

**Table 1.1**

TABLE 1.1 Proteins involved in <i>E. coli</i> DNA replication		
Protein	Gene	Function
DnaA	<i>dnaA</i>	Initiator protein; primosome (priming complex) formation
DnaB	<i>dnaB</i>	DNA helicase
DnaC	<i>dnaC</i>	Delivers DnaB to replication complex
SSB	<i>ssb</i>	Binding to single-stranded DNA
Primase	<i>dnaG</i>	RNA primer synthesis
DNA Pol I	<i>polA</i>	Primer removal; gap filling
DNA Pol III (holoenzyme)		
α	<i>dnaE</i>	Polymerization
ϵ	<i>dnaQ</i>	3' \rightarrow 5' editing
RNase H	<i>rnhA</i>	Removes RNA primers
θ	<i>holE</i>	Present in core ($\alpha\epsilon\theta$)
β	<i>dnaN</i>	Sliding clamp
τ^a	<i>dnaX</i>	Organizes complex; joins leading and lagging DNA PolIII
γ^b	<i>dnaX</i>	Binds clamp loaders and SSB protein
δ	<i>holA</i>	Clamp loading
δ'	<i>holB</i>	Clamp loading
χ	<i>holC</i>	Binds SSB
ψ	<i>holD</i>	Binds SSB
DNA ligase	<i>lig</i>	Sealing DNA nicks
DNA gyrase		
α	<i>gyrA</i>	Nick closing
β	<i>gyrB</i>	ATPase

^aFull-length product of the *dnaX* gene.

^bShorter product of the *dnaX* gene produced by translational frameshifting (see Box 2.4).

Figure 15.12 DNA polymerase III activity can be isolated in several forms.

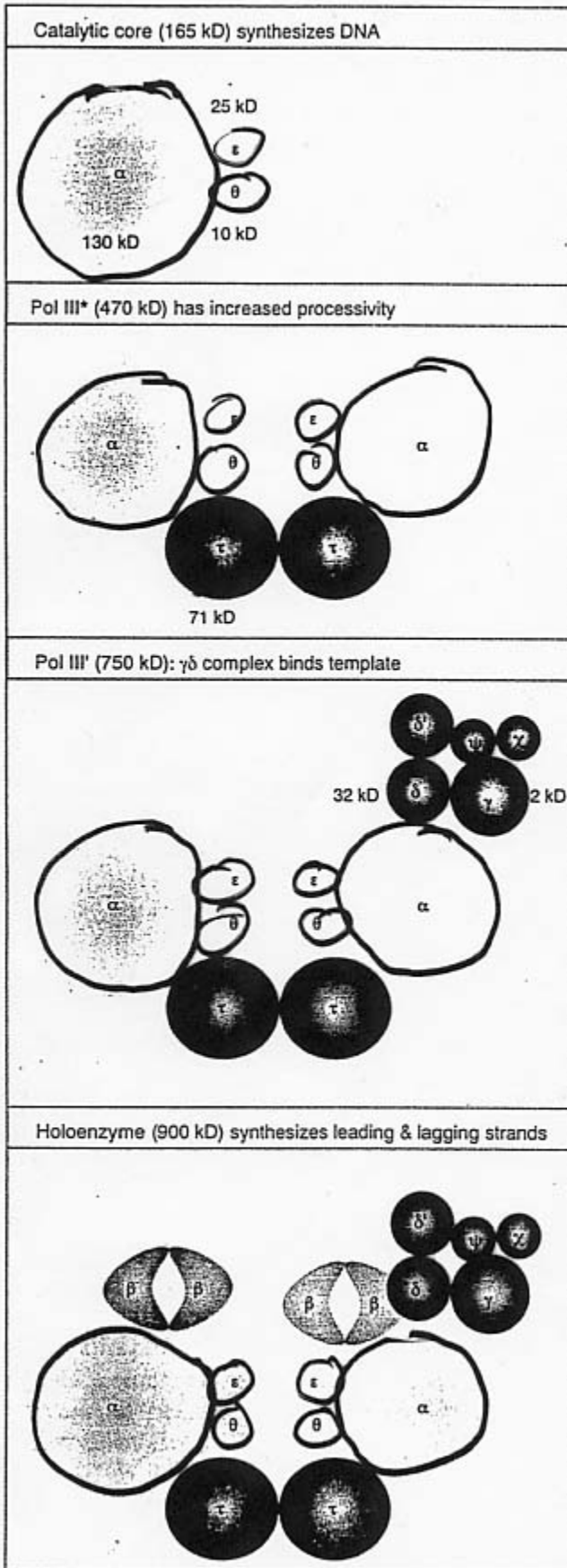


Figure 15.13 DNA polymerase III holoenzyme assembles in stages, generating an enzyme complex that synthesizes the DNA of both new strands.

