

**Table 16.1 Bacterial DNA Replication Proteins and Their Functions**

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<b>Protein</b>	<b>Function</b>
Helicase	Unwinds parental double helix at replication forks
Single-strand binding protein	Binds to and stabilizes single-stranded DNA until it can be used as a template
Topoisomerase	Relieves “overwinding” strain ahead of replication forks by breaking, swiveling, and rejoining DNA strands
Primase	Synthesizes an RNA primer at 5' end of leading strand and of each Okazaki fragment of lagging strand
DNA pol III	Using parental DNA as a template, synthesizes new DNA strand by covalently adding nucleotides to the 3' end of a pre-existing DNA strand or RNA primer
DNA pol I	Removes RNA nucleotides of primer from 5' end and replaces them with DNA nucleotides
DNA ligase	Joins 3' end of DNA that replaces primer to rest of leading strand and joins Okazaki fragments of lagging strand