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The Cell Cycle

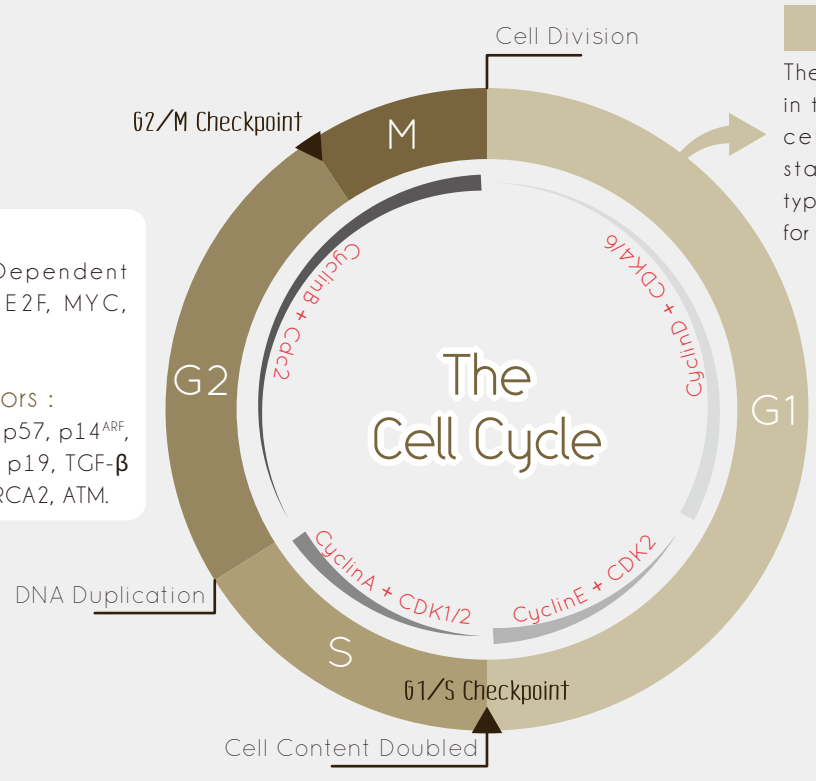
Antibody • Duo • ELISA kit

Oncogenes :

Cyclins, Cyclin-Dependent Kinases (CDKs), E2F, MYC, MDM2.

Tumor Suppressors :

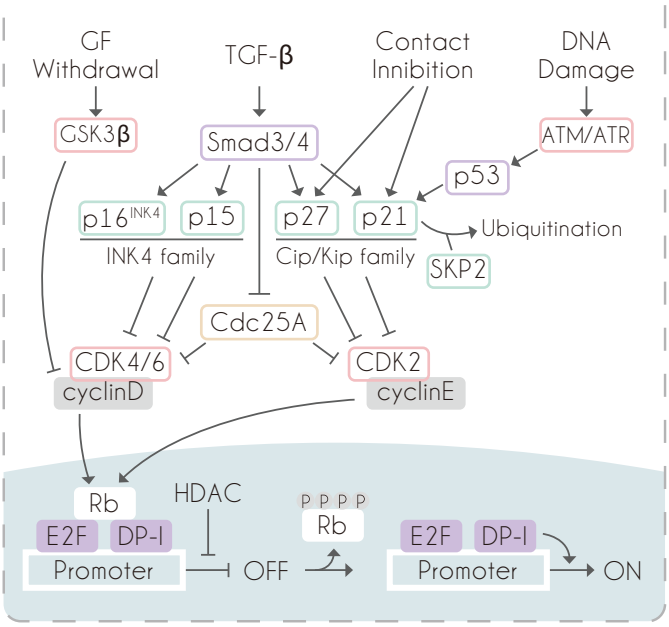
RB, p53, p21, p27, p57, $p14^{ARF}$, $p16^{INK4a}$, p17, p18, p19, TGF-β receptor, BRCA1, BRCA2, ATM.



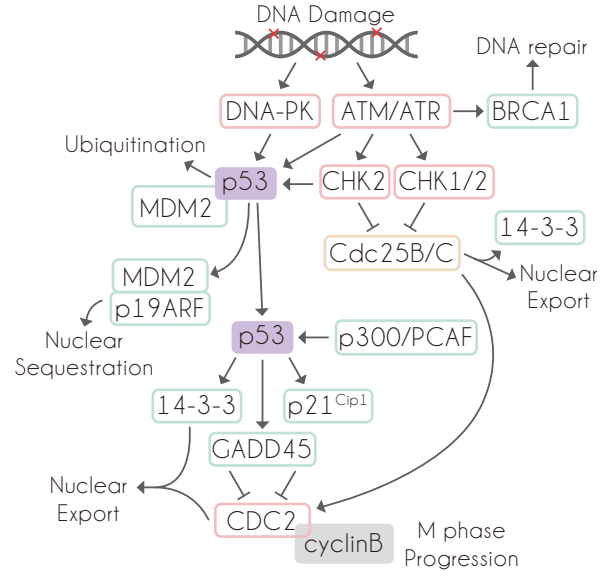
G0

The G0 phase is a period in the cell cycle in which cells exist in quiescent state. Depends on cell types, G0 phase can last for few days to few years.

