

Figure 11.12

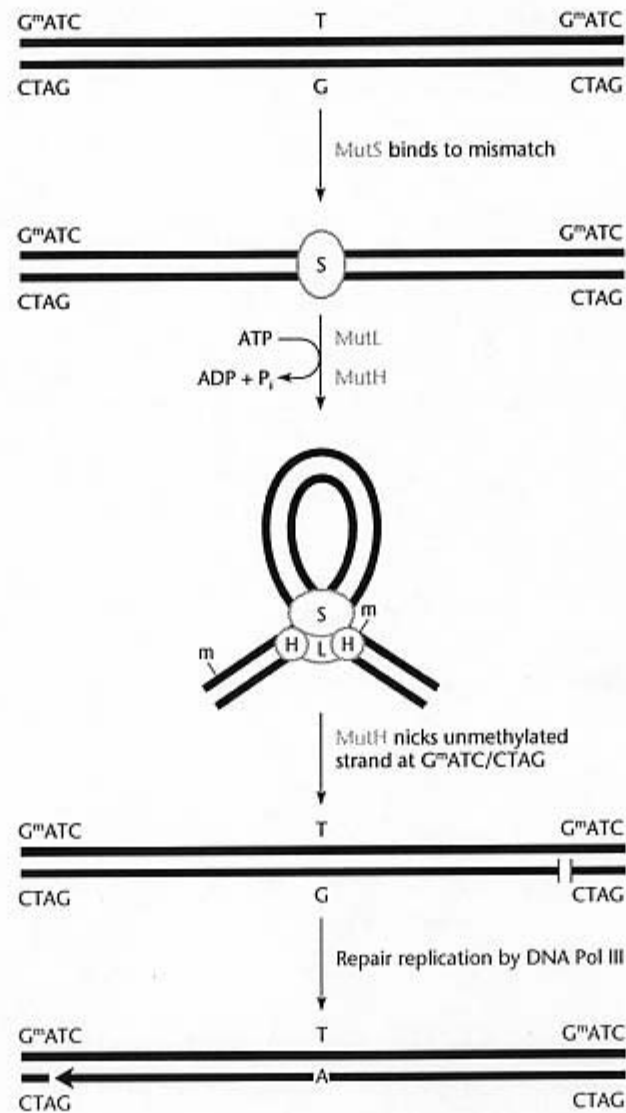
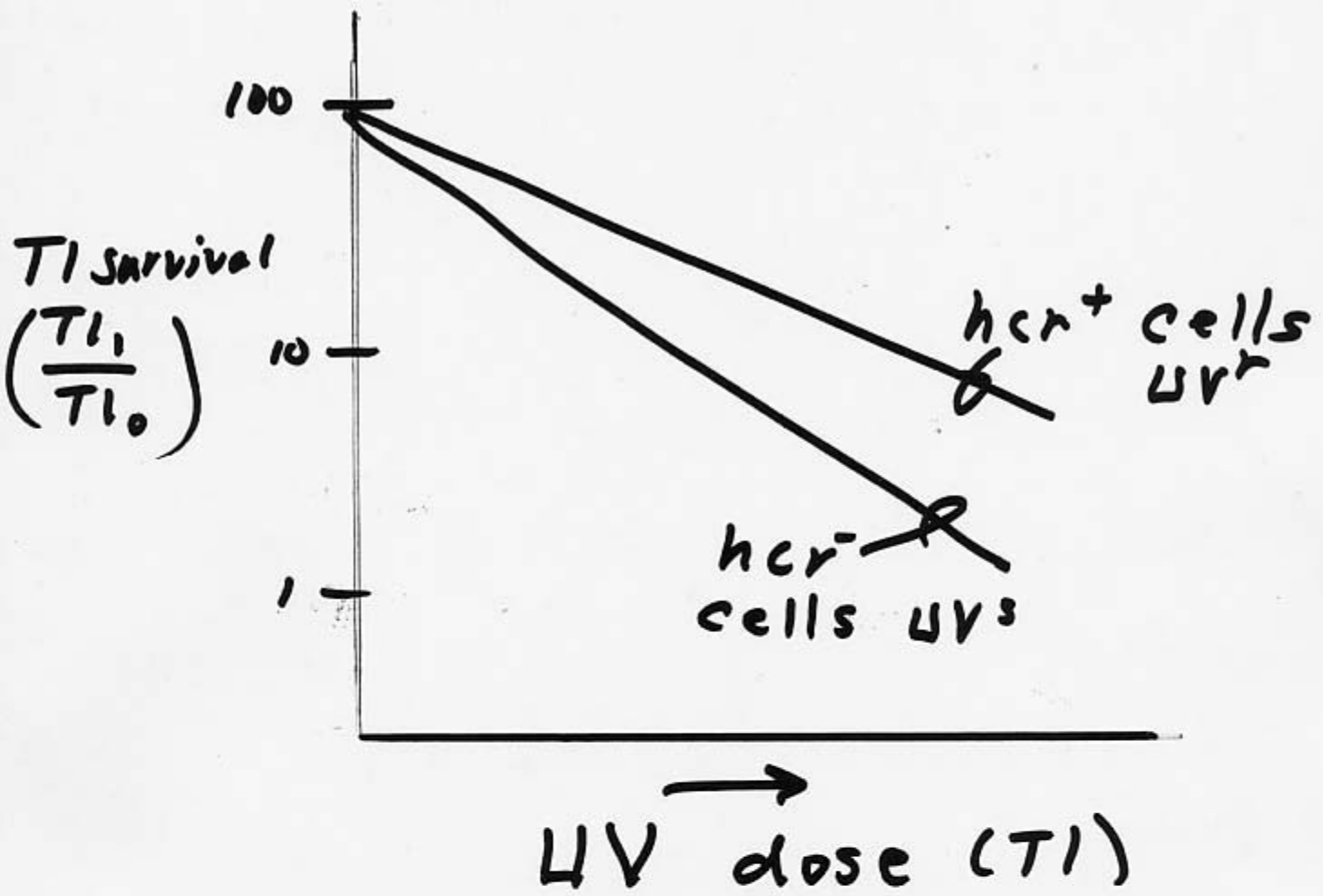


