

## clAP1 Protein, Human, Recombinant (Avi)

### General Information

Synonyms:	Hiap-2;API1;HIAP2;RNF48;baculoviral IAP repeat containing 2;MIHB;c-IAP1;clAP1
Protein Construction:	A DNA sequence encoding the BIR2 & BIR3 domains (Glu 144-Leu 356) of human clAP1 (NP_001157.1) was expressed, fused with the AVI tag at the C-terminus, and two additional amino acids (Gly & Pro) at the N-terminus. Predicted N terminal: Gly
Species:	Human
Expression Host:	E. coli
Accession:	Q13490-1
Molecular Weight:	26.5 kDa (predicted); 26.5 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured by its ability to inhibit DEVD-AFC cleavage activity in cell extracts activated by addition of cytochrome c and dATP. The IC50 for this effect is typically 25-750 nM.
Purity:	> 92 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 10 mM Tris, 5% glycerol, 0.5 mM EDTA, 5 mM DTT, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

The cellular inhibitor of apoptosis protein-1 (clAP1) is a member of the Inhibitor of Apoptosis family proteins (IAP) whose members are characterized by a novel domain of about 70 amino acids termed baculoviral IAP repeats (BIRs). The BIR domains of clAP1 and clAP2 bind to caspases, the key effector proteases of apoptosis. The IAP protein family which can enhance cell survival are crucial regulators of programmed cell death. Both clAP1

and cIAP2 are the E3 ubiquitin protein isopeptide ligases for Smac, taking part in promoting cancer survival through functioning as E3 ubiquitin ligases. Removal of cIAP1 by genetic deletion may result in NF- $\kappa$ B signaling activation that induces TNF $\alpha$  production and in killing sensitive tumor cells through enhanced TNF-R1 death-receptor signaling and caspase 8 activation. The substrate-dependent E3 activity of cIAPs is mediated by their RING domains and is dependent on the specific interactions between cIAPs and Smac. cIAP1 and cIAP2 are also reported to be regulators of NF- $\kappa$ B activation upon TNF $\alpha$  treatment.

### Reference

Vince JE, et al. (2007) IAP Antagonists Target cIAP1 to Induce TNF-Dependent Apoptosis. *Cell*. 131(4): 682-93.

Hu SM, et al. et al. (2003) Cellular Inhibitor of Apoptosis 1 and 2 Are Ubiquitin Ligases for the Apoptosis Inducer Smac/DIABLO. *The Journal of Biological Chemistry*. 278: 10055-60.

Imoto I, et al. (2011) Identification of cIAP1 As a Candidate Target Gene within an Amplicon at 11q22 in Esophageal Squamous Cell Carcinomas 1. *Cancer Res*. 61: 6629.

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