

Amino acids and antibodies

Key:

Light Blue - Molecular weight

Yellow - α -NH₃ pK

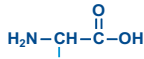
Black - Side chain pK

Dark Blue - α -COOH pK

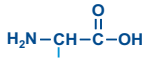
Genetic code

| | | second position | | | | |
|-------------------------|--------------------------------------|--|--|--|---|-------------------------|
| | | U | C | A | G | third position (3' end) |
| first position (5' end) | U | UUU } Phe UUC } UUA } Leu UUG } | UCU } Ser UCC } UCA } UCG } | UAU } Tyr UAC } UAA } stop UAG } stop | UGU } Cys UGC } UGA } stop UGG } Trp | U C A G |
| | C | CUU } Leu CUC } CUA } CUG } | CCU } Pro CCC } CCA } CCG } | CAU } His CAC } CAA } Gln CAG } | CGU } Arg CGC } CGA } CGG } | U C A G |
| | A | AUU } Ile AUC } AUA } Met AUG } | ACU } Thr ACC } ACA } ACG } | AAU } Asn AAC } AAA } Lys AAG } | AGU } Ser AGC } AGA } Arg AGG } | U C A G |
| G | GUU } Val GUC } GUA } GUG } | GCU } Ala GCC } GCA } GCG } | GAU } Asp GAC } GAA } Glu GAG } | GGU } Gly GGC } GGA } GGG } | U C A G | |

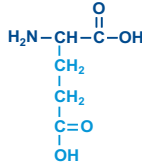
Hydrophilic-charged



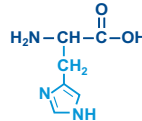
arginine (Arg) R
174 | 13.2 | 9.09 | 2.18



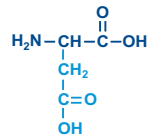
lysine (Lys) K
146 | 10.28 | 8.9 | 2.2



glutamate (Glu) E
146 | - | 9.13 | 2.17

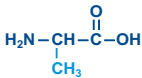


histidine (His) H
155 | 6.0 | 8.97 | 1.78

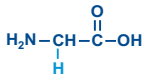


aspartate (Asp) D
133 | 3.65 | 9.6 | 1.88

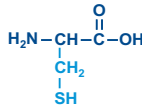
Hydrophobic



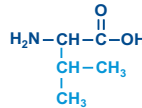
alanine (Ala) A
89 | - | 9.87 | 2.35



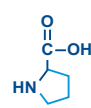
glycine (Gly) G
75 | - | 9.6 | 2.34



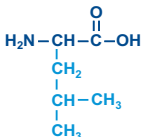
cysteine (Cys) C
121 | 8.33 | 10.78 | 1.71



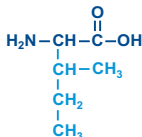
valine (Val) V
117 | - | 9.72 | 2.29



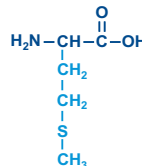
proline (Pro) P
115 | - | 10.6 | 1.99



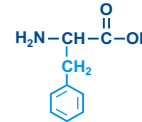
leucine (Leu) L
133 | - | 9.6 | 2.36



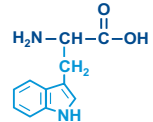
isoleucine (Ile) I
131 | - | 9.76 | 2.32