Table 11.1

TABLE 11.1 Genes involved in the UvrABC endonuclease repair pathway	
Gene	Function of gene product
<i>uvrA</i>	DNA-binding protein
<i>uvrB</i>	Loaded by UvrA to form a DNA complex; nicks DNA 3' of lesion
<i>uvrC</i>	Binds to UvrB-DNA complex; nicks DNA 5' of lesion
<i>uvrD</i>	Helicase II; helps remove damage-containing oligonucleotide
<i>polA</i>	Pol I; fills in single-strand gap
<i>lig</i>	Ligase; seals single-strand nick



hcr = host cell reactivation

UV^s = UV-A, B or C

Figure 11.13

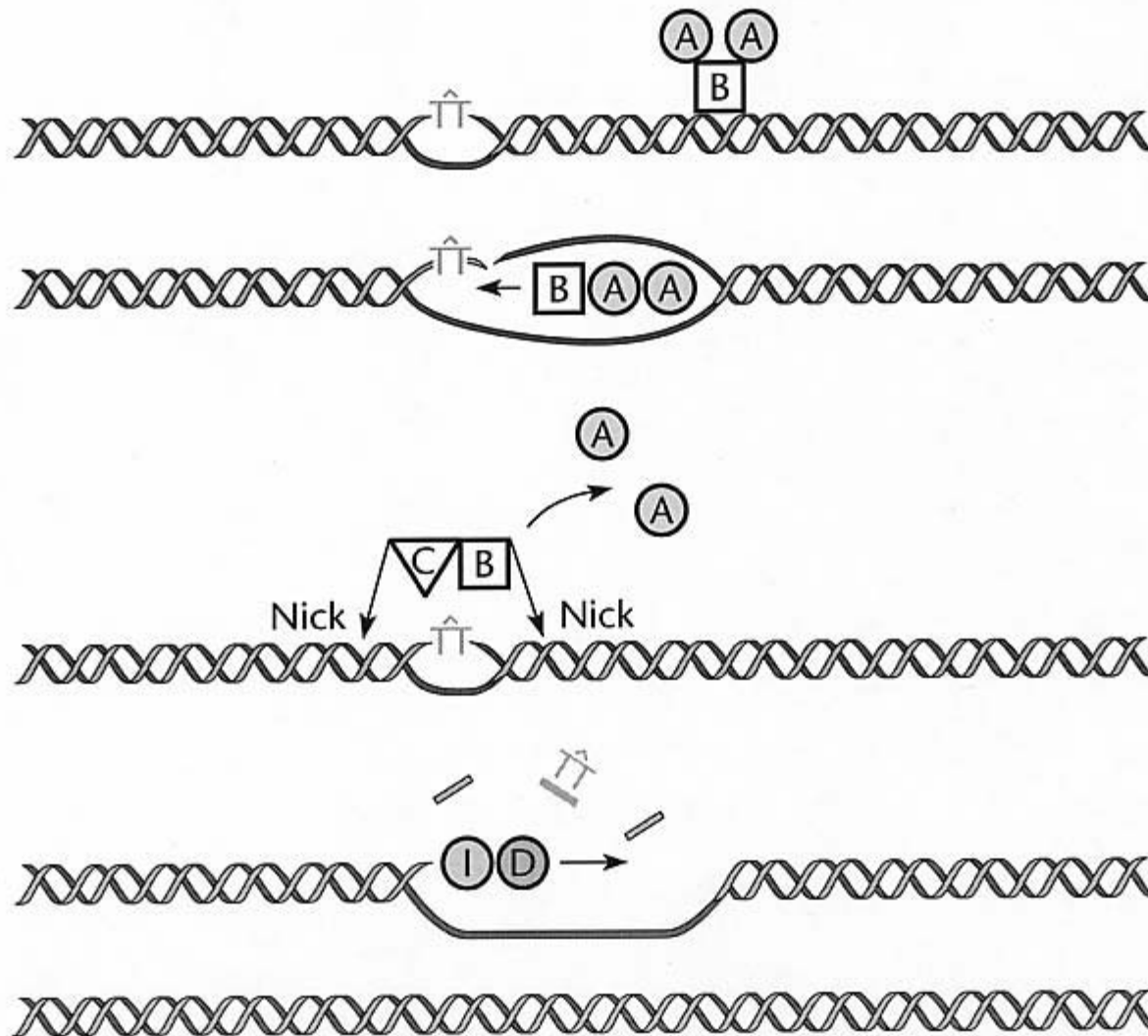




Figure 11.14