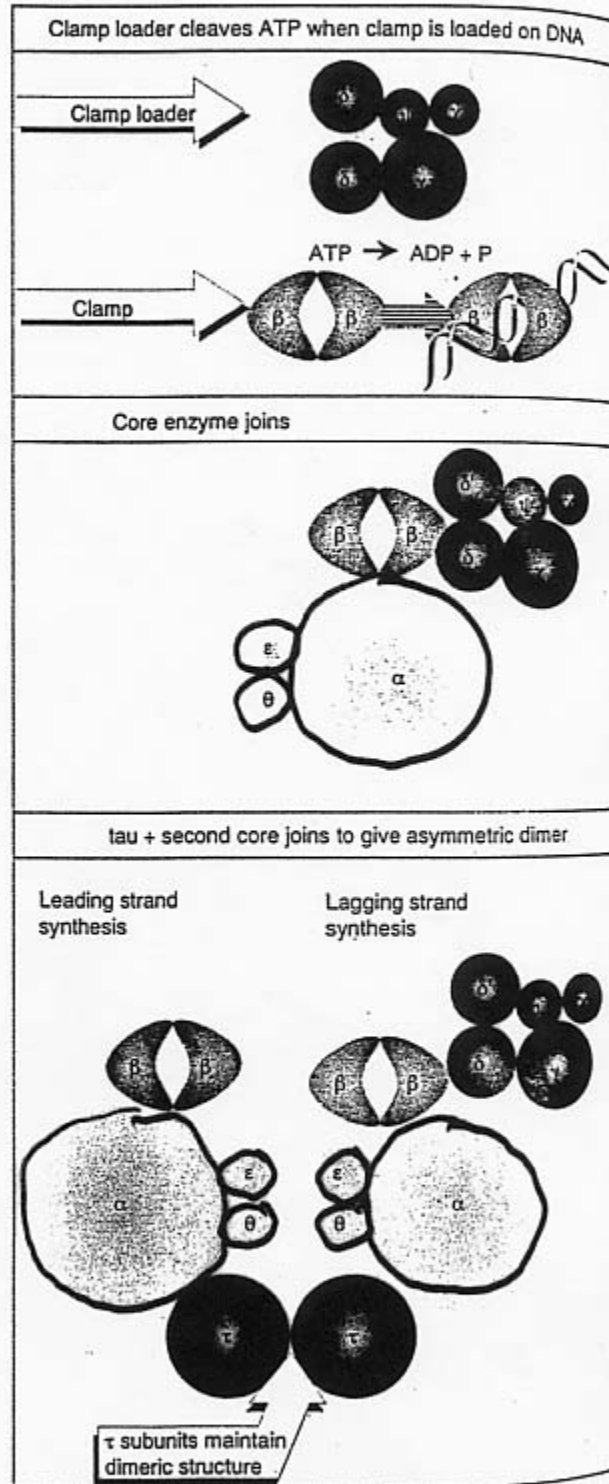




Figure 1.9

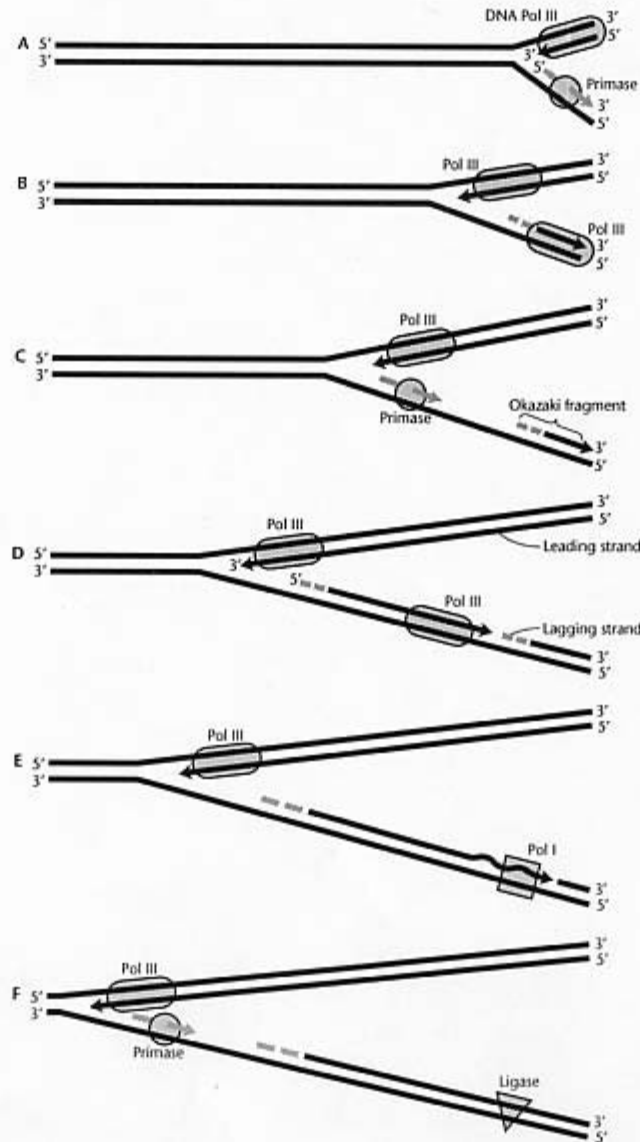




Figure 1.10

