# PRODUCT INFORMATION

## Mcl-1L Cytoplasmic Domain (human, recombinant)

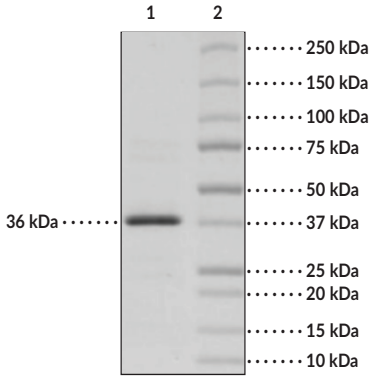
*Item No. 33983*

### Overview and Properties

| | |
|---|---|
| **Synonyms:** | Bcl-2-like Protein 3, EAT/Mcl-1, Induced Myeloid Leukemia Cell Differentiation Protein Mcl-1, Mcl-1 Long Isoform |
| **Source:** | Active recombinant human N-terminal His-tagged MCL1 expressed in *E. coli* |
| **Amino Acids:** | 2-327 |
| **Uniprot No.:** | Q07820 |
| **Molecular Weight:** | 36 kDa |
| **Storage:** | -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein |
| **Stability:** | ≥6 months |
| **Purity:** | ≥90% estimated by SDS-PAGE |
| **Supplied in:** | 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 0.04% Tween 20, 3 mM DTT, 20% glycerol, and 200 mM imidazole |
| **Protein Concentration:** | ***batch specific*** mg/ml |
| **Activity:** | See figure for details |

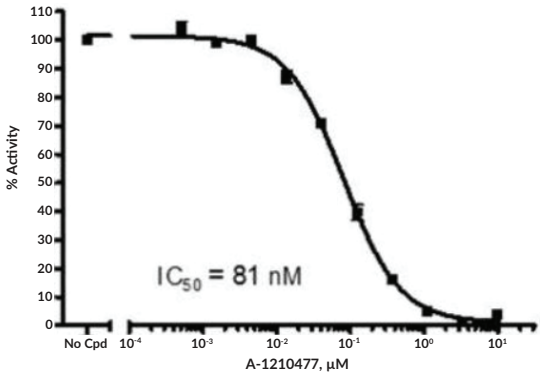
*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

### Images




**Lane 1:** Mcl-1L Cytoplasmic Domain
**Lane 2:** MW Markers

**SDS-PAGE Analysis of Mcl-1L Cytoplasmic Domain.**




Inhibition of MCL-1 by A-1210477 (Item No. 21113).

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## Description

Myeloid cell leukemia-1 (Mcl-1) is a Bcl-2 family member protein that is involved in the regulation of apoptosis.[1] Alternative splicing of *MCL1* pre-mRNA produces three isoforms, anti-apoptotic Mcl-1 long (Mcl-1L) and pro-apoptotic Mcl-1 short and Mcl-1 extra short (Mcl-1S and Mcl-1ES, respectively). Mcl-1L is composed of a C-terminal helix that acts as a membrane anchor, four Bcl-2 homology (BH) domains, and a PEST domain. The BH1, BH2, and BH3 domains facilitate heterodimerization with pro-apoptotic proteins, including Bax and Bak, and homodimerization with Mcl-1S and Mcl-1ES.[1-3] Mcl-1L is expressed during embryogenesis and hematopoiesis, as well as during nervous and immune system development, and localizes to the mitochondrial membrane.[4,5] It inhibits apoptosis by preventing Bax and Bak oligomerization, which form a pore on the outer mitochondrial membrane that allows release of cytochrome *c* into the cytoplasm.[1] Knockdown of *MCL1* sensitizes oral cancer cells to cisplatin and tumor levels of Mcl-1L are increased relative to adjacent normal tissues in patients with oral cancer.[6] Overexpression of *MCL1* is associated with poor prognosis in several cancers, including solid tumors and hematological malignancies.[1] Cayman's Mcl-1L Cytoplasmic Domain (human, recombinant) protein can be used for enzyme activity assays.

## References


1. Wang, H., Guo, M., Wei, H., *et al.* Targeting MCL-1 in cancer: Current status and perspectives. *J. Hematol. Oncol.* **14(1)**, 67 (2021).
2. Bae, J., Leo, C.P., Hsu, S.Y., *et al.* MCL-1S, a splicing variant of the antiapoptotic BCL-2 family member MCL-1, encodes a proapoptotic protein possessing only the BH3 domain. *J. Biol. Chem.* **275(33)**, 25255-25261 (2000).
3. Kim, J.-H., Sim, S.-H., Ha, H.-J., *et al.* MCL-1ES, a novel variant of MCL-1, associates with MCL-1L and induces mitochondrial cell death. *FEBS Lett.* **583(17)**, 2758-2764 (2009).
4. Opferman, J.T. and Kothari, A. Anti-apoptotic BCL-2 family members in development. Cell Death Differ. **25(1)**, 37-45 (2018).
5. Yang, T., Kozopas, K.M., and Craig, R.W. The intracellular distribution and pattern of expression of Mcl-1 overlap with, but are not identical to, those of Bcl-2. *J. Cell Biol.* **128(6)**, 1173-1184 (1995).
6. Palve, V., Mallick, S., Ghaisas, G., *et al.* Overexpression of Mcl-1L splice variant is associated with poor prognosis and chemoresistance in oral cancers. *PLoS One* **9(11)**, e111927 (2014).



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