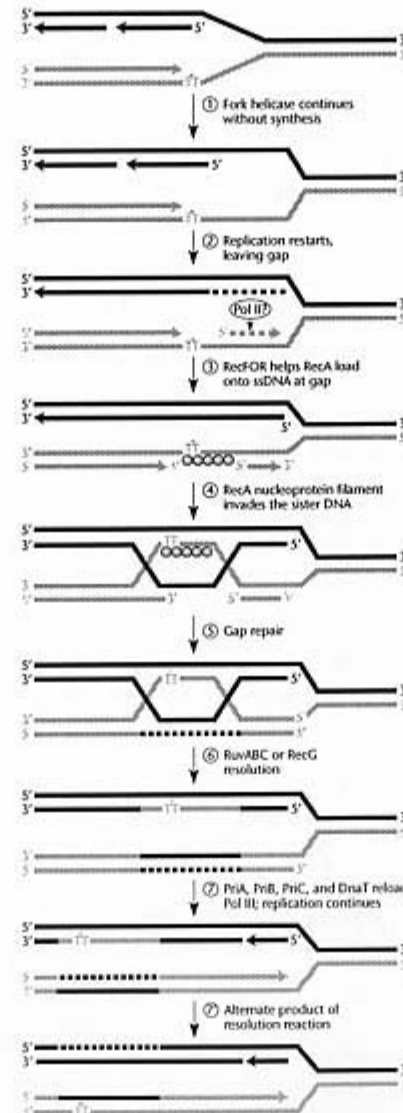




Figure 11.15

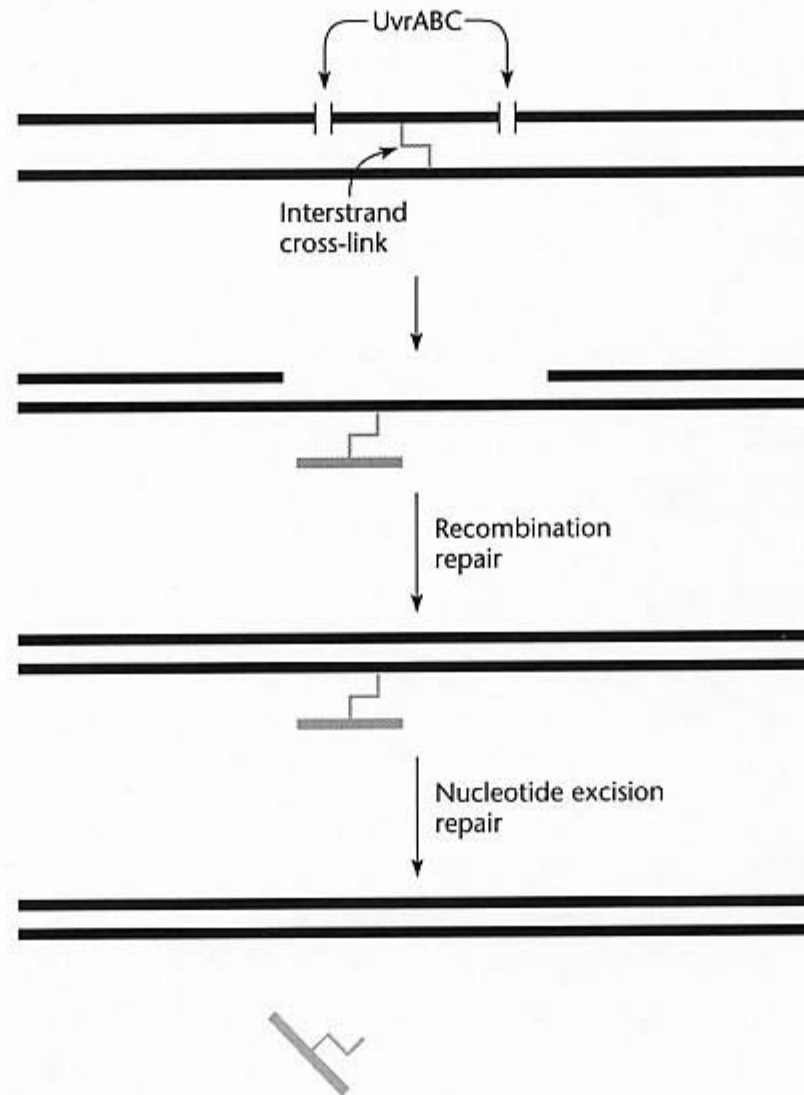
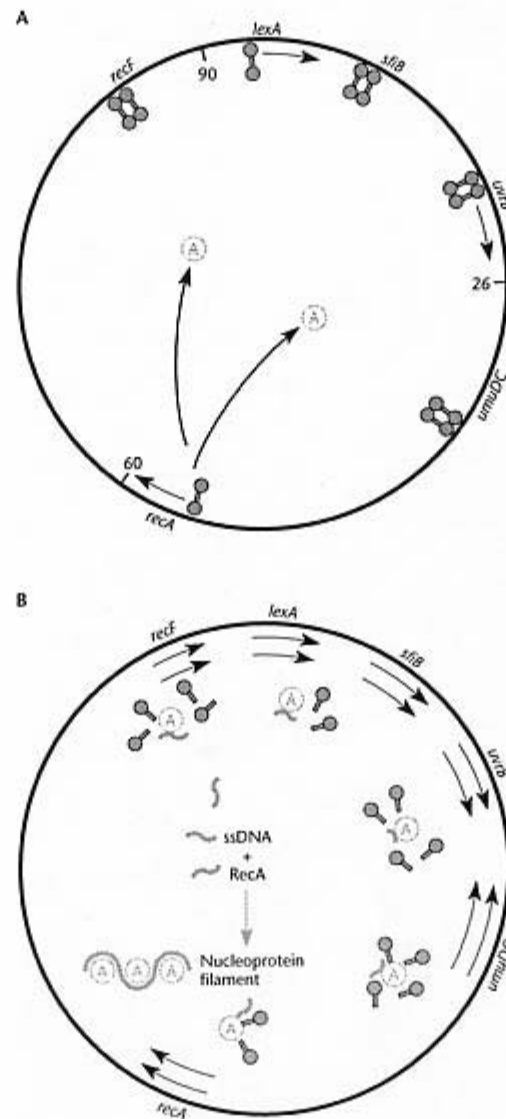
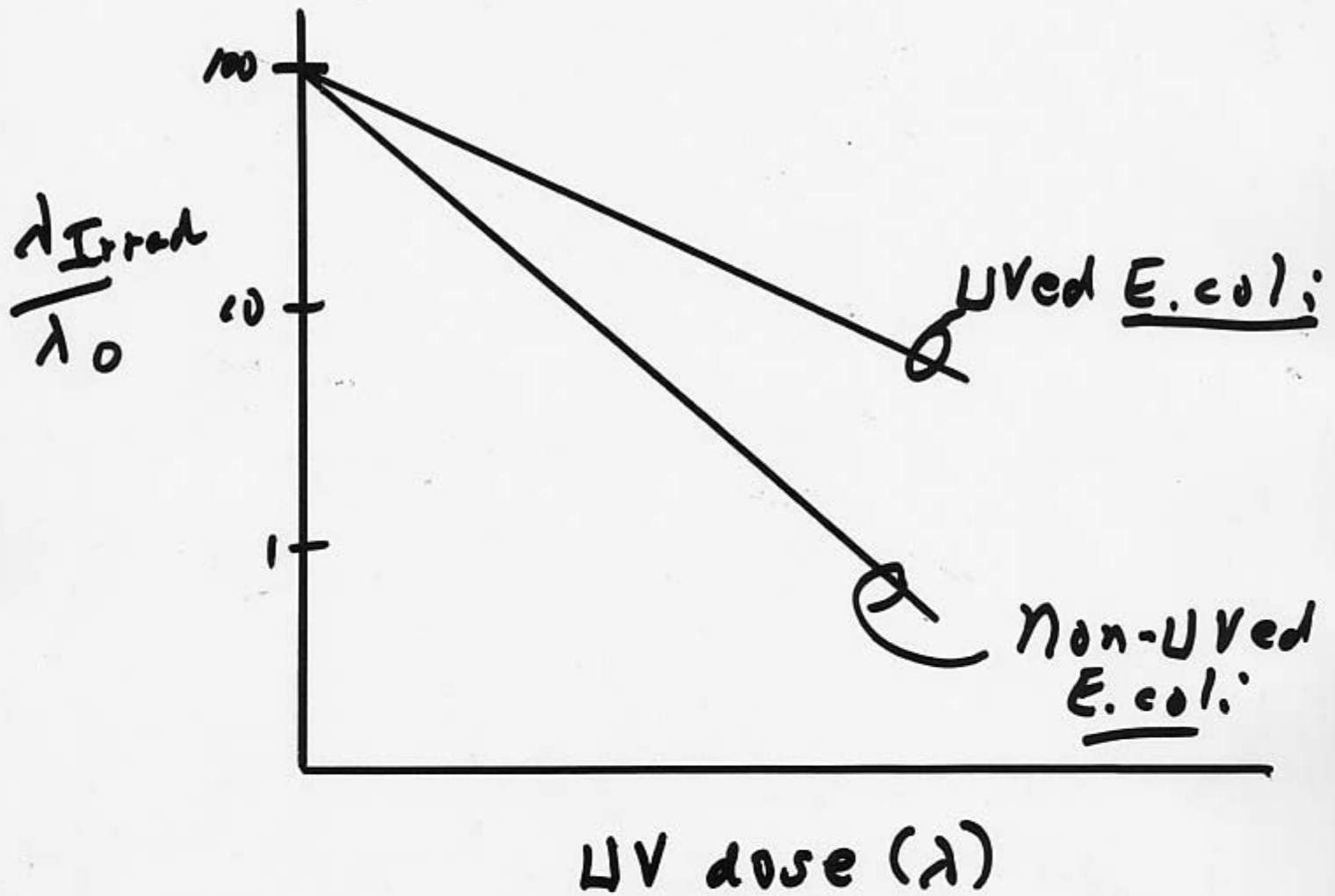




