

## SMAC Protein, Human, Recombinant (His)

### General Information

Synonyms:	DFNA64;diablo, IAP-binding mitochondrial protein;SMAC
Protein Construction:	A DNA sequence encoding the mitochondrial-located form of human Diablo (NP_063940.1) (Ala 56-Asp 239) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	Q9NR28
Molecular Weight:	22 kDa (predicted); 22 kDa (non-reducing conditions)

### QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized recombinant human SMAC-His can bind recombinant human XIAP-AVI with a linear range of 0.125-1.0 µg/ml.
Purity:	> 90 % 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 PBS, pH 7.4. 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

Apoptosis is an essential processes required for normal development and homeostasis of all metazoan organisms. Second Mitochondria-Derived Activator of Caspases (Smac) or Direct IAP Binding Protein with low isoelectric point, pI (Diablo) is a proapoptogenic mitochondrial protein that is released to the cytosol in response to diverse apoptotic stimuli, including commonly used chemotherapeutic drugs. The current knowlege about

structure and function of Smac/Diablo during programmed cell death, both in mitochondrial and receptor pathways are presented. It has been shown that Diablo mainly interacts with IAPs in the cytochrome c/Apaf-1/caspase-9 pathway, and promotes apoptosis. Diablo is released from the mitochondria into the cytosol occurring downstream of cytochrome c release in response to apoptotic stimuli such as irradiation, DNA damage or cytotoxic drugs. In the cytosol, Smac/Diablo interacts and antagonizes inhibitors of apoptosis proteins (IAPs), thus allowing the activation of caspases and apoptosis. This activity has prompted the synthesis of peptidomimetics that could potentially be used in cancer therapy. The role of Smac/DIABLO in colorectal carcinogenesis is ill defined. Data continues to accumulate to suggest that decreased levels of Smac/DIABLO may be important in chemoradiation-resistance to apoptosis in advanced colon cancer.

### Reference

- Korga A, et al. (2006) Role of mitochondrial protein Smac/Diablo in regulation of apoptotic pathways Pol Merkur Lekarski. 20(119): 573-6.
- Anguiano-Hernandez YM, et al. (2007) Smac/DIABLO and colon cancer. Anticancer Agents Med Chem. 7(4): 467-73.
- Martinez-Ruiz G, et al. (2008) Role of Smac/DIABLO in cancer progression. J Exp Clin Cancer Res. 27: 48.

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