

# Translating Nucleotide Sequence

When a nucleotide sequence is opened in the *Sequence View*, the sequence and its complementary sequence are shown by default in the *Details View*.

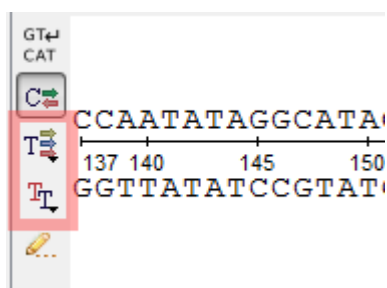
## Showing/hiding the amino acid sequences

It is possible to translate them and show also the corresponding amino acid sequences:

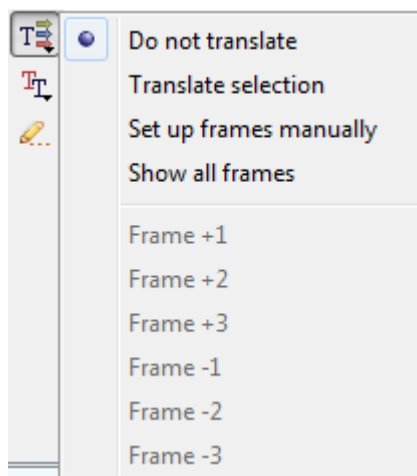
```

L Q R A I C L C V D
C N G Q Y V S V W
A T G N M S L C G
:GTCAACGGGCAATATGTCTCTGTGTGGA
| 18 20 22 24 26 28 30 32 34 36 38 40 42 44
:ACGTTGCCCGTTATACAGAGACACACCT
A V P L I D R H P
Q L P C Y T E T H I
C R A I H R Q T S
```

The translation settings are available on the left toolbar of the *Details View*:

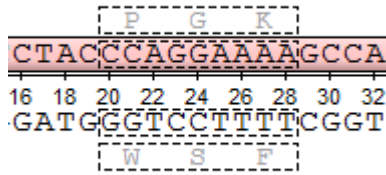


The *Show/hide amino acid translations* menu allows one to set up the mode of the amino acid sequences visualization:

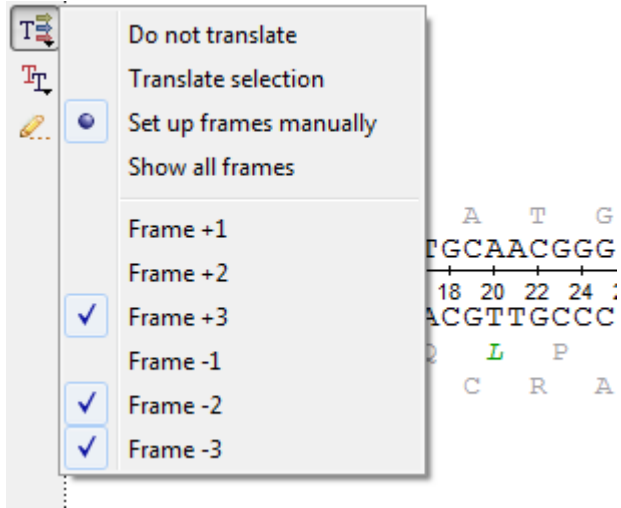


The following options are available:

- *Do not translate*— hide the amino acid sequences.
- *Translate selection* — translate only a selected region of the sequence and the complementary sequence.



- *Set up frames manually* — select the [reading frames](#) to show. There are three frames for the sequence ("+1", "+2", "+3") and three frames for the complementary sequence ("-1", "-2", "-3"). Note that the complementary frame items are hidden in the menu, if the complementary sequence is hidden.



- *Show all frames* — show all amino acid sequences.

### Setting the genetic code

The default value for the [genetic code](#) for a nucleotide sequence translation is read by UGENE from the sequence file when it is available. One can also set up the genetic code for the sequence using the *Select genetic code* menu:

- 1. The Standard Genetic Code
- 2. The Vertebrate Mitochondrial Code
- 3. The Yeast Mitochondrial Code
- 4. The Mold, Protozoan, and Coelenterate Mitochondria and the Mycoplasma Code
- 5. The Invertebrate Mitochondrial Code
- 6. The Ciliate, Dasycladacean and Hexamita Nuclear Code
- 9. The Echinoderm and Flatworm Mitochondrial Code
- 10. The Euplotid Nuclear Code
- 11. The Bacterial and Plant Plastid Code
- 12. The Alternative Yeast Nuclear Code
- 13. The Ascidian Mitochondrial Code
- 14. The Alternative Flatworm Mitochondrial Code
- 15. Blepharisma Nuclear Code
- 16. Chlorophycean Mitochondrial Code
- 21. Trematode Mitochondrial Code
- 22. Scenedesmus obliquus Mitochondrial Code
- 23. Thraustochytrium Mitochondrial Code

**i** All analysis routines (like HMMER, ORF finding, etc.) will use this code by default.

## Codon table



To refresh the knowledge about the amino acid codes, select the *Show codon table* button on the *Sequence View* global toolbar. The codon table appears at the upper part of the window:

1st base	2nd base								3rd base	
	U		C		A		G			
U	UUU	Phenylalanine (Phe, F)	UCU	Serine (Ser, S)	UAU	Tyrosine (Tyr, Y)	UGU	Cysteine (Cys, C)	U	
	UUC	Leucine (Leu, L)	UCC		UAC	Stop codon (*)	UGC	Tryptophan (Trp, W)	UGA	Stop codon (*)
	UUA		UCA		UAA		UGG		A	
	UUG		UCG		UAG		G			
C	CUU		Isoleucine (Ile, I)	CCU	Proline (Pro, P)		CAU		Histidine (His, H)	CGU
	CUC	CCC		CAC		CGC	C			
	CUA	CCA		CAA		CGA	A			
	CUG	CCG		CAG		CGG	G			
A	AUU	Methionine (Met, M)	ACU	Threonine (Thr, T)	AAU	Asparagine (Asn, N)	AGU	Serine (Ser, S)	U	
	AUC		ACC		AAC	AGC	C			
	AUA		ACA		AAA	Lysine (Lys, K)	AGA	Arginine (Arg, R)	A	
	AUG		ACG		AAG	AGG	G			
G	GUU	Valine (Val, V)	GCU	Alanine (Ala, A)	GAU	Aspartic acid (Asp, D)	GGU	Glycine (Gly, G)	U	
	GUC		GCC		GAC	GGC	C			
	GUA		GCA		GAA	GGA	A			
	GUG		GCG		GAG	GGG	G			