Figure 11.16





WEIGLE REACTIVATION

Cells UVed 30 min prior to infection reactivate UVed λ better than non-UVed cells do.



Figure 11.17

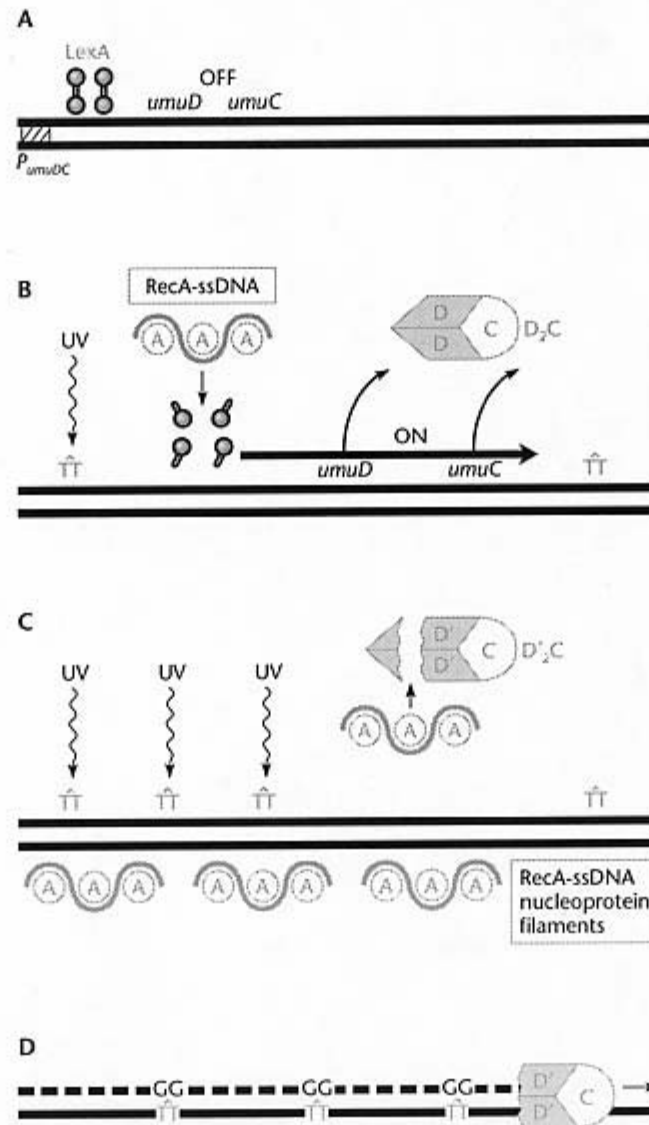


Figure 11.18

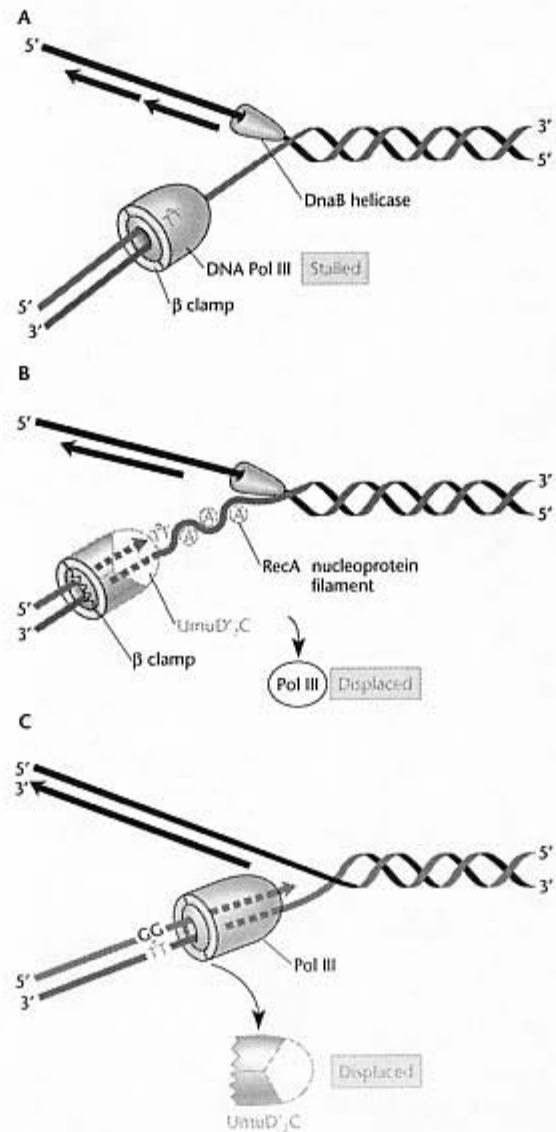


Table 11.2

TABLE 11.2 Genetic pathways for damage repair		
Repair mechanism	Genetic loci	Function
Methyl-directed mismatch repair	<i>dam</i>	DNA adenine methylase
	<i>mutS</i>	Mismatch recognition
	<i>mutH</i>	Endonuclease that cuts at hemimethylated sites
	<i>mutL</i>	Interacts with MutS and MutH
	<i>uvrD (mutU)</i>	Helicase
Very short patch repair	<i>dcm</i>	DNA cytosine methylase
	<i>vsr</i>	Endonuclease that cuts at 5' side of T in TG mismatch
"GO" (guanine oxidizations)	<i>mutM</i>	Glycosylase that acts on GO
	<i>mutY</i>	Glycosylase that removes A from A:GO mismatch
	<i>mutT</i>	8-OxodGTP phosphatase
Alkyl	<i>ada</i>	Alkyltransferase and transcriptional activator
