

Sr. No.	Cell cycle Proteins	Functions
G1/S transition		
1	CDKF	It activates CDKD
2	CDKD	CDKD activates CDKA/CYCD complex, which inturn phosphorylates RB protein
3	CYCD	It functions as a substrate for CDKA. It binds with CDKA and forms CDKA/CYCD complex
4	CDKA	It is an enzyme which forms complex with CYCD and phosphorylates RB protein
5	Retinoblastoma (RB)	Hyperphosphorylated RB protein inhibits binding of transcription factors (E2F) and the docking protein (DP)
6	E2FA	Its accumulation stimulates cell cycle progression towards S phase
7	E2FC	Its accumulation represses the expression of S phase genes
8	ICK1	It controls the activity of CDKA/CYCD complex. Up-regulation of ICK1 expression down-regulates CDKA activity
G2/M transition		
1	Wee1	It maintains Tyr15 residue of CDKA in phosphorylated state. This inhibits progress of cell cycle towards M phase
2	PAS2	It removes inhibitory phosphate from CDKA/CYCB complex by antiphosphorylation process and allows entry of cell cycle from G2 to M phase
3	CDKA	It is an enzyme which forms complex with CYCB and gives signal to CDKB/CYCB complex to initiate mitosis
4	CYCB	It functions as a substrate for CDKA. It binds with CDKA and forms CDKA/CYCB complex
5	CAKs (CDKF and CDKD)	It activates CDKA/CYCB complex
6	CDKB	It is a mitosis inducing factor
7	E2FB	It binds with CDKB/CYCB complex and drives cell cycle towards mitosis
8	APC	It regulates ubiquitination and proteolysis of CYCB
9	CDC20	It activates APC/C during metaphase
10	CDH1	It activates APC/C for the exit of mitosis
11	MAD2 (Mitotic arrest deficient 2) and BUBR1 (Budding uninhibited by benzimidazole R1)	They binds with CDC20 to activate APC/C
12	securin	Degradation of securin is required for anaphase onset and activate separase enzyme. Degradation of securins is important in the spindle assembly checkpoint to ensure balanced

		chromosome segregation and to avoid aneuploidy
13	Separase	Activated separase enzyme cleaves the cohesion complexes, thereby allowing sister chromatid separation
14	CYCB	It is a substrate required for phosphorylation of CDKB
	CDKB	It interacts with CYCB and activates protein and expression of genes required for cytokinesis
15	APC/CCDC20 and APC/CCDH1	It mediates CYCB degradation. CYCB proteolysis is required to inhibit CDKB activity and to induce different cell processes such as sister chromatid separation, disassembly of the mitotic spindle, chromosome decondensation, cytokinesis and reformation of the nuclear envelope
Endoreduplication		
1	ICK2	It inhibits the activity of CDKA and CDKB
2	CDKB	It is a mitotic inducing factor. Decrease in its activity stimulates S-phase reentry, resulting in diversion of cell cycle towards endocycle
3	CDKA	It is an enzyme which forms complex with CYCB and gives signal to CDKB/CYCB complex to initiate mitosis
4	E2FB	It binds with CDKB/CYCB complex and drives cell cycle towards mitosis. Destruction of E2FB transcription factor in the G2 phase leads to the period of low CDKB activity. It blocks cell cycle in S-phase, coupled with attenuation of endocycle progression
5	Cul4Cdt2 E3 ubiquitin ligase	It targets E2FB for destruction
6	E2FA	E2FA during G1 phase drives CycE transcription, which activates CDKA and triggers entry into S phase and the subsequent destruction and inactivation of E2Fc by RUB-Cullin pathway
7	E2Fc	Its accumulation represses the expression of S phase genes. It inhibits cell division leading to enlarged cells
RUB-CULLIN signaling pathway		
1	CUL1	It is a cell cycle regulating enzyme
2	RUB1/NEDD8	It regulates CUL1 protein through neddylation activating and conjugating enzymes
3	CAND1	an inhibitor of SCF
4	SKP1 and F-box	They binds with CUL1 protein and allows the formation of SCF E3 ligase complex
5	TIR1	It is an important protein for auxin signaling
6	ASK1 and Atcull	They both binds with TIR1 to form ubiquitin

		ligase complex (SCF _{TIR1})
7	SCF _{TIR1}	This functions only in the presence of auxin. It starts degradation of E2FC protein with the help of COP9 signalsome and allows cell cycle to enter S phase
8	Aux/IAA	It acts as substrate for SCF _{TIR1} . It interacts with SCF _{TIR1} by direct binding with TIR1
9	COP9 signalsome	an evolutionary conserved multiprotein complex that has function in neddylation of CUL1 protein in order to allow cell cycle to enter in S phase
10	SCF ^{SKP2A}	It degrades docking protein (DP) and helps in progress of S phase