G1/S Checkpoint



G2/M Checkpoint



Common Methods for Mammalian Cell Cycle Synchronization

Cell Cycle Stage Blocked	Method	Proposed mechanism of action
G0/G1	Serum Starvation	Growth restriction
G1	Lovastin Mimosine	Inhibition of HMG-CoA reductase Inhibit Thymidine, nucleotide biosynthesis
G1/S	Thymidine Aphidicolin Hydroxyurea	Feedback inhibition of DNA replication Inhibition of DNA polymerases Inhibition of ribonucleotide reductase
G2/M	Colchicine/Colcemide Nocodazole	Inhibition of microtubule polymerization Inhibition of microtubule polymerization

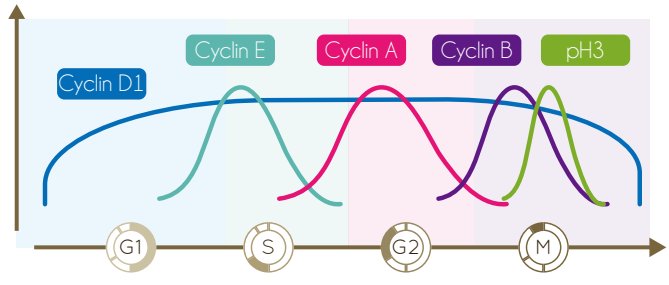
ARG30245 Cyclin Family Antibody Panel

The cell cycle is controlled by numerous mechanisms ensuring correct cell division. Cell division consists of two consecutive processes, mainly characterized by DNA replication (S phase), proceeding after G1 interphase; and segregation of replicated chromosomes into two separate cells (M phase), following G2 phase. Cyclins are a family of proteins (Cyclin A,B,D, and E) that control the progression of cells through the cell cycle by activating cyclin-dependent kinase (Cdk) enzymes. Expression of cyclins are in an oscillatory manner this further induces oscillations in Cdk activity to drive cell cycle.

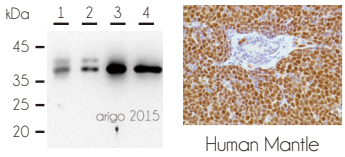
Vermeulen et al. (2003) Cell Prolif 36:131-149

Rahman et al. (2010) Cell Cycle 9: 22-27

Hans and Dimitrov (2001) Oncogene 24: 3021-3027

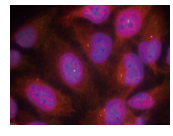


ARG52923
Cyclin D1 antibody [SP4]



Human Mantle Cell Lymphoma

ARG51384
Cyclin B1 antibody



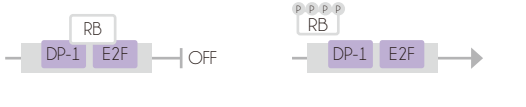
HeLa cells

Component cat no.	Component Name	Clonality	Applications	Reactivity	Package
ARG54688	Cyclin A antibody	Rabbit pAb	WB	H	50 µg
ARG51384	Cyclin B1 antibody	Rabbit pAb	ICC/IF, IHC-P, WB	H	50 µl
ARG70003	Cyclin E Antibody	Rabbit pAb	ELISA, ICC/IF, IHC-P, IP, WB	H,M,R	50 µg
ARG52923	Cyclin D1 antibody [SP4]	Rabbit pAb	ICC/IF, IHC-P, WB	H,M,R	250 µl
ARG65350	Mouse IgG antibody (HRP)	Goat pAb	ELISA, IHC, WB	M	50 µl
ARG65351	Rabbit IgG antibody (HRP)	Goat pAb	ELISA, IHC, WB	Rb	50 µl

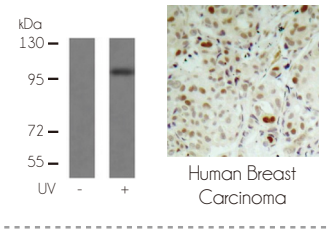
ARG30046 Phospho-RB Antibody Duo (Total, pSer807)

The Retinoblastoma protein (Rb), encoded by the RB1 gene, is a critical regulator of cell cycle progression and has an important role in numerous aspects of biology, including DNA damage response, apoptosis, senescence and differentiation. Rb is an important regulator of the cell cycle that acts predominantly by binding to and inhibiting the gene transactivation by E2F transcription factors, which would otherwise induce the expression of genes that enhance cell cycle progression. The biological function of Rb is critically regulated by protein phosphorylation. Hypophosphorylated Rb interacts with E2F, thereby acting as the biologically active form of Rb. Conversely, hyperphosphorylated Rb is unable to bind E2F proteins, thereby allowing E2F to promote cell cycle progression.