	<i>alkA</i>	Glycosylase for alkylpurines
Nucleotide excision	<i>uvrA</i>	Component of UvrABC
	<i>uvrB</i>	Component of UvrABC
	<i>uvrC</i>	Component of UvrABC
	<i>uvrD</i>	Helicase
Base excision	<i>xthA</i>	AP endonuclease
	<i>nfo</i>	AP endonuclease
Photoreactivation	<i>phr</i>	Photolyase
Recombination repair	<i>recA</i>	Strand exchange
	<i>recBCD</i>	Helicase and nuclease at double-strand breaks
	<i>recFOR</i>	Recombination function
	<i>ssb</i>	Single-stranded DNA-binding protein
	<i>recA</i>	Coprotease
SOS system	<i>lexA</i>	Repressor
	<i>umuDC</i>	Translesion synthesis (Pol V)
	<i>dinB</i>	Mutagenic polymerase (Pol IV)



Table 11.3

TABLE 11.3	Bacteriophage T4 repair enzymes	
Repair enzyme	Host analog	
DenV	UV endonuclease of <i>M. luteus</i>	
UvsX	RecA	
UvsY	RecOR	
UvsW	RecG	
gp46/47 exonuclease	RecBCD recombination repair	
gp49 resolvase	RuvABC recombination repair	
gp59	PriA	