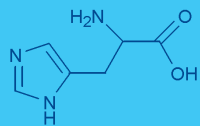


Periodic Chart of Amino Acids

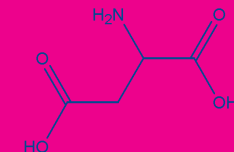
www.bachem.com

H
155.16
137.14
C₆H₉N₃O₂



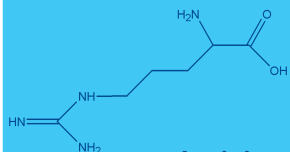
Histidine

D
133.10
115.09
C₄H₇NO₄



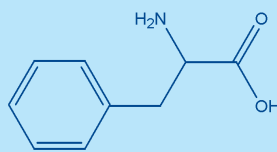
Aspartic Acid

R
174.20
156.19
C₆H₁₄N₄O₂



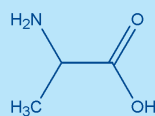
Arginine

F
165.19
147.18
C₉H₁₁NO₂



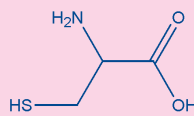
Phenylalanine

A
89.09
71.08
C₃H₇NO₂



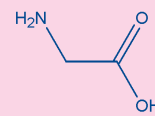
Alanine

C
121.16
103.14
C₃H₇NO₂S



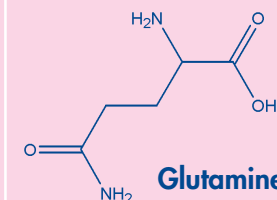
Cysteine

G
75.07
57.05
C₂H₅NO₂



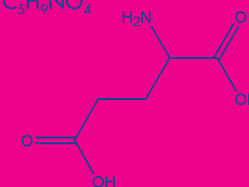
Glycine

Q
146.15
128.13
C₅H₁₀N₂O₃



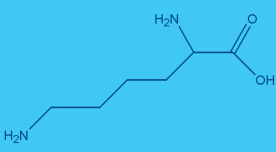
Glutamine

E
147.13
129.11
C₅H₉NO₄



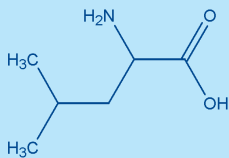
Glutamic Acid

K
146.19
128.17
C₆H₁₄N₂O₂



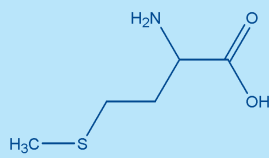
Lysine

L
131.17
113.16
C₆H₁₃NO₂



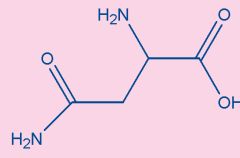
Leucine

M
149.21
131.20
C₅H₁₁NO₂S



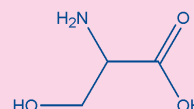
Methionine

N
132.12
114.10
C₄H₈N₂O₃



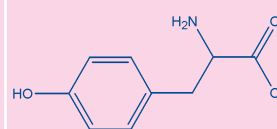
Asparagine

S
105.09
87.08
C₃H₇NO₃



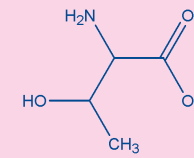
Serine

Y
181.19
163.17
C₉H₁₁NO₃



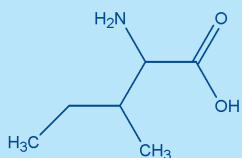
Tyrosine

T
119.12
101.10
C₄H₉NO₃



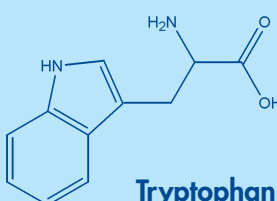
Threonine

I
131.18
113.16
C₆H₁₃NO₂



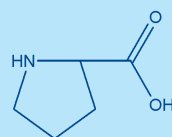
Isoleucine

W
204.23
186.21
C₁₁H₁₂N₂O₂



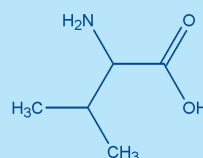
Tryptophan

P
115.13
97.12
C₅H₉NO₂



Proline

V
117.15
99.13
C₅H₁₁NO₂



Valine

- Basic
- Nonpolar (hydrophobic)
- Polar, uncharged
- Acidic

1-Letter Amino Acid Code — **S** — 3-Letter Amino Acid Code

Molecular Weight — 105.09

MW-H₂O — 87.08

Molecular Formula — C₃H₇NO₃

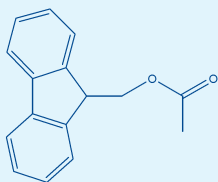
Chemical Structure —

Chemical Name — **Serine**

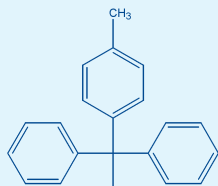
Common Fmoc-strategy SPPS* Protecting Groups

