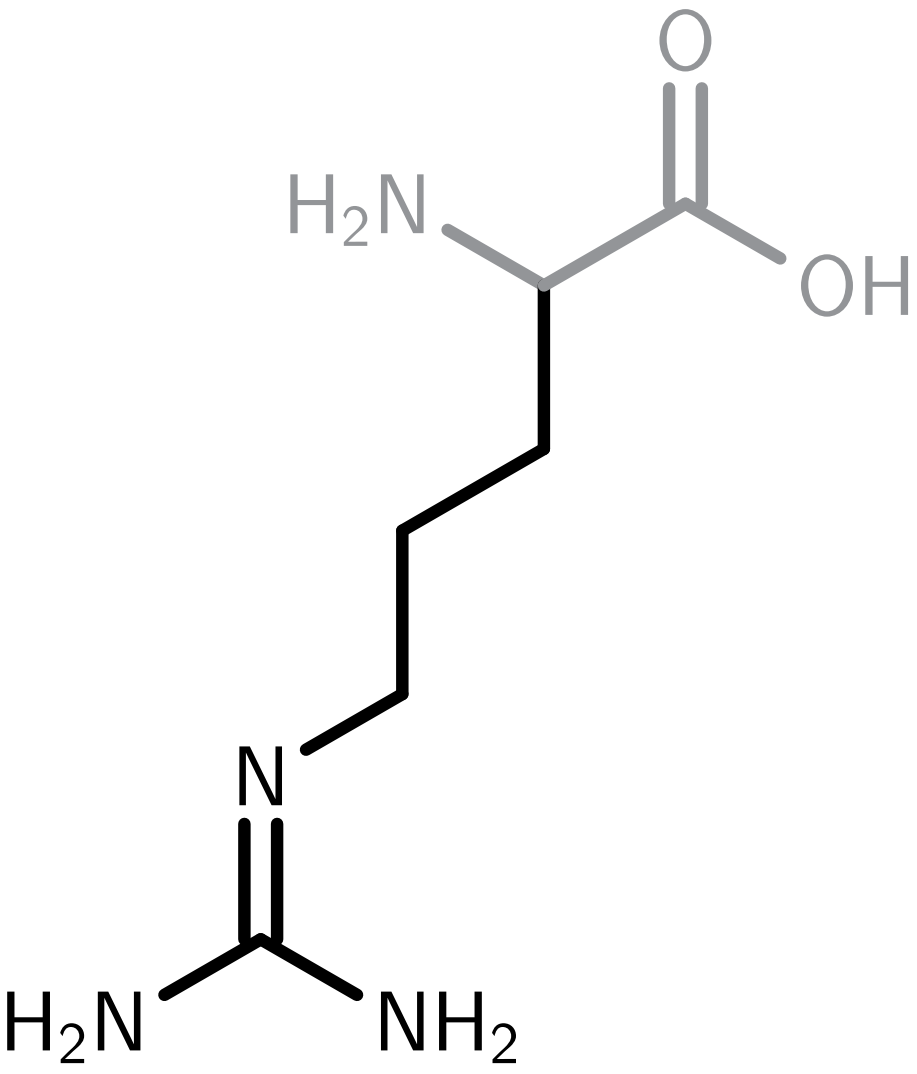


Aliphatic

R Arg Redbeard Arginine



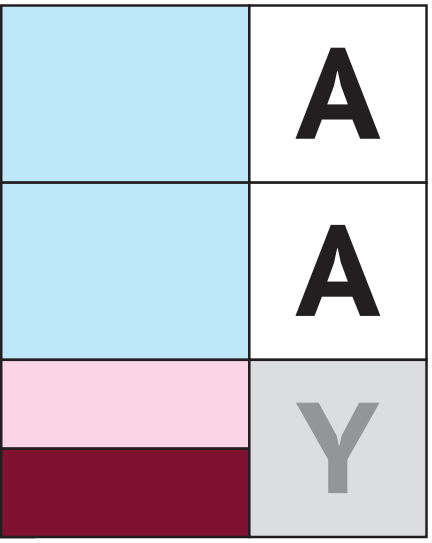


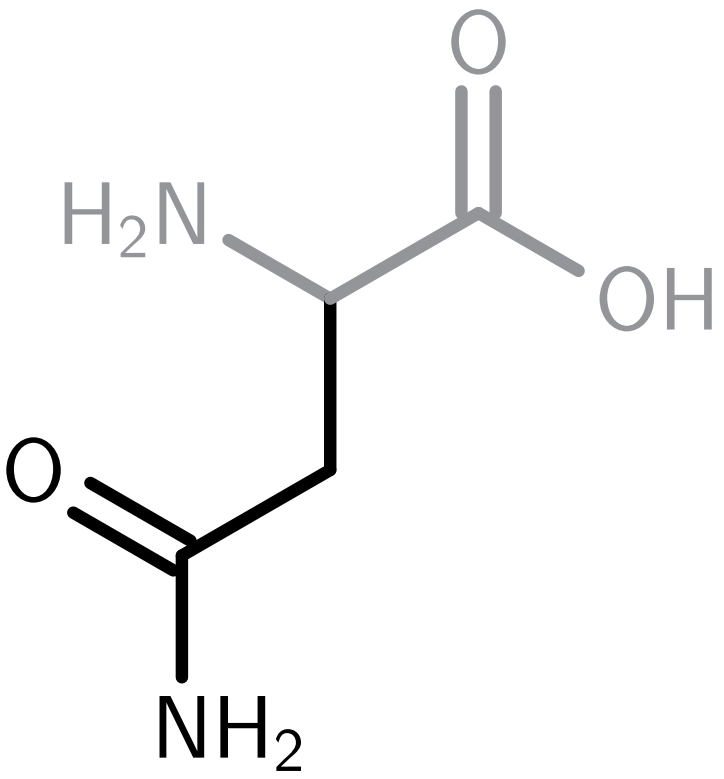


Basic ⊕

N Asn

Nancy Asparagine



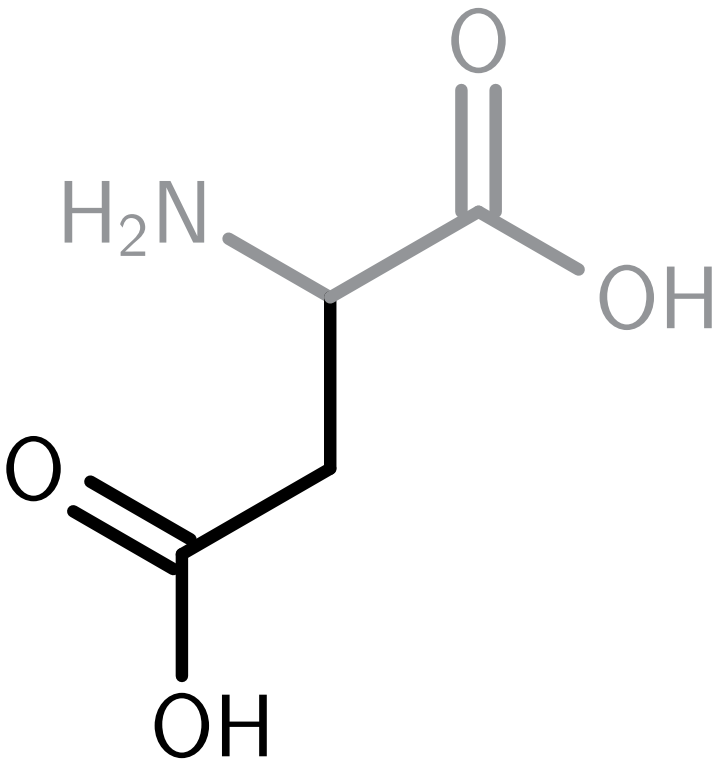


Small Polar

Acid Deriv. N

D Asp