Component cat no.	Component Name	Clonality	Applications	Reactivity	Package
ARG51103	Rb antibody	Rabbit pAb	WB, IHC	H,M,R	50 µl
ARG51632	Rb pSer807 antibody	Rabbit pAb	WB, IHC	H,M,R	50 µl

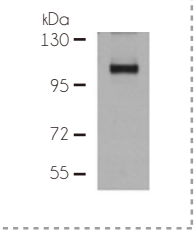


ARG51632
Rb pSer807 antibody



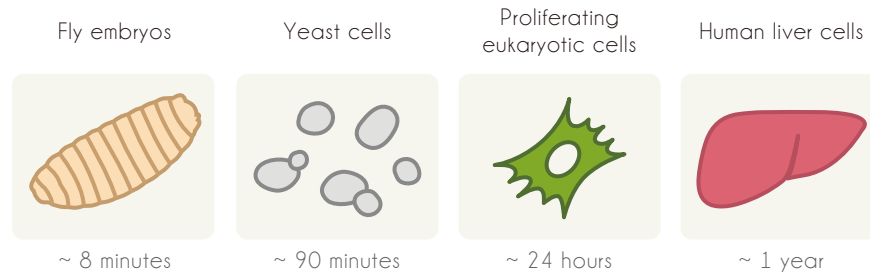
Human Breast Carcinoma

ARG51103
Rb antibody



Do you know?

The duration of cell cycle varies from organism to organism and from cell type to cell type. The greatest variation occurs in the duration of G1 phase. Cells that stay at G0 phase do not normally divide unless given an appropriate stimulus. Some highly specialized cells, named the terminally differentiated cells, have lost their ability to divide until they die (eg. muscle cells, nerve cells, RBCs).



Times required for each cell cycle

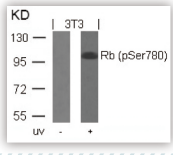
Catalog No.	Product Name	Clonality	Applications	Reactivity	
ARG52473	14-3-3 beta antibody	Rabbit pAB	ICC/IF, IHC, IP, WB	H, M, R	D
ARG63881	14-3-3 sigma / Stratifin antibody	Goat pAB	WB, IHC	H	D
ARG51169	14-3-3 zeta antibody	Rabbit pAB	WB, IHC	H, M, R	D
ARG20074	Akt (pan) antibody	Rabbit pAB	WB, IP, IHC	H, M, R, Bo	D
ARG51558	Akt pSer473 antibody	Rabbit pAB	ICC/IF, IHC, WB	H, M, R	D
ARG51559	Akt pThr308 antibody	Rabbit pAB	WB, IHC, ICC/IF	H, M, R	D
ARG54456	ATM antibody	Goat pAB	WB, IP	H, M	
ARG51623	ATM pSer1981 antibody	Rabbit pAB	WB, IHC	H, M	
ARG54457	ATR antibody	Rabbit pAB	WB	H, M	
ARG51635	CDC2 pThr161 antibody	Rabbit pAB	WB, IHC	H, M, R	
ARG51731	CDC2 pTyr15 antibody	Rabbit pAB	WB	H, M, R	
ARG62431	CDC25A antibody [DCS-120]	Mouse mAB	WB, IP	R, H	
ARG51638	CDC25A pSer76 antibody	Rabbit pAB	WB, IHC	H, M, R	
ARG54731	CDC25A pThr507 antibody	Rabbit pAB	WB, IHC, ICC/IF	H	
ARG52239	CDK1 (pTyr15) antibody	Rabbit pAB	WB	H, Frog	
ARG62960	CDK1 antibody [POH-1]	Mouse mAB	ICC/IF, IHC, IP, WB	Bo, H, Pri	
ARG62434	CDK2 antibody [2B6]	Mouse mAB	FACS, IHC, WB, IP	H, M, R	
ARG51634	CDK2 pThr160 antibody	Rabbit pAB	WB, IHC	H, M, R	
ARG54063	CDK4 antibody [3F9-B12-C8]	Mouse mAB	WB	H, M, R	
ARG55532	CDK6 antibody	Rabbit pAB	WB, IHC-P	H, R	
ARG54733	Chk1 antibody [2G1D5]	Mouse mAB	WB	H	
ARG54940	Chk2 antibody	Rabbit pAB	FACS, ICC/IF, IHC, WB	H	
ARG51034	c-Myc antibody	Rabbit pAB	WB, IHC	H, M, R	D
ARG54688	Cyclin A antibody	Rabbit pAB	WB	H	D
ARG55522	Cyclin A2 antibody	Rabbit pAB	WB, IHC-P	H, M, R	
ARG62456	Cyclin B1 antibody [V152]	Mouse mAB	ICC/IF, FACS, WB, IHC	H	
ARG51827	Cyclin B1 pSer147 antibody	Rabbit pAB	WB, IHC, ICC/IF	H	
ARG52923	Cyclin D1 antibody [SP4]	Rabbit mAB	ICC/IF, IHC, WB	H, M	
ARG70003	Cyclin E Antibody	Rabbit pAB	ELISA, ICC/IF, IHC, IP, WB	H, M, R	
ARG62474	E2F1 antibody [KH20]	Mouse mAB	WB, IP, IHC, GSA	H, R, Frog, M	
ARG55264	GSK3 beta antibody	Mouse mAB	WB, ICC/IF, IP	H, M	D
ARG51506	GSK3 beta pSer9 antibody	Rabbit pAB	WB, IHC, ICC/IF	H, M, R	D
ARG62580	INK4c antibody [18P118 (DCS-118)]	Mouse mAB	ICC/IF, IHC, IP, WB, ELISA	H	
ARG63914	KIP1 / CDKN1B antibody	Goat pAB	WB, IHC	H	
ARG54743	MDM2 antibody	Rabbit pAB	ELISA, IHC, WB	H, M	
ARG51834	MDM2 pSer166 antibody	Rabbit pAB	WB, IHC, ICC/IF	H	
ARG51785	Myc pSer62 antibody	Rabbit pAB	ICC/IF	H, M, R	D
ARG51538	Myc pThr58 antibody	Rabbit pAB	IHC, WB	H, M, R	D
ARG54677	p19 INK4d antibody	Rabbit pAB	WB, IHC, FACS, ELISA	H, M	

