

Product Information

MONOCLONAL ANTI-CATHEPSIN D

Clone CTD-19

Mouse Ascites Fluid

Product Number **C 0715**

Product Description

Monoclonal Anti-Cathepsin D (mouse IgG2a isotype) is derived from the CTD-19 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized BALB/c mouse. Purified human liver cathepsin D preparation was used as the immunogen. The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Cathepsin D reacts specifically with cathepsin D (34 kDa with a weaker band at 52 kDa) in immunoblotting. It is also reactive in ELISA and in immunohistochemical staining of formalin-fixed paraffin-embedded human tissue sections. The product does not react with bovine cathepsins D and B, nor with human cathepsins B, C, G, and H.

Monoclonal Anti-Cathepsin D may be used for the localization of cathepsin D using various immunochemical assays such as ELISA, immunoblotting, and immunohistochemistry

Cathepsins are lysosomal proteases that play an important role in the intracellular degradation of exogenous and endogenous proteins, in activation of enzyme precursors, and in tumor invasion and metastasis.¹ They are normally localized in lysosomes of almost all mammalian cells, but under certain conditions they can be secreted from the cells. Cathepsin D (CD, EC 3.4.23.5), an aspartyl endopeptidase, is induced by estrogen in certain estrogen receptor (ER)-positive breast cancer cell lines, but is produced constitutively by ER-negative cell lines.² Cathepsin D is synthesized as a 52 kDa inactive precursor (pro-cathepsin D). Proteolytic removal of the amino-terminal 43 amino acid fragment and cleavage at an internal site results in an enzymatically active 48 kDa heterodimer consisting of two chains of 14 and 34 kDa.³ The level of CD synthesized by cells is

increased in response to mitogenic signals from estrogen, EGF, FGF, and IGF-I. The ability of tumor cells to invade the extracellular matrix has been attributed to cathepsins released by tumor cells or associated with the plasma membrane of tumor cells. CD is capable of digesting extracellular matrix proteins in *in vivo* models. Transfection of the CD gene into rat cells increases their tumorigenicity when injected into nude mice. Indeed, the concentrations of CD are significantly higher in breast carcinomas than in either normal breast tissues or benign breast tumors.⁴ Patients with cancers containing high concentrations of CD have a significantly shorter overall survival than patients with low concentrations of the enzyme.⁵ Antibodies that react specifically with cathepsin D⁶ may be used to study the distribution of CD in human breast cancers and to relate its concentrations to various biochemical, histological, and clinical characteristics.

Reagents

The product is provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

References

1. Igdoura, S.A., et al., J. Histochem. Cytochem., **43**, 545 (1995).
2. Westley, B., and Rochefort, H.A., Cell, **20**, 352 (1980).
3. Morisset, M., et al., Endocrinology, **19**, 2773 (1986).
4. Rochefort, H., Eur. J. Cancer, **28A**, 1780 (1992).
5. Duffy, M.J., et al., Clin. Chem., **37**, 101 (1991).
6. Garcia, M., et al., Cancer Res., **45**, 709 (1985).

KMR/MAM 01/02

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.