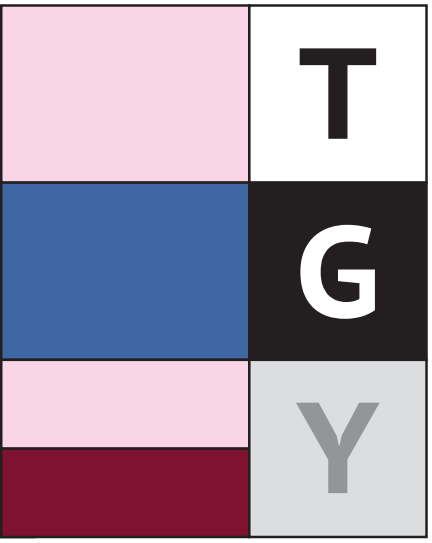
Devin Aspartate

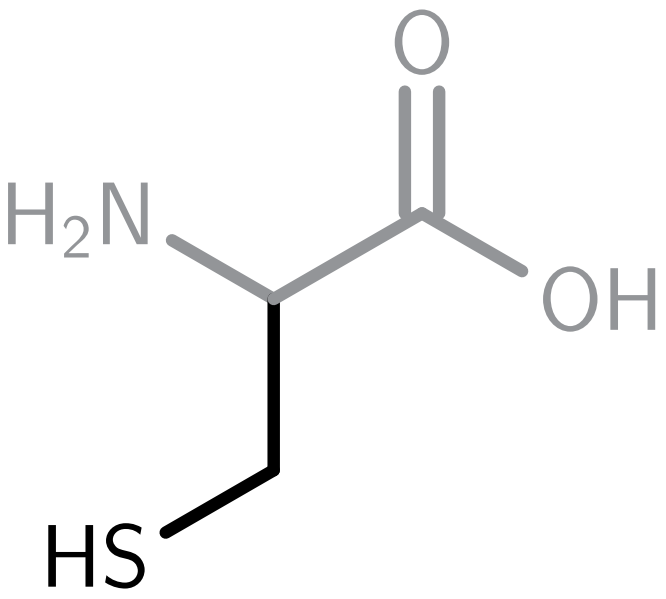


Acidic ⊖

C Cys

Cy Cysteine



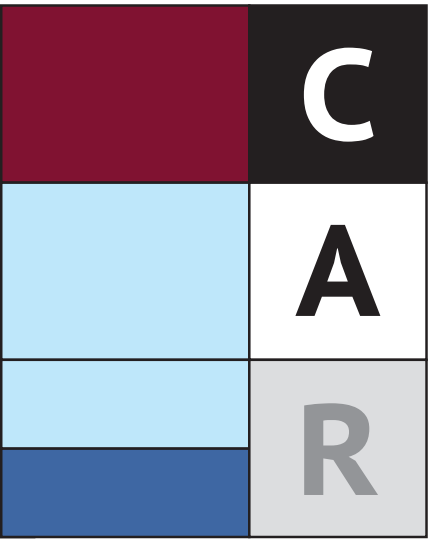


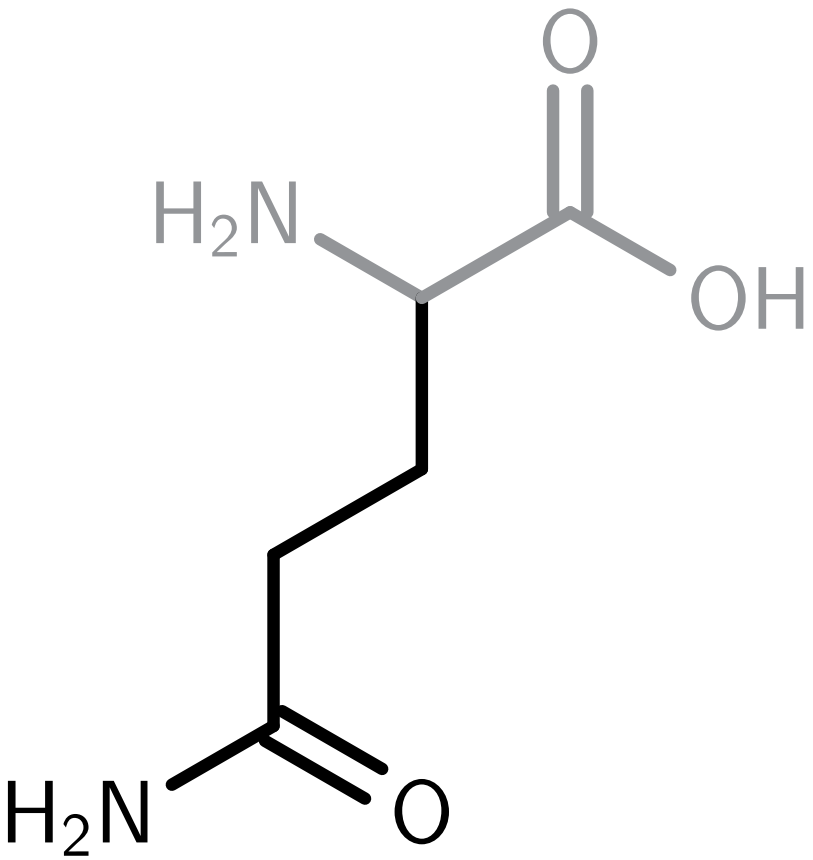
Small Polar

Sulfur

Queen Glutamine

Q Gln

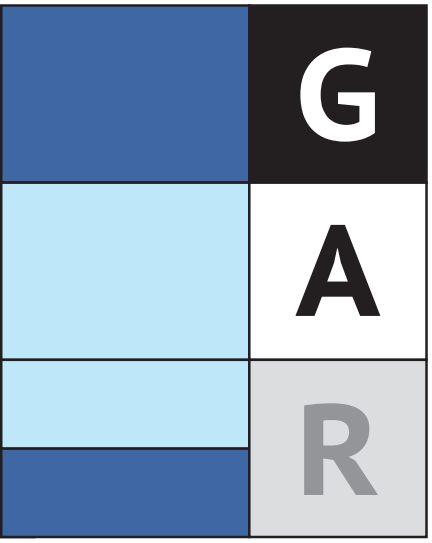


