

20 Amino acids, their single-letter data-base codes (SLC), and their corresponding DNA codons

| Amino Acid | SLC | DNA codons |
|---------------|------|------------------------------|
| Isoleucine | I | ATT, ATC, ATA |
| Leucine | L | CTT, CTC, CTA, CTG, TTA, TTG |
| Valine | V | GTT, GTC, GTA, GTG |
| Phenylalanine | F | TTT, TTC |
| Methionine | M | ATG |
| Cysteine | C | TGT, TGC |
| Alanine | A | GCT, GCC, GCA, GCG |
| Glycine | G | GGT, GGC, GGA, GGG |
| Proline | P | CCT, CCC, CCA, CCG |
| Threonine | T | ACT, ACC, ACA, ACG |
| Serine | S | TCT, TCC, TCA, TCG, AGT, AGC |
| Tyrosine | Y | TAT, TAC |
| Tryptophan | W | TGG |
| Glutamine | Q | CAA, CAG |
| Asparagine | N | AAT, AAC |
| Histidine | H | CAT, CAC |
| Glutamic acid | E | GAA, GAG |
| Aspartic acid | D | GAT, GAC |
| Lysine | K | AAA, AAG |
| Arginine | R | CGT, CGC, CGA, CGG, AGA, AGG |
| Stop codons | Stop | TAA, TAG, TGA |

In this table, the twenty amino acids found in proteins are listed, along with the single-letter code used to represent these amino acids in protein data bases. The DNA codons representing each amino acid are also listed. All 64 possible 3-letter combinations of the DNA coding units T, C, A and G are used either to encode one of these amino acids or as one of the three stop codons that signals the end of a sequence. While DNA can be decoded unambiguously, it is not possible to predict a DNA sequence from its protein sequence. Because most amino acids have multiple codons, a number of possible DNA sequences might represent the same protein sequence.