

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Cathepsin D in direct ELISAs and Western blots. In direct ELISAs, approximately 20% cross-reactivity with recombinant mouse (rm) Cathepsin D and less than 5% cross-reactivity with recombinant human (rh) Cathepsin A, rhCathepsin C, rhCathepsin H, rhCathepsin L, and rhCathepsin Z is observed. In Western blots, approximately 20% cross-reactivity with rmCathepsin D and less than 1% cross-reactivity with rhBACE-1 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Cathepsin D Leu21-Leu412 Accession # P07339
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

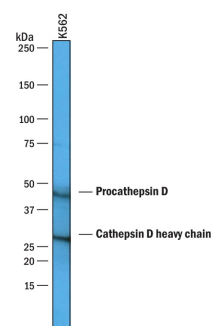
APPLICATIONS

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
Western Blot	1 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	See Below
Immunoprecipitation	25 µg/mL	Conditioned cell culture medium spiked with Recombinant Human Cathepsin D (Catalog # 1014-AS), see our available Western blot detection antibodies
Simple Western	50 µg/mL	See Below

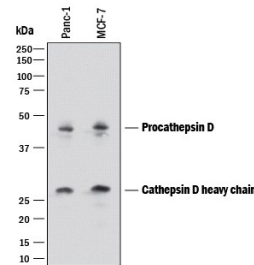
DATA

Western Blot



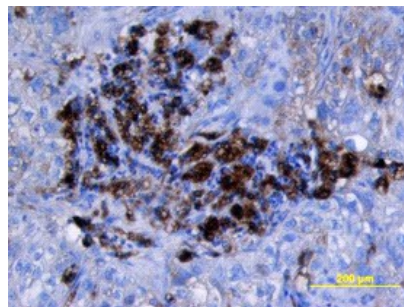
Detection of Human Cathepsin D by Western Blot. Western blot shows lysates of K562 human chronic myelogenous leukemia cell line. PVDF membrane was probed with 1 µg/mL of Goat Anti-Human Cathepsin D Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1014) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF019). Specific bands were detected for Procathepsin D at approximately 45 kDa and Cathepsin D heavy chain 28 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 1](#).

Western Blot



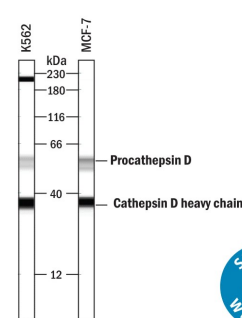
Detection of Human Cathepsin D by Western Blot. Western blot shows lysates of PANC-1 human pancreatic carcinoma cell line and MCF-7 human breast cancer cell line. PVDF membrane was probed with 1 µg/mL of Goat Anti-Human Cathepsin D Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1014) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). Specific bands were detected for Procathepsin D at approximately 45 kDa and Cathepsin D heavy chain 28 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 1](#).

Immunohistochemistry



Cathepsin D in Human Lung Cancer Tissue. Cathepsin D was detected in immersion fixed paraffin-embedded sections of human lung cancer tissue using Goat Anti-Human Cathepsin D Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1014) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for [Chromogenic IHC Staining of Paraffin-embedded Tissue Sections](#).

Simple Western



Detection of Human Cathepsin D by Simple Western™. Simple Western lane view shows lysates of K562 human chronic myelogenous leukemia cell line and MCF-7 human breast cancer cell line, loaded at 0.2 mg/mL. Specific bands were detected for Procathepsin D at approximately 55 kDa and Cathepsin D heavy chain at approximately 37 kDa (as indicated) using 50 µg/mL of Goat Anti-Human Cathepsin D Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1014) followed by 1:50 dilution of HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF109). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system. Non-specific interaction with the 230 kDa Simple Western standard may be seen with this antibody.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	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
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none">● 12 months from date of receipt, -20 to -70 °C as supplied.● 1 month, 2 to 8 °C under sterile conditions after reconstitution.● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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 (residues 1-18), a propeptide (residues 19-64), and a mature chain (residues 65-412) (2-4). The mature chain can be processed further to the light (residues 65-161) and heavy (residues 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 endogenous 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.