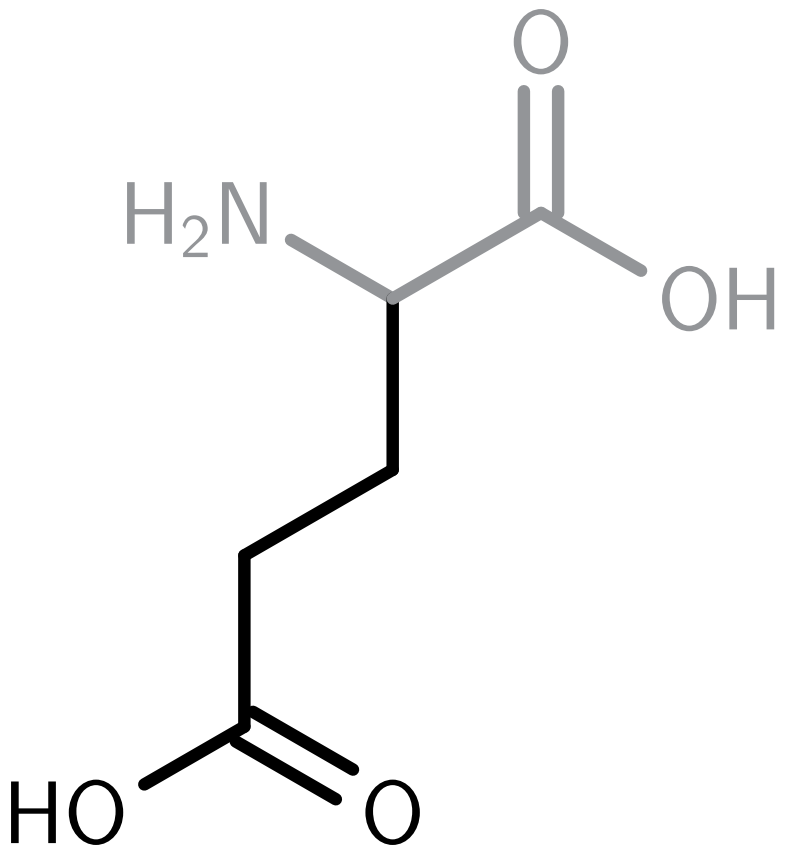


Acid Deriv. N

E Glu

Edwin Glutamate

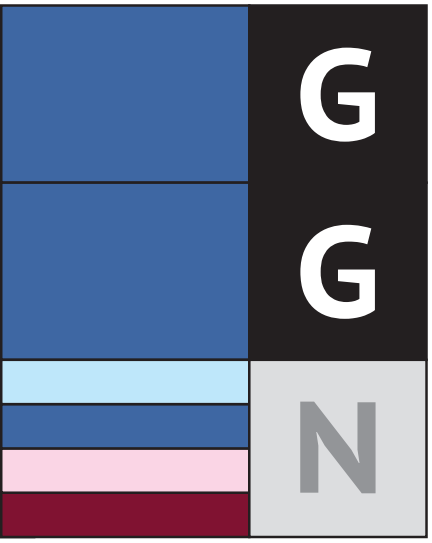


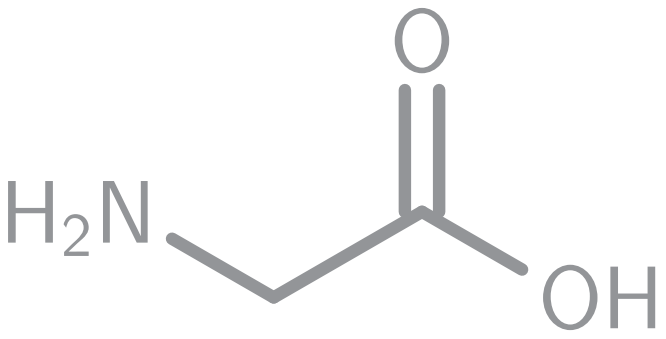


Acidic ⊖

G Gly

Gladys Glycine

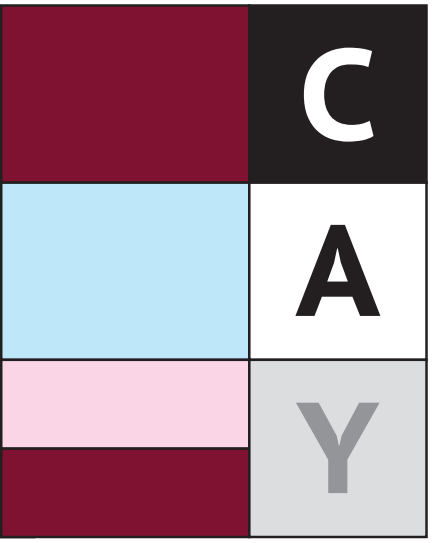


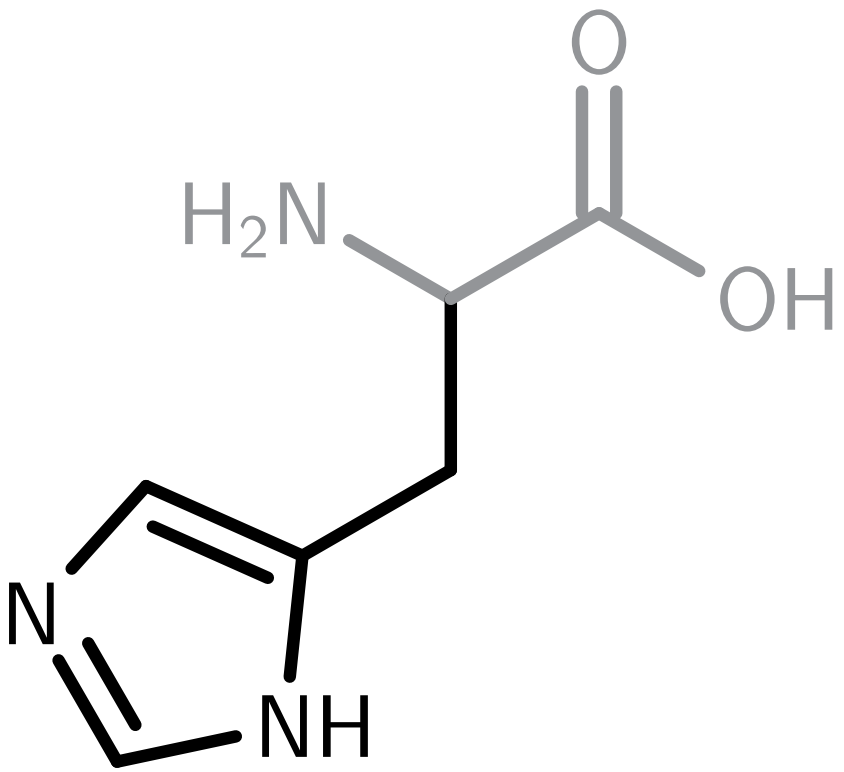


