CLB5 encodes a B-type cyclin that activates Cdc28p to promote initiation of DNA synthesis. Progression through the cell cycle is a carefully regulated process that is conserved throughout eukaryotes. Periodic activation of cyclin-dependent kinasesare required for this process; the critical CDK involved in cell cycle progression in yeast is Cdc28p. Cyclins are the regulatory subunits that activate CDKs at the appropriate time in the cell cycle; they were first identified in sea urchins and named for their cyclical accumulation during particular phases of the cell cycle. CLN1, CLN2, and CLN3 encode the yeast G1 cyclins while there are 6 B-type cyclinsgenes involved in activation of S, G2, and M phases of the cell cycle. With the exception of CLN3, there are pairs of homologous cyclin genes that share common functions. A clb5 clb6 double mutant strain exhibits dramatic delays in DNA replication, suggesting both Clb5p and Clb6p promote progression into S phase. CLB5 and CLB6 transcripts are expressed periodically throughout the cell cycle and are most abundant during late G1. Both CLB5 and CLB6 promoters contain MCBmotifs, which are elements found in several DNA synthesis genes. The transcriptional activator MBF, which is comprised of the Mbp1 and Swi6 proteins, bind to the MCB elements to activate transcription. There are excellent reviews by Lew et al.and Mendenhall and Hodgethat describe cell cycle control in S. cerevisiae in detail.