Fmoc

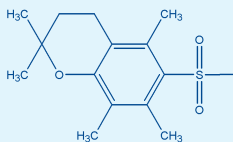
9-Fluorenylmethoxy-carbonyl
MW= 223.25 g/mol

**Mtt**

4-Methyltrityl
MW= 257.35 g/mol

**Pmc**

2,2,5,7,8-Pentamethylchroman-6-sulfonyl
MW= 267.37 g/mol



EP 0 293 073 B1
US Patent 4,946,971
owned by Bachem

tBu

t-Butyl
MW= 57.12 g/mol



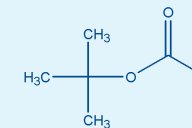
Absorption and Emission Characteristics of Chromophores and Fluorophores

Chromophore/Fluorophore	Molar Extinction Coefficient	Wavelengths
Abz (2-Aminobenzoyl or Anthraniloyl)		λ_{ex} = 330nm λ_{em} = 415nm
AMC (7-Amido-4-methylcoumarin)	ϵ_{343nm} = 25 500 M ⁻¹ cm ⁻¹	λ_{ex} = 360-380nm λ_{em} = 440-460nm
AFC (7-Amido-4-trifluoromethylcoumarin)	ϵ_{380nm} = 12 600 M ⁻¹ cm ⁻¹	λ_{ex} = 400nm λ_{em} = 505nm
4MβNA (4-Methoxy- β -naphthylamide)		λ_{ex} = 340-360nm λ_{em} = 420-426nm
βNA (β -Naphthylamide)	ϵ_{340nm} = 1 640 M ⁻¹ cm ⁻¹	
pNA (p-Nitroanilide)	ϵ_{405nm} = 10 400 M ⁻¹ cm ⁻¹ ϵ_{410nm} = 8800 M ⁻¹ cm ⁻¹	λ_{ex} = 405 or 410nm
NO₂ (Nitro)	ϵ_{284nm} = 9860 M ⁻¹ cm ⁻¹	
ONp (p-Nitrophenyl ester)	ϵ_{320nm} = 8700 M ⁻¹ cm ⁻¹	
SBzl (Thiobenzyl ester)	ϵ_{324nm} = 19 800 M ⁻¹ cm ⁻¹	
Mca ([7-Methoxycoumarin-4-yl)acetyl)	ϵ_{343nm} = 14 000 M ⁻¹ cm ⁻¹	λ_{ex} = 328nm λ_{em} = 393nm
FITC (Fluorescein isothiocyanate)	ϵ_{324nm} = 12 900 M ⁻¹ cm ⁻¹	λ_{ex} = 325 λ_{em} = 392
DABCYL (4-(4-Dimethylaminophenyl-azo)benzoyl)	ϵ_{472nm} = 15 100 M ⁻¹ cm ⁻¹ at pH=4.7	
Dnp (2,4-Dinitrophenyl)	ϵ_{410nm} = 7500 M ⁻¹ cm ⁻¹	λ_{ex} = 280nm λ_{em} = 346nm
EDANS (5-[[2-Aminoethyl)amino]naphthalene-1-sulfonic acid)	ϵ_{336nm} = 5438 M ⁻¹ cm ⁻¹ pH independent	
Values listed are as reported in the literature *SPPS=Solid Phase Peptide Synthesis		

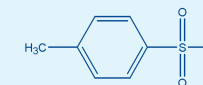
Common Boc-strategy SPPS* Protecting Groups

Boc

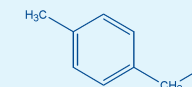
t-Butyloxycarbonyl
MW=101.13 g/mol

**Tos**

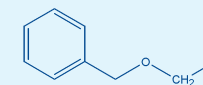
Tosyl
MW=155.20 g/mol

**MbzI**

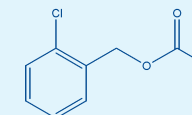
4-Methylbenzyl
MW=105.16 g/mol

**Bom**

Benzyloxymethyl
MW=121.16 g/mol

**2-Chloro-Z**

2-Chlorobenzyloxy-carbonyl
MW=169.59 g/mol

**For**

Formyl
MW=29.02 g/mol