Unusual

H His

Hillary Histidine



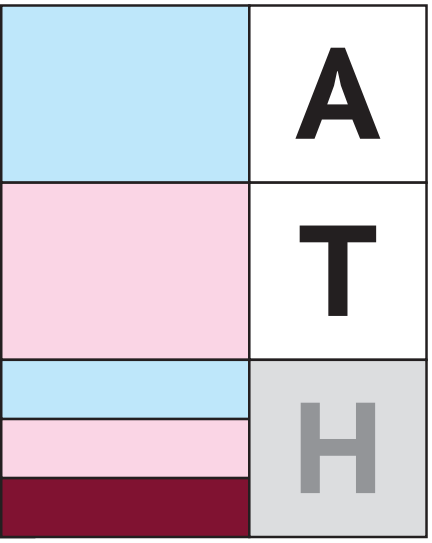


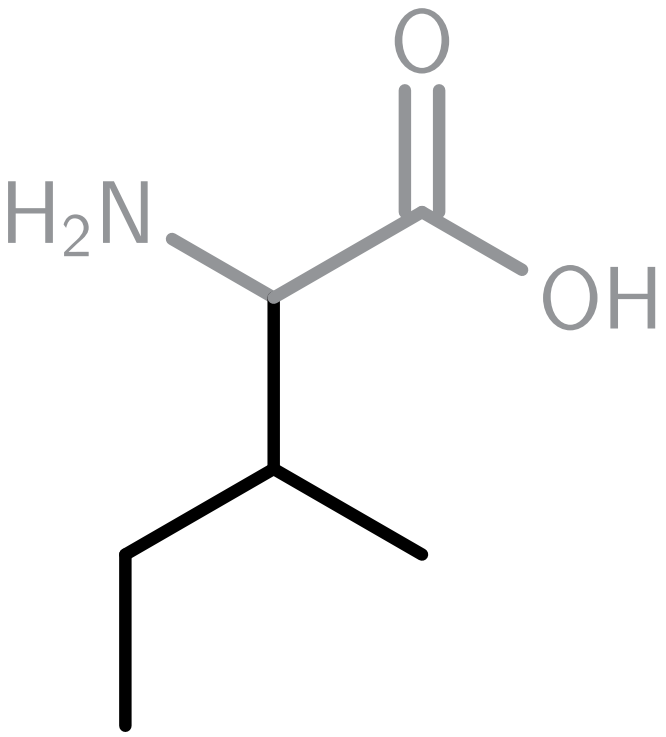
Aromatic

Basic ⊕

I Ile

Isa Isoleucine

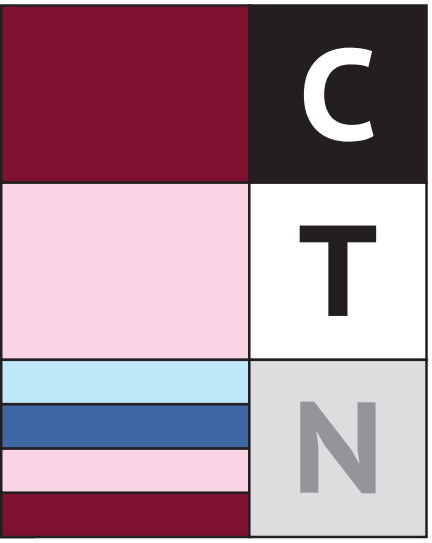


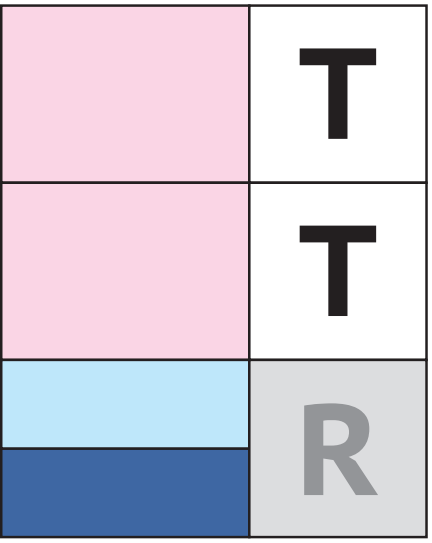


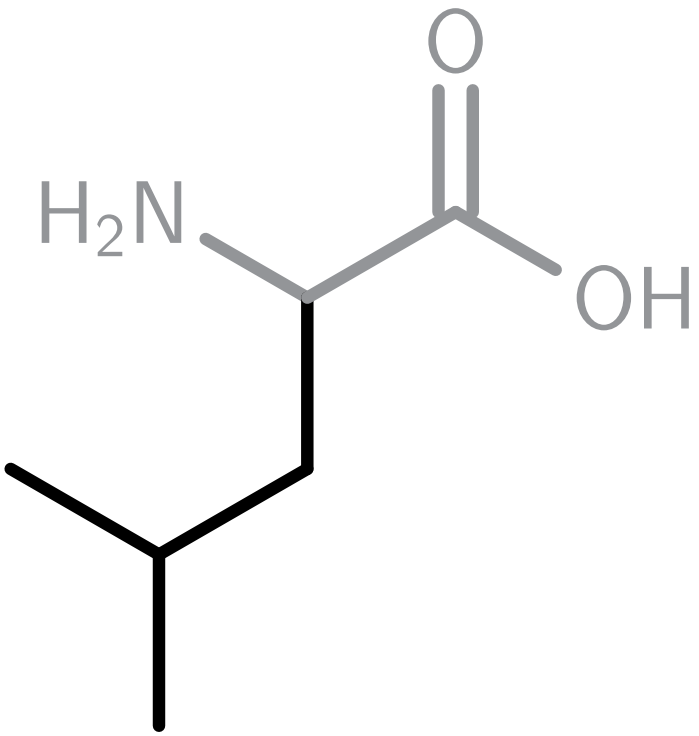