methionine (Met) M
149 | - | 9.21 | 2.28

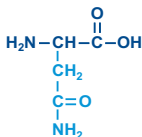


phenylalanine (Phe) F
165 | - | 9.24 | 2.58

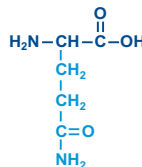


tryptophan (Trp) W
204 | - | 9.39 | 2.38

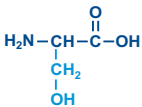
Hydrophilic-neutral



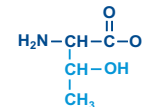
asparagine (Asn) N
132 | - | 8.8 | 2.02



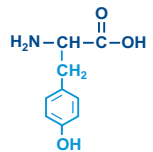
glutamine (Gln) Q
146 | - | 9.13 | 2.17



serine (Ser) S
105 | - | 9.15 | 2.21



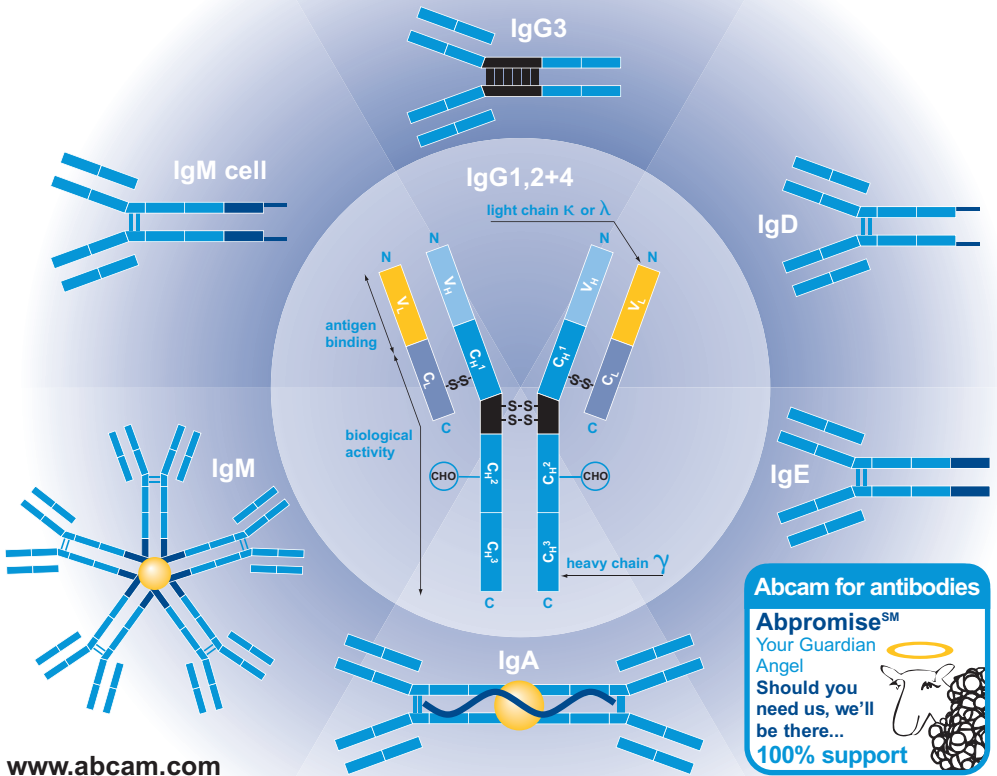
threonine (Thr) T
119 | - | 9.12 | 2.15



tyrosine (Tyr) Y
181 | 10.1 | 9.11 | 2.2

Immunoglobulin structure & properties

| | IgM | IgG ₁ | IgG _{2a/b} | IgG ₃ | IgG ₄ | IgA ₁ | IgA ₂ | IgE | IgD |
|--------------------------------------|-------------------|------------------|---------------------|------------------|------------------|------------------|------------------|---------|---------|
| Form | pentamer | monomer | monomer | monomer | monomer | dimer | dimer | monomer | monomer |
| Light chain (human and mouse) | K or λ | K or λ | K or λ | K or λ | K or λ | K or λ | K or λ | K or λ | K or λ |
| Heavy chain (human) | μ | γ ₁ | γ ₂ | γ ₃ | γ ₄ | α ₁ | α ₂ | ε | δ |
| Heavy chain (mouse) | μ | γ ₁ | γ _{2a/2b} | γ ₃ | - | α ₁ | α ₂ | ε | δ |
| Serum level mg/ml | 1.5 | 9 | 3 | 1 | 0.5 | 3.5 | 3.5 | 0.00005 | 0.03 |
| Complement activation | +++ | +++ | + | +++ | - | - | - | - | - |
| Fc receptor binding | - | + | - | + | - | - | - | - | - |
| Placental transfer | - | + | + | + | + | - | - | - | - |
| Protein Beads | | | | | | | | | |
| Human | Use goat anti-IgM | A or G | A or G | G | A or G | G | G | G | - |
| Mouse | Use goat anti-IgM | G | A or G | A or G | - | - | - | - | - |



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