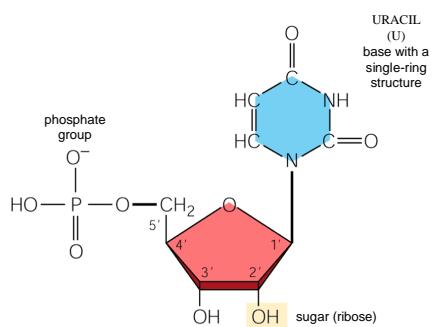


CHAPTER 17

PROTEIN SYNTHESIS

- DNA: NUCLEIC ACID, DOUBLE STRAND, PO₄, DE-OXYRIBOSE SUGAR.
- BASE PAIRS (N)
- T=THYMINE
- A=ADENINE
- C= CYTOSINE
- G=GUANINE
- RNA: NUCLEIC ACID, SINGLE STRAND, PO₄, RIBOSE SUGAR.
- BASE PAIRS (N)
- U=URACIL
- A=ADENINE
- C=CYTOSINE
- G=GUANINE



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Fig. 14.6, p. 228

POINTS ABOUT TRANSCRIPTION

- NEED RNA POLYMERASE
- CODES FOR 20 AMINO ACIDS
- CODON:SERIES OF TRIPLET BASE PAIRS.
- 64 CODONS, 60 FOR AA, OTHERS FOR STARTS/STOPS.
- INTRONS=NON-CODING
- EXONS= CODING FOR RNA

PROTEIN TRANSCRIPTION

- NUCLEUS
 - RNA POLYMERASE CODES TO DNA
 - DNA TRANSCRIBES TO m-RNA
 - INTRONS SNIPPED OUT
 - EXONS KEPT IN CODE
 - MUTATIONS/MUTONS/MUTAGENIC AGENTS

4

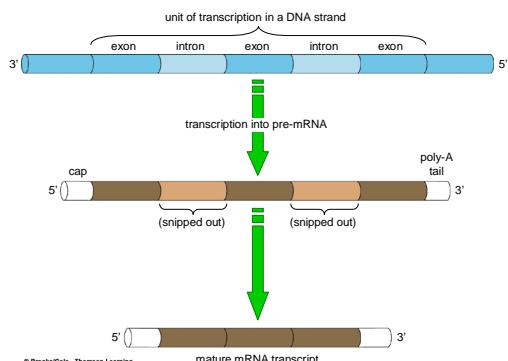


Fig. 14.9, p. 229

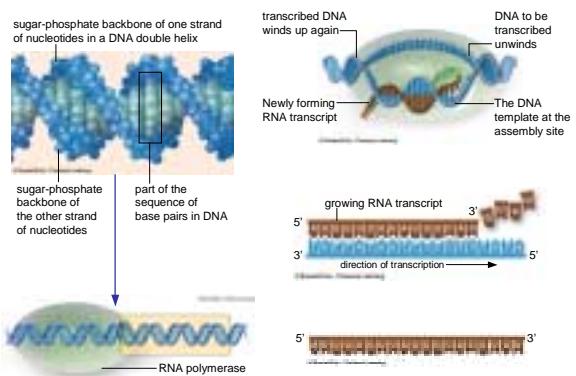


Fig. 14.8, p. 228-229

PROTEIN TRANSLATION

- m-RNA GOES THRU RIBOSOME.
- RIBOSOME IS r-RNA, CODE THREADS THRU RIBOSOME.
- AREA OF RIBOSOME BOUND TO tRNA
- 20 TYPES OF AA
- ANTICODON ON ONE END OF t-RNA.
- AA ON OTHER END OF t-RNA
- AA ATTACH TO EACH OTHER IN PEPTIDE BOND
- FORM PROTEINS