Catalog No.	Product Name	Clonality	Applications	Reactivity	
ARG63080	p21 antibody [WA-1]	Mouse mAB	WB, IHC, ICC/IF, ELISA	H, Pri	
ARG10519	p53 antibody [Pab1801]	Mouse mAB	ChIP, ELISA, FACS, ICC/IF, IHC, IP, RIA, WB	H, M, R	
ARG51599	p53 pSer33 antibody	Rabbit pAB	WB, ICC/IF	H	D
ARG52383	p53 pSer392 antibody	Rabbit pAB	WB	R	
ARG51601	p53 pSer46 antibody	Rabbit pAB	WB, ICC/IF	H	D
ARG62582	p57 Kip2 antibody [KP39]	Mouse mAB	IHC, IP, WB	H, M, R	
ARG51103	Rb antibody	Rabbit pAB	WB, IHC	H, M, R	D
ARG51633	Rb pSer780 antibody	Rabbit pAB	WB, IHC, ICC/IF	H, M, R	
ARG51631	Rb pSer795 antibody	Rabbit pAB	WB, IHC, ICC/IF	H, M, R	
ARG51632	Rb pSer807 antibody	Rabbit pAB	WB, IHC	H, M, R	D
ARG53570	SMAD3 antibody	Rabbit pAB	ChIP, ICC/IF, IHC, IP, WB	H, M, R	
ARG54741	Smad4 antibody	Rabbit pAB	WB, ICC/IF	H	

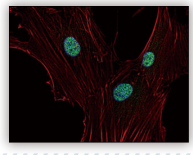
Species Reactivity : **H**- Human; **M**- Mouse; **R**- Rat; **Pri**- Primate; **Bo**- Bovine

D Duo/Panel also available

ARG51633
Rb pSer780 antibody

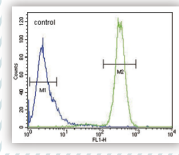


ARG63080
p21 antibody [WA-1]

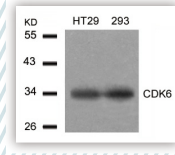


Human primary fibroblasts

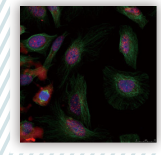
ARG54677
p19 INK4d antibody



ARG51386
CDK6 antibody

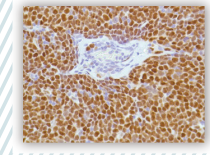


ARG51834
MDM2 pSer166 antibody



Methanol-fixed HeLa cells

ARG52923
Cyclin D1 antibody [SP4]



Human Mantle Cell Lymphoma

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