Aliphatic

L Leu

Lucy Leucine



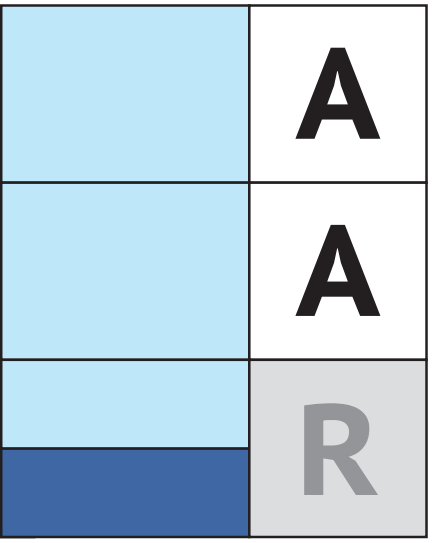


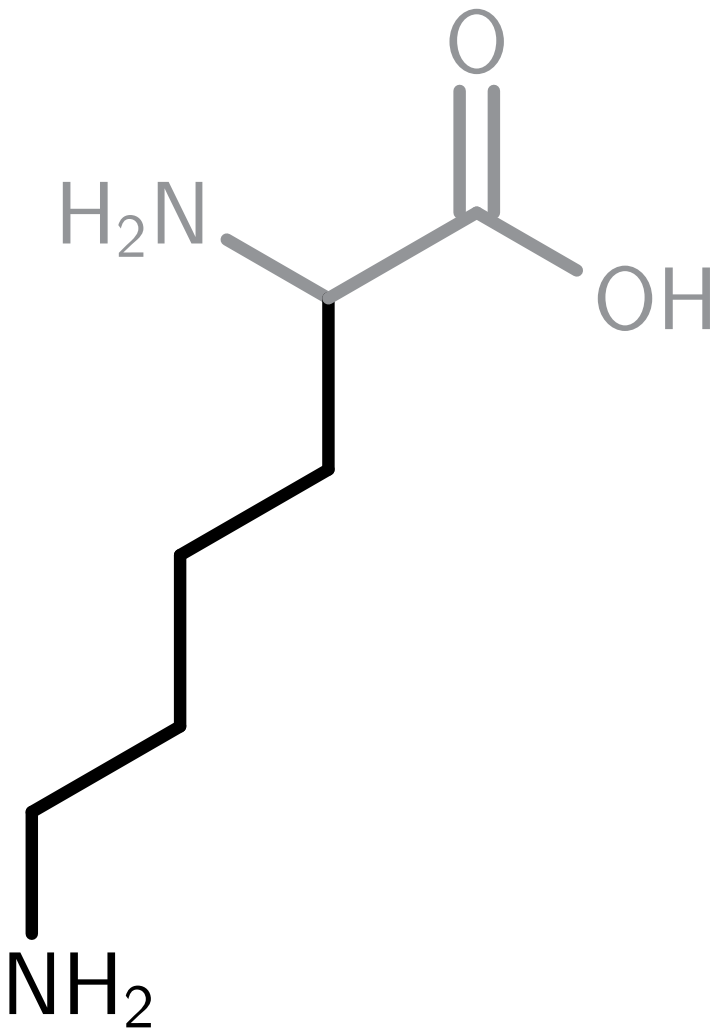


Aliphatic

K Lys

King Lysine

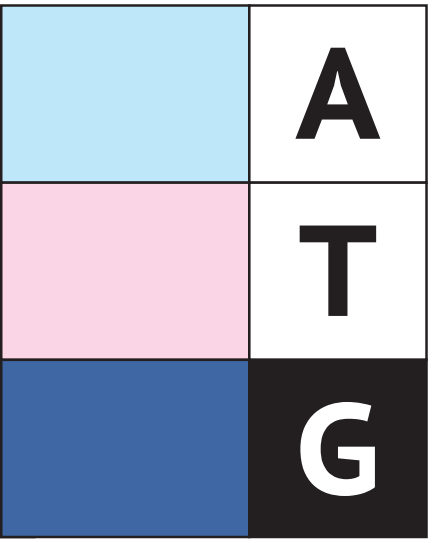


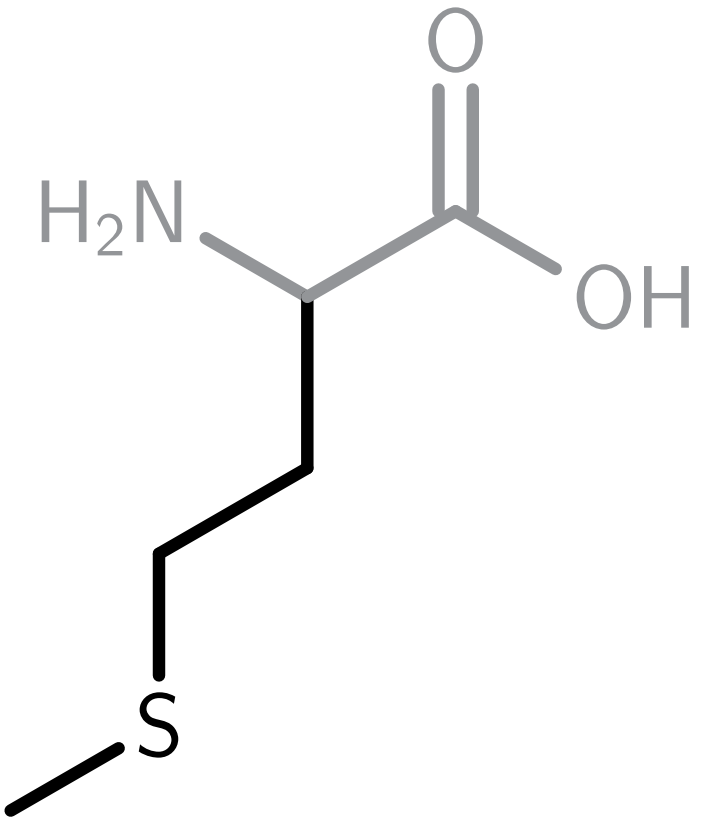


Basic ⊕

M Met

Matt Methionine



