

**Livin (D61D1) XP<sup>®</sup> Rabbit mAb**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC	H	Endogenous	34, 36	Rabbit IgG	#Q96CA5	79444

**Product Usage Information****Application**

Western Blotting  
Immunoprecipitation  
Immunofluorescence (Immunocytochemistry)

**Dilution**

1:1000  
1:200  
1:800

**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.

**Specificity/Sensitivity**

Livin (D61D1) XP<sup>®</sup> Rabbit mAb detects endogenous levels of total livin protein.

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala195 of human livin protein.

**Background**

The inhibitor of apoptosis protein (IAP) family consists of an evolutionarily conserved group of apoptosis inhibitors containing a conserved 70 amino acid BIR (baculovirus inhibitor repeat) domain (1,2). Human members of this family include c-IAP1, c-IAP2, XIAP, survivin, livin, and NAIP. Overexpression of IAP family members, particularly survivin and livin, in cancer cell lines and primary tumors suggests an important role for these proteins in cancer progression (3-5). In general, the IAP proteins function through direct interactions to inhibit the activity of several caspases, including caspase-3, caspase-7, and caspase-9 (5,6). In addition, binding of IAP family members to the mitochondrial protein Smac blocks their interaction with caspase-9, thereby allowing the processing and activation of the caspase (2).

Livin (BIRC7/ML-IAP) is a potent anti-apoptotic IAP family member containing a single BIR domain and RING finger motif that is highly expressed in human melanomas and absent in normal tissues (5,7). It is localized in the nucleus and diffusely in the cytoplasm (5). The livin gene encodes two splicing variants, a 298 amino acid isoform (α) and a 280 amino acid form (β), with different biological activity to various apoptotic stimuli (8). In addition to directly inhibiting caspase activity, livin can promote the degradation of the pro-apoptotic protein Smac through the ubiquitin-proteasome pathway (9). Its preferential expression in tumor cells, along with several studies showing that downregulation of livin can promote apoptosis, has led to studies analyzing the use of livin in cancer therapy (10).

**Background References**

1. Deveraux, Q.L. and Reed, J.C. (1999) *Genes Dev* 13, 239-52.
2. Deveraux, Q.L. et al. (1998) *EMBO J* 17, 2215-23.
3. Altieri, D.C. et al. (1999) *Lab Invest* 79, 1327-33.
4. Tamm, I. et al. (2000) *Clin Cancer Res* 6, 1796-803.
5. Kasof, G.M. and Gomes, B.C. (2001) *J Biol Chem* 276, 3238-46.
6. Deveraux, Q.L. et al. (1997) *Nature* 388, 300-4.
7. Vucic, D. et al. (2000) *Curr Biol* 10, 1359-66.
8. Ashhab, Y. et al. (2001) *FEBS Lett* 495, 56-60.
9. Ma, L. et al. (2006) *Cell Death Differ* 13, 2079-88.
10. Liu, B. et al. (2007) *Cancer Lett* 250, 168-76.

**Species Reactivity**

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

**Western Blot Buffer**

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

**Applications Key**

**W:** Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

**Cross-Reactivity Key**

**H:** Human

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