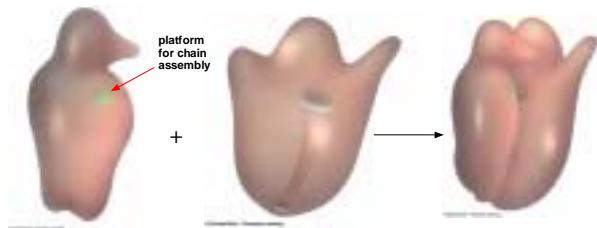


Fig. 14.13, p. 231

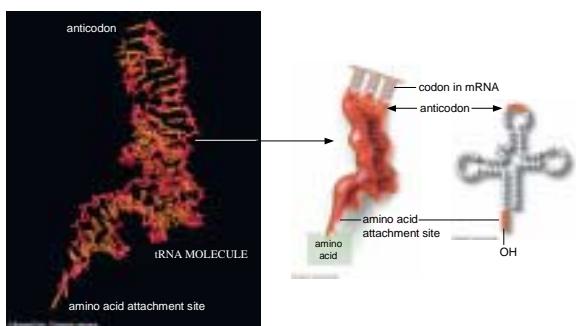
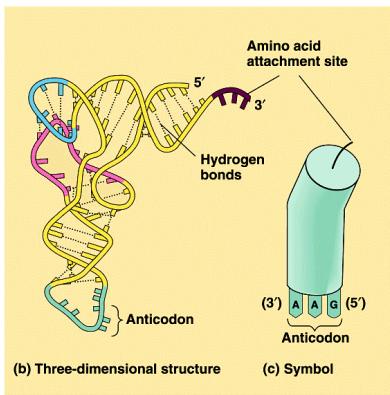


Fig. 14.12, p. 231

Figure 17.13b The structure of transfer RNA (tRNA)



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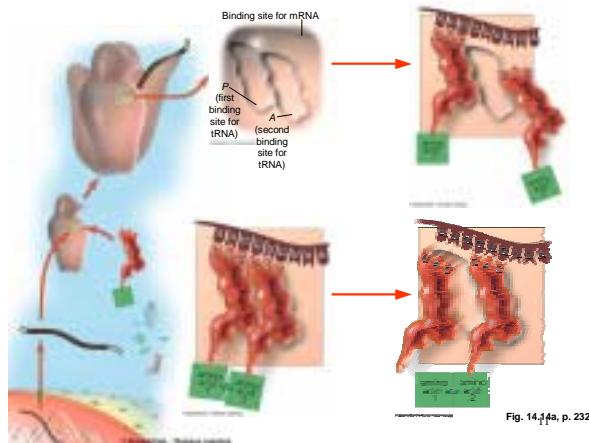


Fig. 14.14a, p. 232

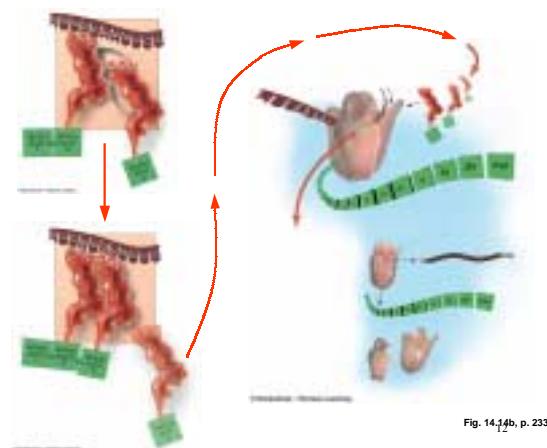


Fig. 14.14b, p. 233

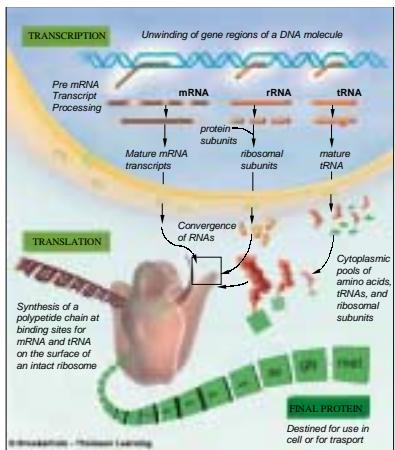
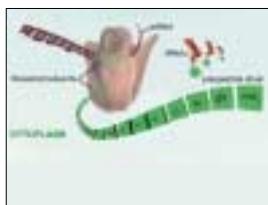


Fig. 14.18, p. 237



Click to view
animation.

animation

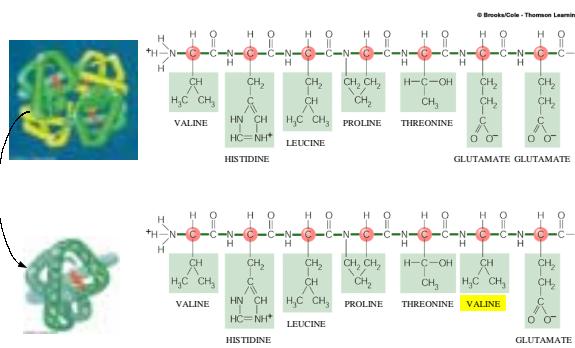


Fig. 14.5, p. 227

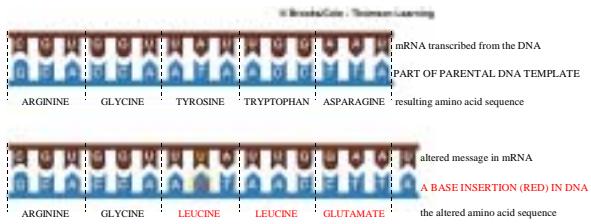


Fig. 14, 16, p. 234



Fig. 14,17, p. 235

Figure 17.2 Overview: the roles of transcription and translation in the flow of genetic information (page 5)