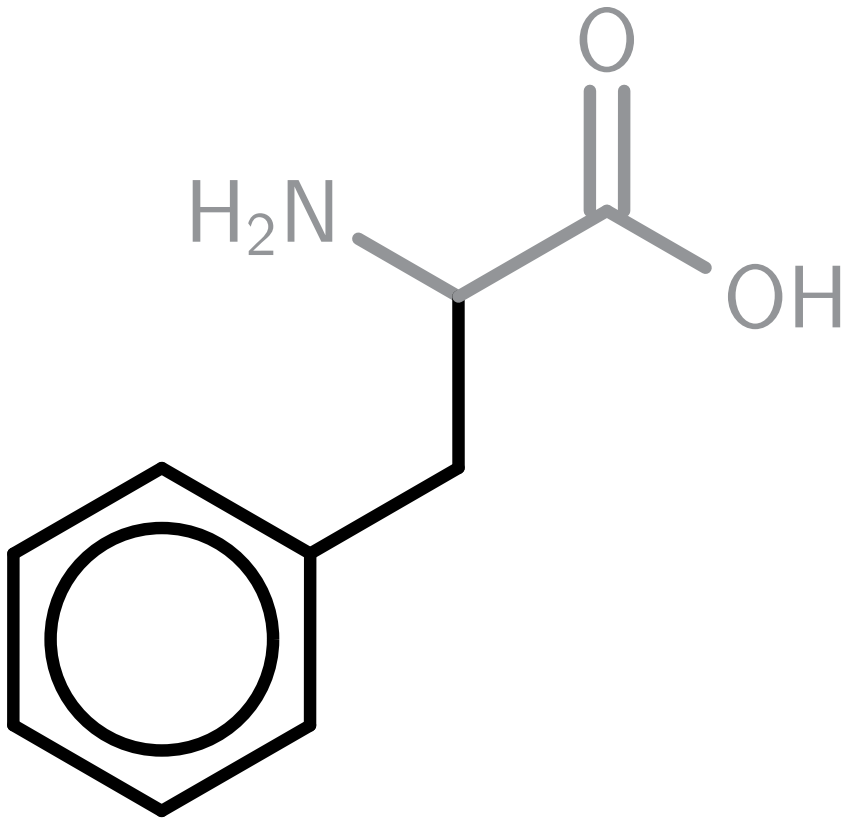


Sulfur

Aliphatic

F Phe Fred Phenylalanine

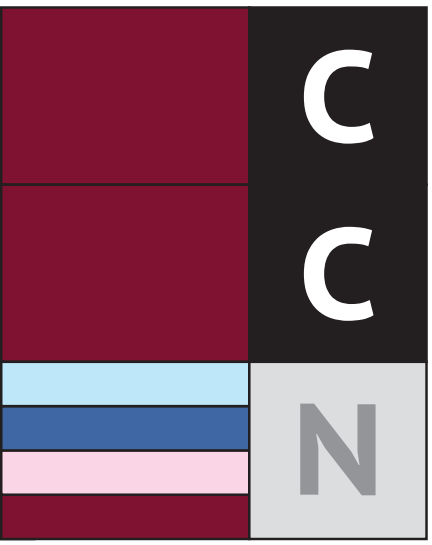
	T
	T
	Y

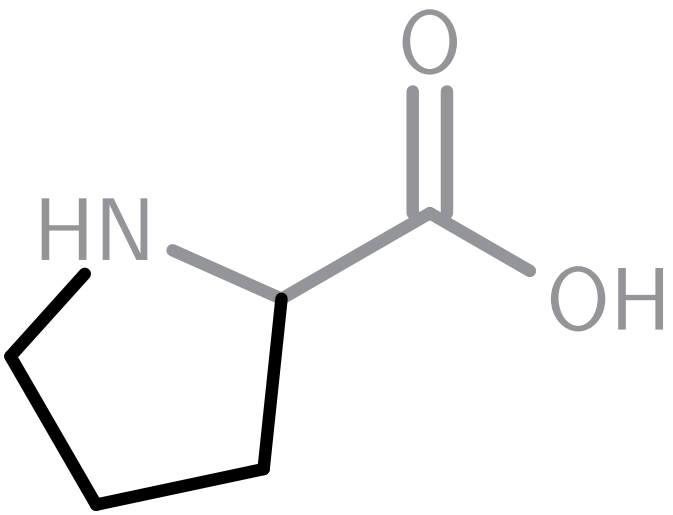


Aromatic

P Pro

Paul Proline

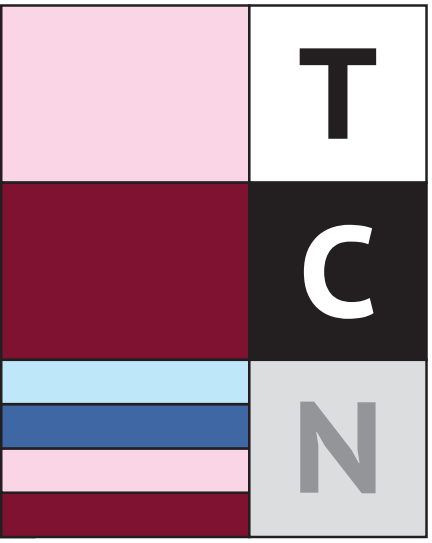


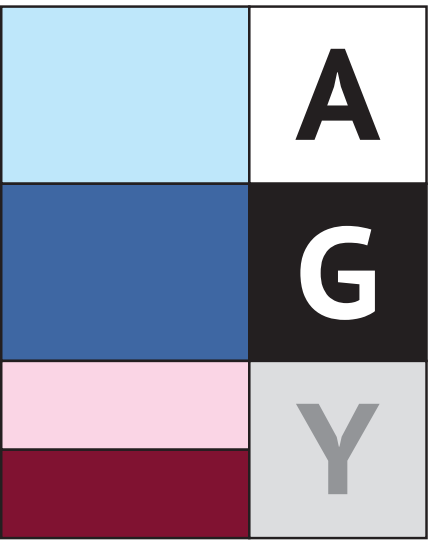


