

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Cathepsin D in direct ELISAs and Western blots. It recognizes both the pro and mature forms of recombinant human (rh) Cathepsin D. In direct ELISAs, no cross-reactivity with rhCathepsin A, rhCathepsin B, rhCathepsin C, rhCathepsin L, rhCathepsin O, rhCathepsin S, rhCathepsin Z, or recombinant mouse Cathepsin D is observed. In Western blots, 100% cross-reactivity with rhCathepsin E and rmCathepsin D is observed and no cross-reactivity with rhBACE-1 is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 185111
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human Cathepsin D Leu21-Leu412 Accession # P07339
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

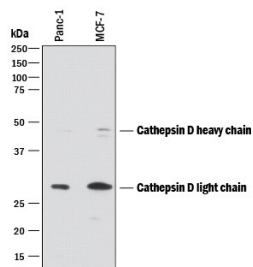
## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.2 µg/mL	See Below
<b>Immunohistochemistry</b>	5-25 µg/mL	See Below
<b>Simple Western</b>	2 µg/mL	See Below

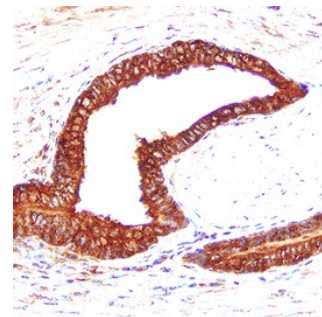
## DATA

### Western Blot



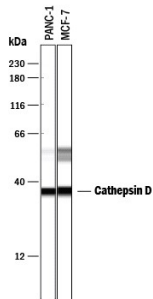
**Detection of Human Cathepsin D by Western Blot.** Western blot shows lysates of PANC-1 human pancreatic carcinoma cell line and MCF-7 human breast cancer cell line. PVDF membrane was probed with 0.2 µg/mL of Mouse Anti-Human Cathepsin D Monoclonal Antibody (Catalog # MAB1014) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). Specific bands were detected for Cathepsin D at approximately 28 and 46 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 1](#).

### Immunohistochemistry



**Cathepsin D in Human Prostate Cancer Tissue.** Cathepsin D was detected in immersion fixed paraffin-embedded sections of human prostate cancer tissue using Mouse Anti-Human Cathepsin D Monoclonal Antibody (Catalog # MAB1014) at 5 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to epithelial cell cytoplasm. View our protocol for [IHC Staining with VisUCyte HRP Polymer Detection Reagents](#).

### Simple Western



**Detection of Human Cathepsin D by Simple Western™.** Simple Western lane view shows lysates of PANC-1 human pancreatic carcinoma cell line and MCF-7 human breast cancer cell line, loaded at 0.2 mg/mL. Specific bands were detected for Cathepsin D at approximately 36 and 52-57 kDa (as indicated) using 2 µg/mL of Mouse Anti-Human Cathepsin D Monoclonal Antibody (Catalog # MAB1014). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

Cathepsin D is a lysosomal aspartic protease of the pepsin family (1). Human cathepsin D is synthesized as a precursor protein, consisting of a signal peptide (aa 1-18), a propeptide (aa 19-64), and a mature chain (aa 65-412) (2-4). The mature chain can be processed further to the light (aa 65-161) and heavy (aa 169-412) chains. It is expressed in most cells and overexpressed in breast cancer cells (5). It is a major enzyme in protein degradation in lysosomes, and also involved in the presentation of antigenic peptides. Mice deficient in this enzyme showed a progressive atrophy of the intestinal mucosa, a massive destruction of lymphoid organs, and a profound neuronal ceroid lipofucinosi, indicating that cathepsin D is essential for proteolysis of proteins regulating cell growth and tissue homeostasis (6). Cathepsin D secreted from human prostate carcinoma cells are responsible for the generation of angiostatin, a potent endogeneous inhibitor of angiogenesis (6).

## References:

1. Conner *et al.* in *Handbook of Proteolytic Enzymes* Barrett (1998) Academic Press, San Diego, p. 828.
2. Faust, *et al.* (1985) *Proc. Natl. Acad. Sci. USA* **82**:4910.
3. Westley and May (1987) *Nucl. Acid Res.* **15**:3773.
4. Redecker, *et al.* (1991) *DNA Cell Biol.* **10**:423.
5. Rochefort, *et al.* (2000) *Clin. Chim. Acta.* **291**:157.
6. Tsukuba, *et al.* (2000) *Mol. Cells* **10**:601.