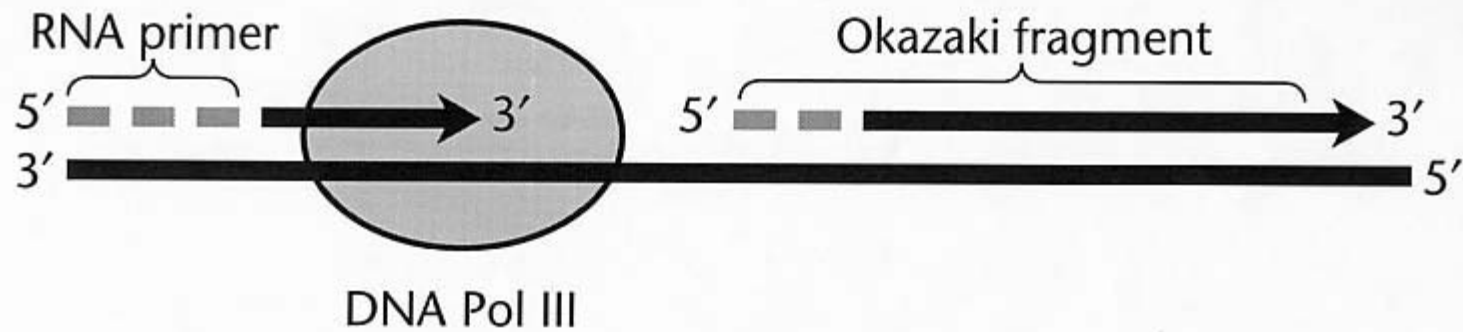




Figure 1.11

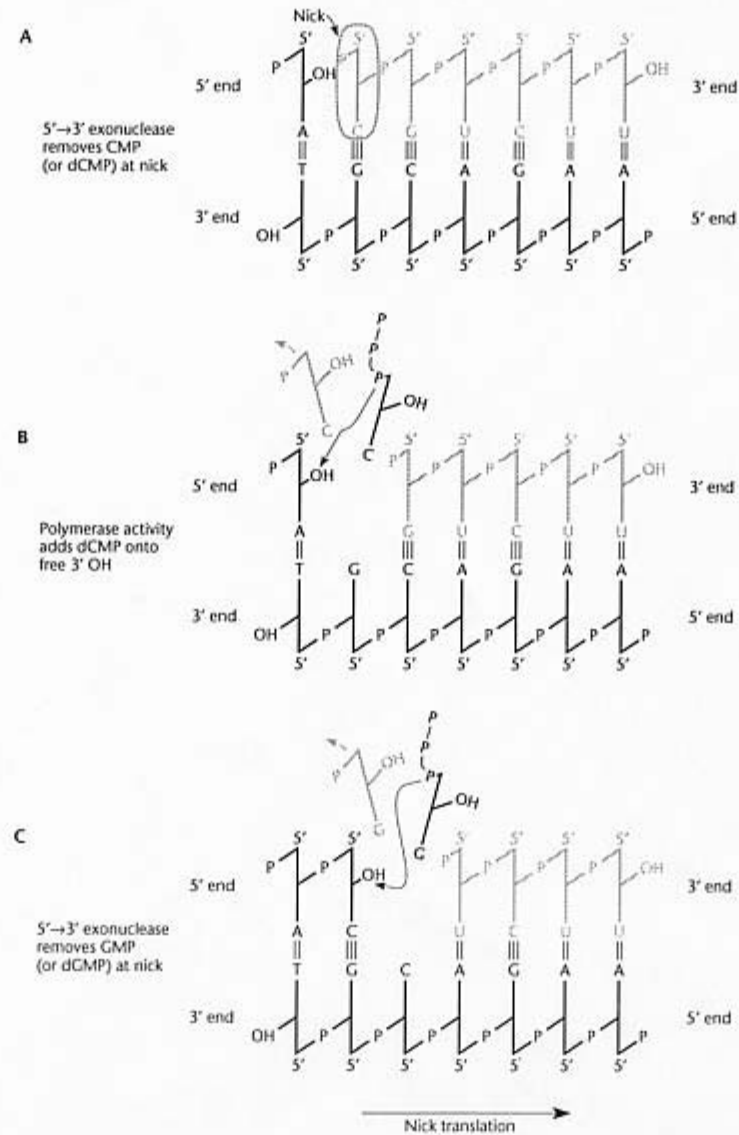




Figure 1.12

