CLB2 encodes a B-type cyclin that activates Cdc28p to promote the transition from G2 to M phase of the cell cycle. 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. CLB1 and CLB2 both promote cell cycle progression into mitosis. The CLBs are regulated both transcriptionally and post-translationally. CLB1 and CLB2 transcripts accumulate during G2 and M, and their transcription is repressed by the end of mitosis. Clb1 and Clb2 proteins are degraded at the end of mitosis as well. The Clb proteins contain a destruction box motif in their amino termini, which targets them for ubiquitin-mediated degradation by the proteasome. Expression studies indicate that Clb1p is the primary cyclin for the regulation of meiosis while Clb2p is involved only in mitosis. It was inititally proposed that the Clb proteins play a role in the degradation of the G1 cyclins, but it was later shown that G1 cyclins are unstable in G1 phase, and Clb activity is not required for their degradation. There are excellent reviews by Lew et al.and Mendenhall and Hodgethat describe cell cycle control in S. cerevisiae in detail.