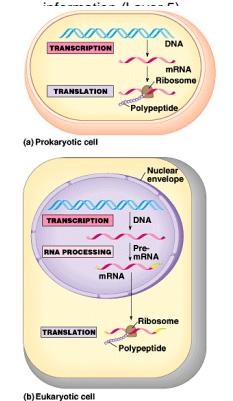
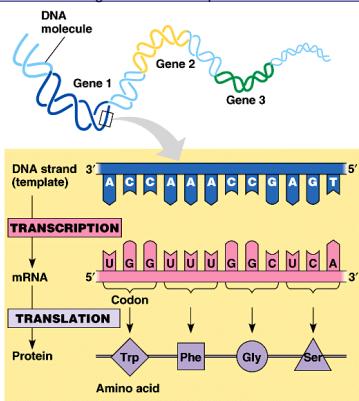


Figure 17.3 The triplet code



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TRANSCRIPTION AND TRANSLATION

- C DNA. ATC-GCG-TAT
- m-RNA. UAG-CGC-AUA
- t-RNA. AUC-GCG-UAU
- AMINO ACID ISO-ALA-TYR
- PEPTIDE BONDS/POLYPEPTIDES/PROTEINS

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FIRST BASE	Amino acids that correspond to base triplets:			THIRD BASE
	SECOND BASE OF A CODON			
U	U	C	A	G
	phenylalanine	serine	tyrosine	cysteine
	phenylalanine	serine	tyrosine	cysteine
	leucine	serine	STOP	STOP
C	leucine	serine	STOP	tryptophan
	leucine	proline	histidine	arginine
	leucine	proline	histidine	arginine
	leucine	proline	glutamine	arginine
A	isoleucine	threonine	asparagine	serine
	isoleucine	threonine	asparagine	serine
	isoleucine	threonine	lysine	arginine
	methionine (or START)	threonine	lysine	arginine
G	valine	alanine	aspartate	glycine
	valine	alanine	aspartate	glycine
	valine	alanine	glutamate	glycine
	valine	alanine	glutamate	glycine

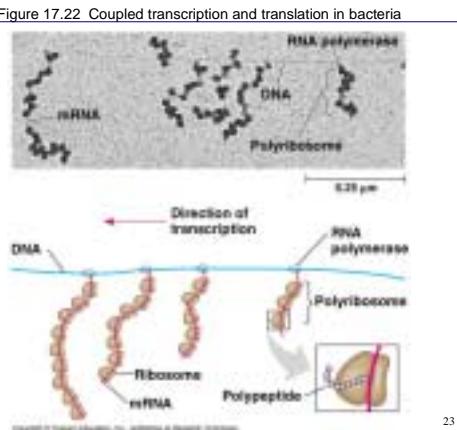
Fig. 14.11, p. 230

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TYPES OF PROTEINS

- ENZYMES/HELICASE
 - CARRIER/HEMOGLOBIN
 - IMMUNOGLOBULIN/ANTIBODIES
 - HORMONES/STEROIDS
 - STRUCTURAL/MUSCLE
 - IONIC/ K^+ , Na^+
 - all regulate things put together/"critter"

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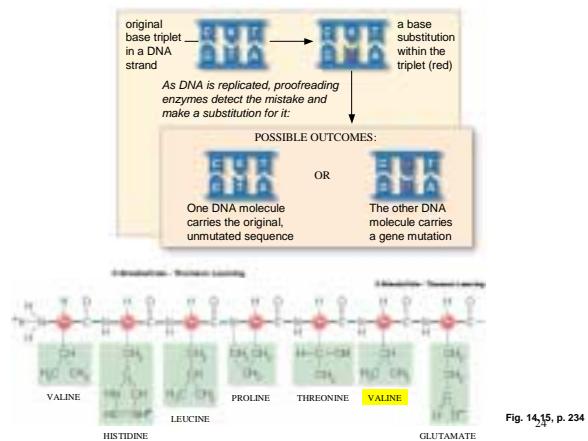
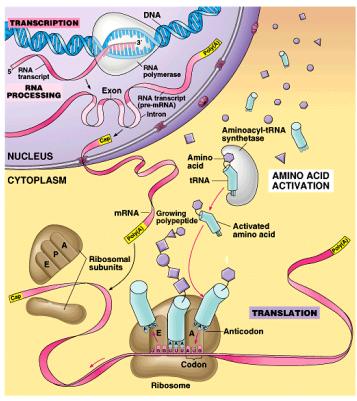


Fig. 14.15 p. 334

Figure 17.25 A summary of transcription and translation in a eukaryotic cell



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