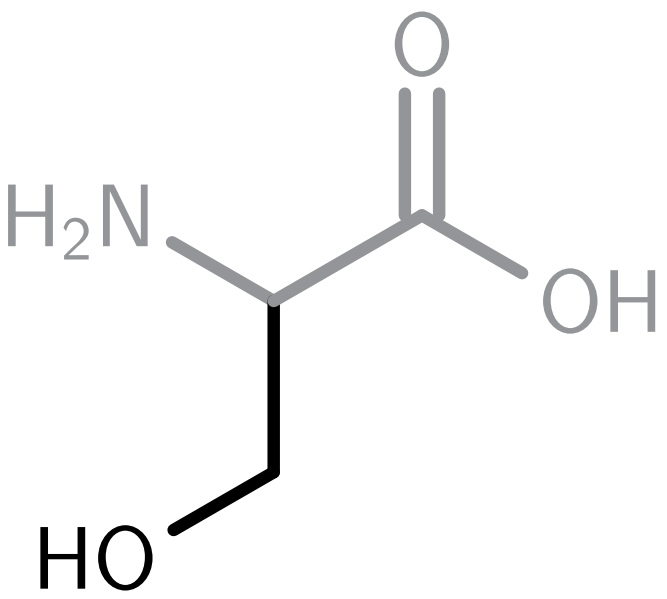
Unusual

S Ser

Sarah Serine



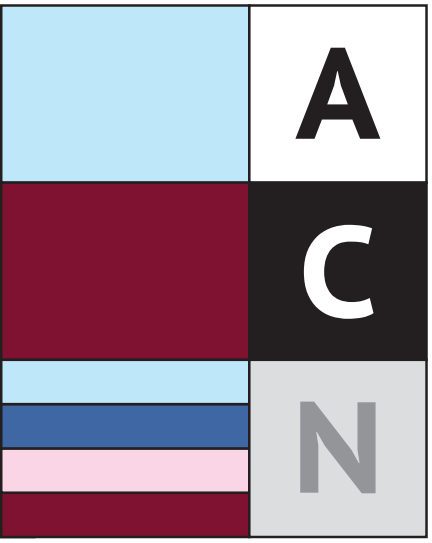


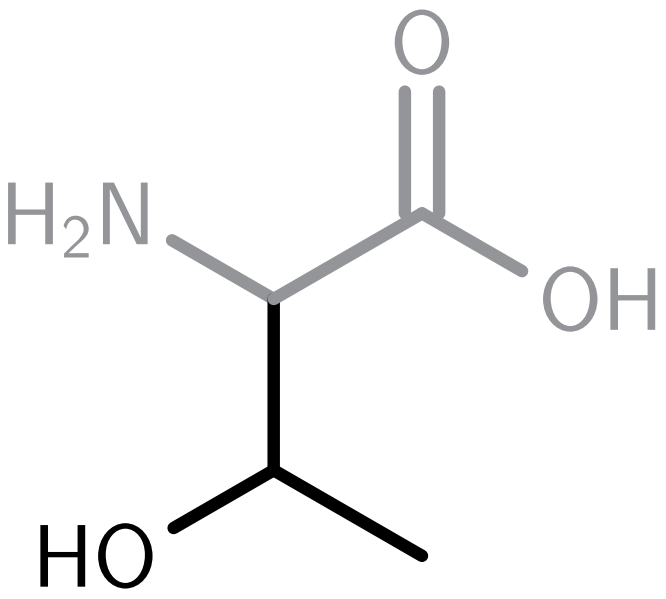


Small Polar

T Thr

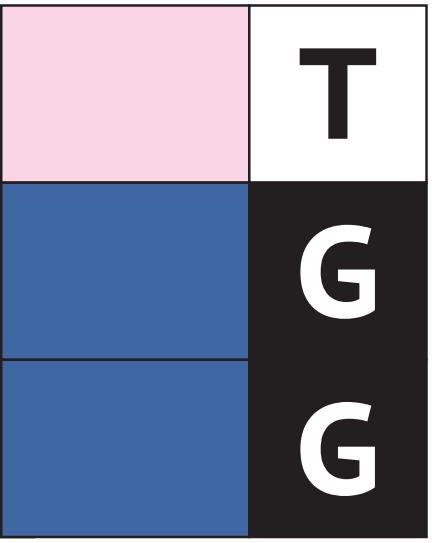
Thor Threonine

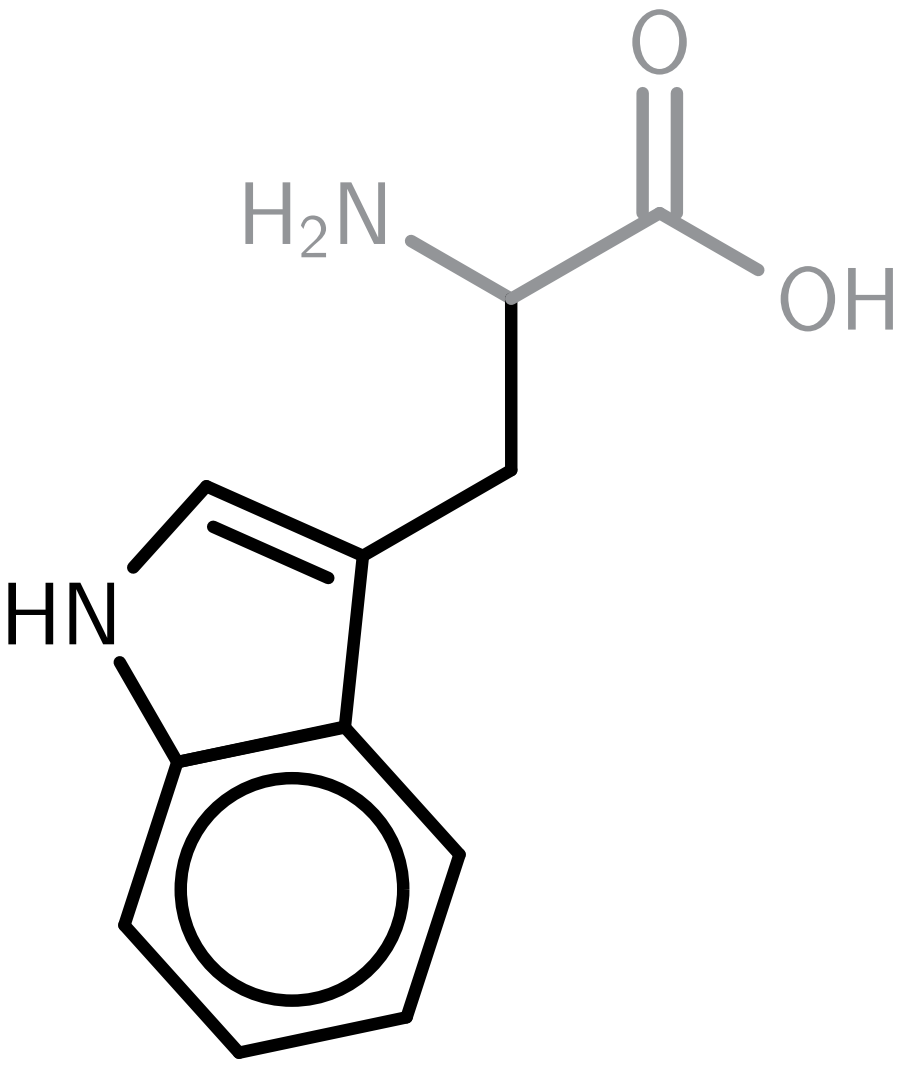




