Revision 1

Store at -20C

#9932

Cell Cycle Regulation Antibody Sampler Kit

1 Kit (8 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
CDK2 (78B2) Rabbit mAb	2546	20 µl	33 kDa	Rabbit
p27 Kip1 (D69C12) XP® Rabbit mAb	3686	20 µl	27 kDa	Rabbit IgG
Cyclin D1 (92G2) Rabbit mAb	2978	20 µl	36 kDa	Rabbit IgG
CDK6 (DCS83) Mouse mAb	3136	20 µl	36 kDa	Mouse IgG1
Cyclin D3 (DCS22) Mouse mAb	2936	20 µl	31 kDa	Mouse IgG1
p21 Waf1/Cip1 (12D1) Rabbit mAb	2947	20 µl	21 kDa	Rabbit IgG
CDK4 (D9G3E) Rabbit mAb	12790	20 µl	30 kDa	Rabbit IgG
p18 INK4C (DCS118) Mouse mAb	2896	20 µl	18 kDa	Mouse IgG2a
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat
Anti-mouse IgG, HRP-linked Antibody	7076	100 µl		Horse

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

Cell Cycle Regulation Antibody Sampler kit offers an economical way of detecting eight integral cell cycle regulation proteins. The kit contains enough primary and secondary antibodies to perform two western blot experiments with each primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Eukaryotic cell cycle progression is dependent, in part, on the tightly regulated activity of cyclin dependent kinases (CDKs). Cyclin D/CDK4/6 activity occurs in mid-late G1 phase, upstream of CDK2/cyclin E activity. Both of these activities are required for hyperphosphorylation of the retinoblastoma gene product (pRb). pRb phosphorylation allows the release of S phase-promoting transcription factors and is indicative of the cell's commitment to proliferate. This point in the cell cycle is known as the restriction point. Cyclin protein levels oscillate throughout the cell cycle, and their availability is a means of controlling CDK activity and cell proliferation. Cyclin D is degraded through the ubiquitin proteasome pathway in the absence of mitogenic signaling. Ubiquitination of cyclin D1 is enhanced by phosphorylation at Thr286 by glycogen synthase kinase 3b (GSK-3b) (1). p27/Kip1, p57 Kip2 and p21 Waf1/Cip1 are members of the Cip/Kip family of cyclin-dependent kinase inhibitors. They form heterotrimeric complexes with cyclins and CDKs, inhibiting kinase activity and blocking progression through G1/S phase (2). However, p21 may enhance assembly and activity of cyclin D/CDK4/6 complexes (3). Levels of p21 and p27 protein are controlled through ubiquitination and proteasomal degradation (4). Levels of p27 are upregulated in quiescent cells and in cells treated with negative cell cycle regulators. p27 nuclear localization is controlled by Akt-dependent phosphorylation at Thr157 (5). The inhibitors of CDK4 (INK4) family include p15 INK4B, p16 INK4A, p18 INK4C, and p19 INK4D. All INK4 proteins selectively inhibit CDK4/6 activity, either in a binary complex, or in a ternary complex including cyclin D, resulting in inhibition of cell division (6,7).

Background References

1. Diehl, J.A. et al. (1997) *Genes Dev* 11, 957-72.
2. Pestell, R.G. et al. (1999) *Endocr Rev* 20, 501-34.
3. Cheng, M. et al. (1999) *EMBO J* 18, 1571-83.
4. Sheaff, R.J. et al. (2000) *Mol Cell* 5, 403-10.
5. Shin, I. et al. (2002) *Nat Med* 8, 1145-52.
6. Guan, K.L. et al. (1994) *Genes Dev* 8, 2939-52.
7. Hirai, H. et al. (1995) *Mol Cell Biol* 15, 2672-81.

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