CDC9 encodes DNA ligase, an essential enzyme that joins Okazaki fragments during DNA replication. Cdc9p also acts in nucleotide excision repair and base excision repair. Four distinct DNA ligases have been identified in mammalian cells; S. cerevisiae Cdc9p is structurally and functionally homologous to mammalian DNA ligase I. A second DNA ligase, Dnl4p, has been identified in yeast; it is most similar to mammalian DNA ligase IV. Dnl4p cannot substitute for Cdc9p in excision repair. The E. coli DNA ligase can complement a cdc9 deletion. Like many other genes encoding DNA replication proteins, CDC9 is transcribed during late G1 and S phases of the cell cycle. Cell cycle-dependent transcription of CDC9 requires the Swi6p-Mbp1p complex.