Small Polar

W Trp Wendy Tryptophan

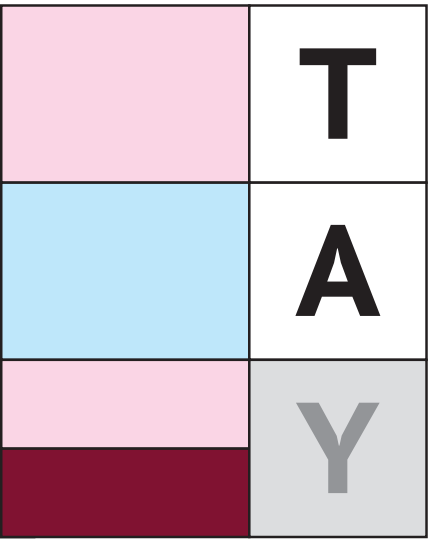


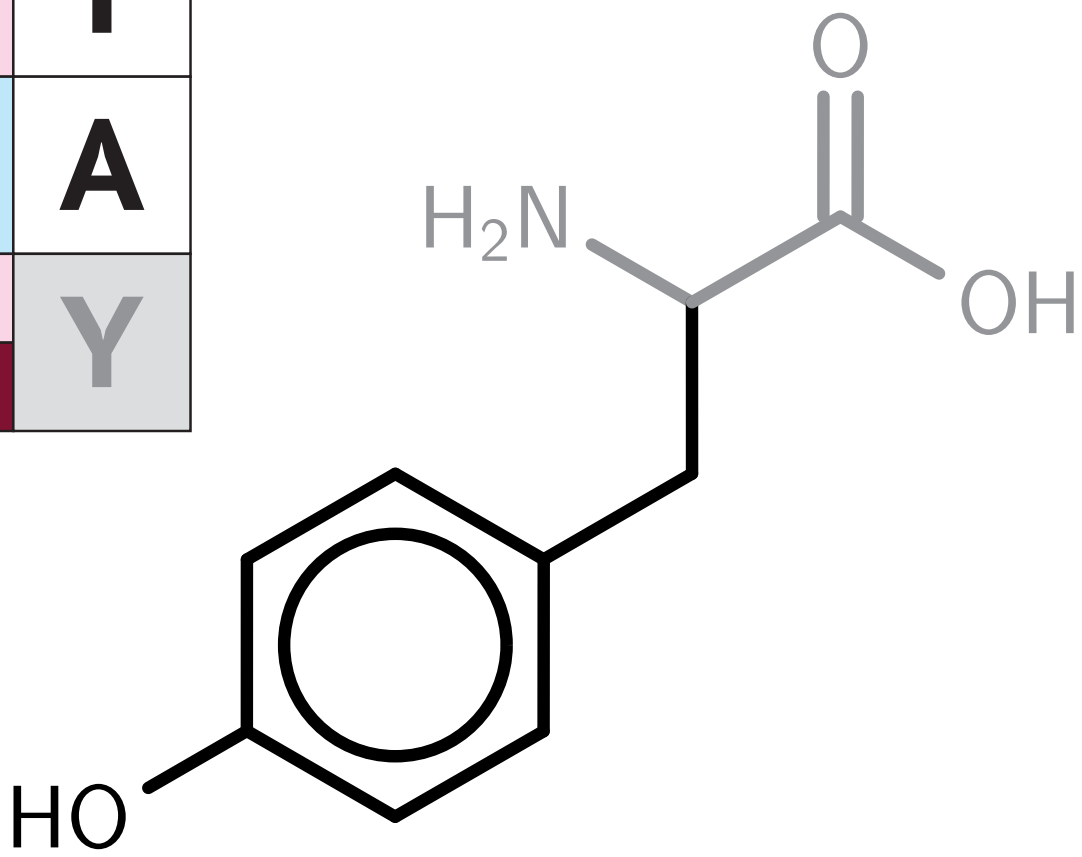


Aromatic

Y Tyr

Yvonne Tyrosine

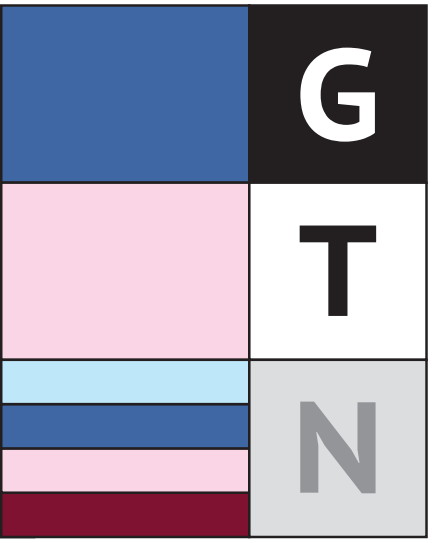


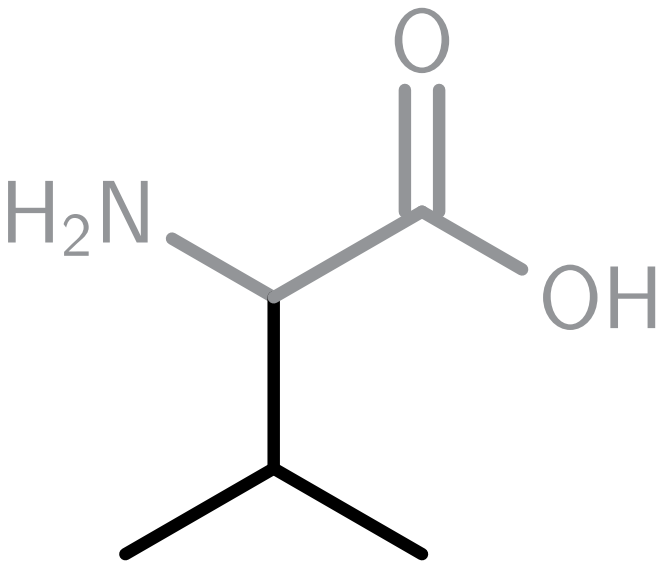


Aromatic

V Val

Valerie Valine





Aliphatic