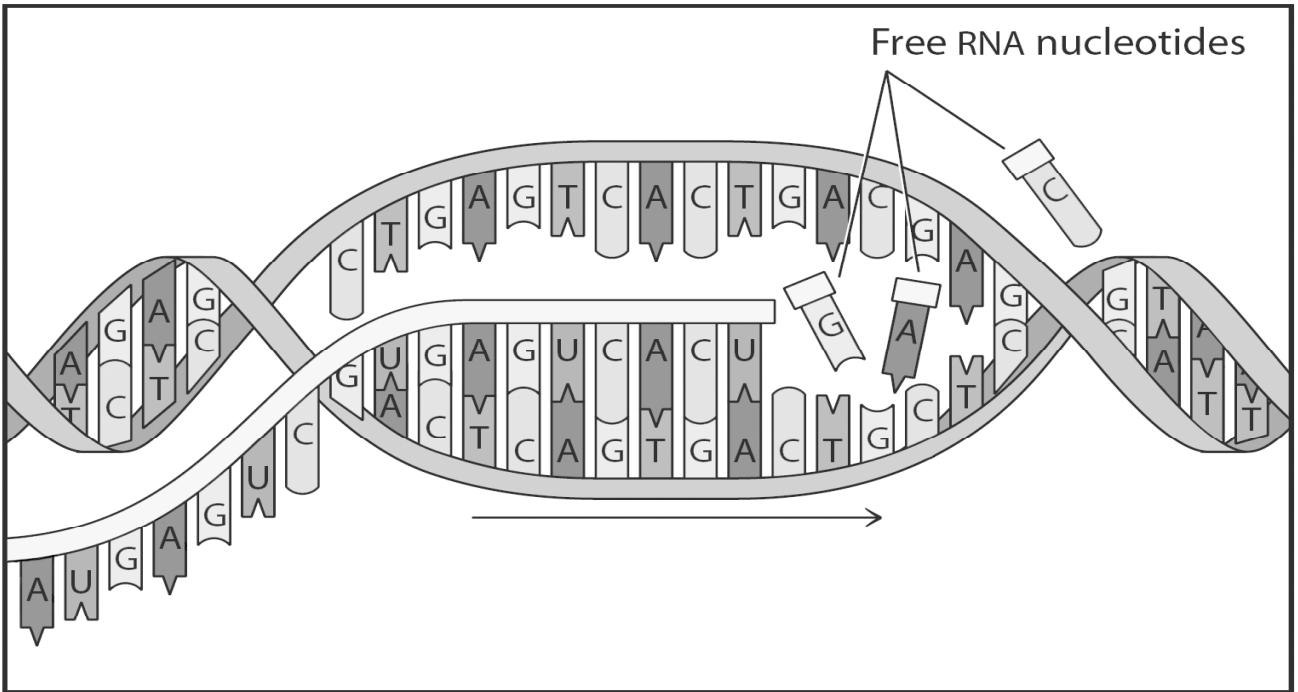


Conceptual Biology

Chapter 7: Genetic Technologies Transcription to Translation



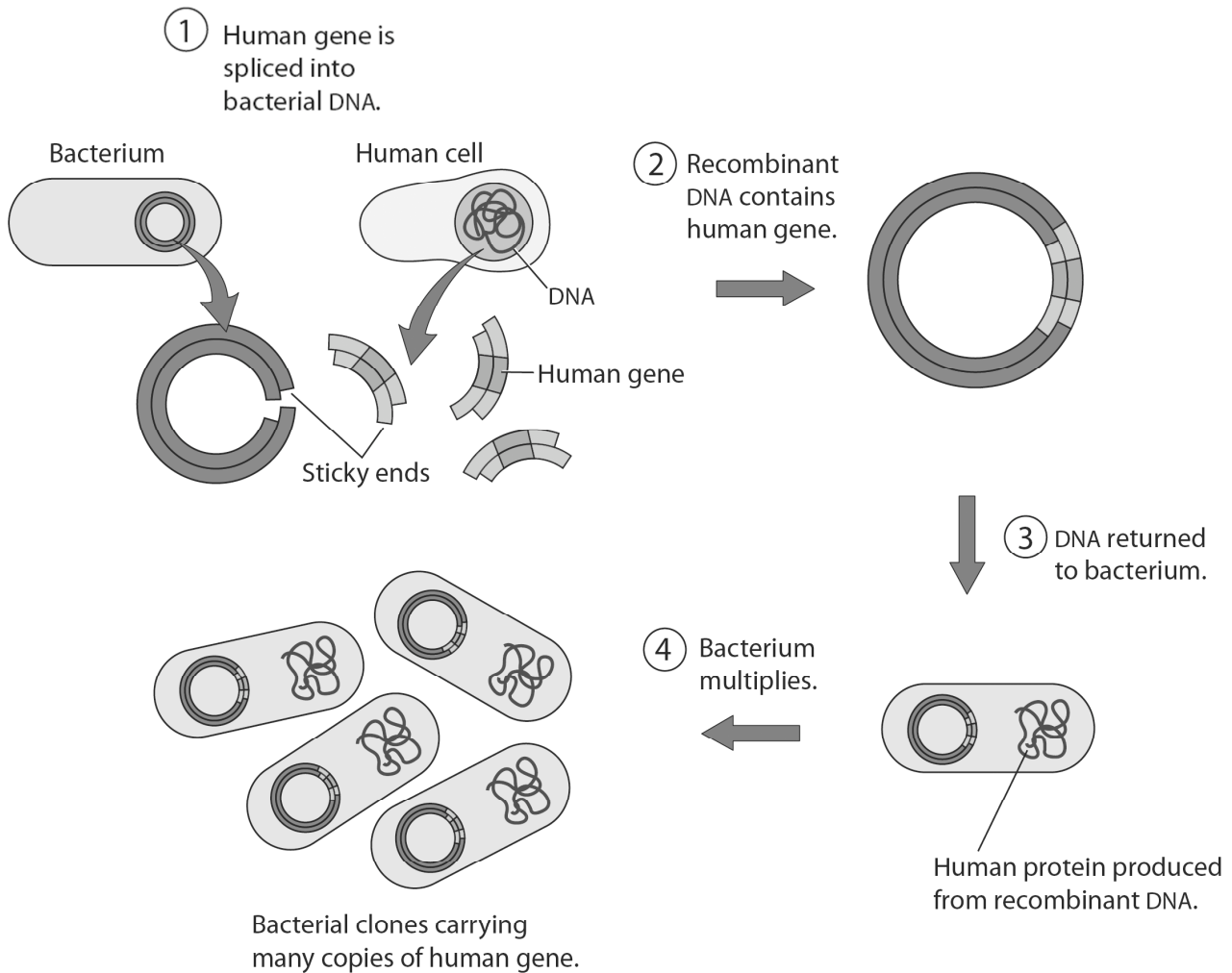
Shown above is the transcription of a small strand of mRNA from an unraveled portion of DNA. Use the genetic code shown below to figure out the polypeptide chain that this strand of mRNA will form. Assume that there are sufficient free RNA nucleotides available so that the mRNA strand will continue to grow until it includes the stop codon.

Also assume this mRNA strand is "mature" such that introns have been removed.

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

Conceptual Biology

Chapter 7: Genetic Technologies Recombinant DNA



1. What kind of enzyme is used to create slices of DNA with sticky ends?
2. What creates this kind of enzyme and why?
3. When this enzyme attacks DNA, what sort of DNA sequences result in sticky ends?
(Give an example.)
4. Why insert human genes into bacteria?
5. Write a definition for the phrase “gene cloning.”