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Datasheet for MB-125-0050

Collagenase Type 4

Overview

Description:	Collagenase Type 4 - MB-125-0050
Item No.:	MB-125-0050
Size:	50 mg
Applications:	Cellular Assay
Origin:	Clostridium histolyticum

Product Details

Background:	Crude collagenase preparations contain several isoforms of two different collagenases, a sulfhydryl protease, clostripain, a trypsin-like enzyme, and an aminopeptidase. This combination of collagenolytic and proteolytic activities is effective at breaking down intercellular matrices, the essential part of tissue dissociation. One component of the complex is a hydrolytic enzyme which degrades the helical regions in native collagen preferentially at the Y-Gly bond in the sequence Pro-Y-Gly-Pro, where Y is most frequently a neutral amino acid. This cleavage yields products susceptible to further peptidase digestion. Crude collagenase is inhibited by metal chelating agents such as cysteine, EDTA or o-phenanthroline but not DFP. It is also inhibited by α2-macroglobulin, a large plasma glycoprotein. Ca2+ is required for enzyme activity. Particular enzymatic profiles of each collagenase have been correlated with the tissues from which the cells for study were obtained (or with the uses to which the cells are put) and as a result of the correlations several types of crude collagenases have been established. Crude collagenases are widely used in enzymatic primary cell isolation and tissue dissociation procedures. Most researchers employ either crude collagenase preparations such as Types 1, 2, 3, and 4 or chromatographically purified collagenase; the latter usually combined with secondary enzymes such as elastase, hyaluronidase, etc. For best results, the precise mixture of proteolytic activities must be tailored to the tissue to be dissociated. Collagenase is ideal for researches focused in Stem Cell and Biomarker Research.
Synonyms:	Filtered Collagenase Type 4, Clostridium histolyticum, Bacterial collagenases, collagenase, caseinase, clostripain, tryptic, ColH, ColG
Species of Origin:	Clostridium histolyticum
Reagent Type:	Enzyme

Target Details

Gene Name:	colH, colG
Purity/Specificity:	Collagenase type 4 is partially purified and 0.22µm filtered, contains higher relative levels of protease activity, particularly clostripain. The collagenase assay is a modification of the Mandl collagen digestion procedure wherein collagenase is incubated for five hours with native collagen and the extent of collagen breakdown is determined using the Moore and Stein, JBC, 176, 367, (1948) colorimetric ninhydrin method. Amino acids released are expressed as micromoles L-leucine per milligram collagenase in 5 hours at 37°C, pH 7.5. Caseinase activity, a measure of non-specific proteolytic activity, is determined using the above assay and substituting 25 milligrams vitamin free casein for the collagen substrate. Caseinase activity is calculated as for collagenase activity. Clostripain activity is measured after activation in 2.5 mM dithiothreitol (DTT). One unit hydrolyzes one micromole of BAEE per minute at 25°C, pH 7.6, after activation. Tryptic activity is assayed using the same BAEE method as clostripain, but without activation.
Relevant Links:	• UniProtKB - Q9X721 • UniProtKB - Q46085

Application Details

Suggested Applications:	Cellular Assay (Based on references)
Application Note:	Filtered Collagenase Type 4 contain lower tryptic activity levels to limit damage to membrane proteins and receptors but with normal to above normal collagenase activity. It is suggested for pancreatic islet primary isolation. Collagenase is typically used at concentrations from 0.05 % to 0.5 % (w/v) in balanced salt solutions such as Hank's, Earle's and others. For best results the precise mixture of collagenase and proteolytic activities must be tailored to the tissue to be dissociated. Specific conditions for reactivity should be optimized by the end user.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
Other:	Collagenase: 245 CDU/mg dry weight Caseinase: 218 u/mg dry weight Clostripain: 0.68 u/mg dry weight Tryptic: 0.06 u/mg dry weight Endotoxin: 1.56 EU/mg dry weight

Formulation

Physical State:	Lyophilized
Concentration:	245 CDU/mg by dry weight
Buffer:	None
Preservative:	None

Stabilizer:	None
Reconstitution Volume:	10.0 mL
Reconstitution Buffer:	Restore with deionized water (or equivalent)

Shipping & Handling

Shipping Condition:	Ambient
Storage Condition:	Store vial at 2 - 8 ° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

References

- Yu Z et al. Engineering an immuno-nanoprodrug: Photo-controlled pyroptosis synergizing with acid-activatable immunometabolic blockade for potent cancer immunotherapy. *Acta Pharm Sin B.* (2026)
- Hosni R et al. The Antibody-Drug Conjugate Sacituzumab Govitecan (IMMU-132) Represents a Potential Novel Therapeutic Strategy in Cholangiocarcinoma. *Mol Cancer Ther.* (2025)
- Huang J et al. Establishment and characterization of a highly metastatic hepatocellular carcinoma cell line. *Bioengineered.* (2024)
- Abedellatif SE et al. Melanoma Brain Metastases Patient-Derived Organoids: An In Vitro Platform for Drug Screening. *Pharmaceutics.* (2024)

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