

Product Information

Collagenase-Elastase Blend

B20224

Product Description

The tissue dissociation process consists in the detachment of the extracellular matrix of animal tissue and the isolation of viable and functional cell, with minimal impact, for tissue culture use.^{1,2,3,4}

Collagenase-Elastase blend is a tissue dissociation enzyme blend, combined with Collagenase from *Clostridium histolyticum* and Elastase from Porcine pancreas (Pancreatopeptidase E).

The main enzyme used for tissue dissociation is Collagenase. Collagenases (Clostridiopeptidase A) are metalloproteinases involved in the degradation of the extracellular matrices of animal cells, due to their ability to digest native collagen under physiological conditions that holds animal tissues together.^{5,6} Collagenase from *Clostridium histolyticum* is mainly used for the dissociation of tissues for the establishment of primary cell cultures.^{7,8}

The second enzyme found in the blend is Elastase.

Elastase main role is the hydrolysis of elastin, together with this the enzyme also digests hemoglobin, casein and fibrin.⁹ Elastin is the principal component of elastic fibers and an important protein of the extracellular matrix of higher vertebrates, which confers elasticity and resilience to various tissues and organs including lungs, skin, large blood vessels and ligaments. Elastin is not only a structural protein, influencing the architecture and biomechanical properties of the extracellular matrix, but also plays a vital role in various physiological processes. The destruction of elastin and the biological processes triggered by elastases favor the development and progression of various pathological conditions including emphysema, chronic obstructive pulmonary disease, atherosclerosis, metabolic syndrome and cancer.¹⁰

Collagenase-Elastase blend is an important tool in tissue dissociation research field. It can be used for the effective dissociation of tissues and the isolation of single-cells preparations required in assays.

Reagent

Supplied as a lyophilized powder.

Preparation Instructions

To receive the enzymes activity, describe in the Certificate of Acceptance (COA):

Reconstitute the content of a vial with cold 10 mL of Hanks' Balanced Salt solution (HBSS) modified, without calcium chloride and magnesium sulfate (H6648). Mix the vial by inversion until all the lyophilized product is diluted in Hanks' Balanced Salt solution.

After reconstitution, the solution will contain approximately 1 mg/mL Collagenase.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the lyophilized product at -20 °C. The product retains its activity for 2 years in the supplied form. It is not recommended repeated freezing and thawing since activity decreases after reconstitution.

Product Profile

Enzymatic activity of 10 mL/vial reconstituted solution equivalent to:

Collagenase enzymatic activity: 1-5.0 units/mL

Elastase enzymatic activity: 2-8 units/mL

Unit Definition

Collagenase enzymatic activity

One unit hydrolyzes 1.0 micromole of FALGPA (Furylacryloyl-Leu-Gly-Pro-Ala, F5135) per minute at pH 7.5 at 25 °C in the presence of calcium ions.

Elastase enzymatic activity

One unit will hydrolyze 1.0 μmole of N-succinyl-L-Ala-Ala-Ala-p-nitroanilide per min, pH 8.0 at 25 °C.

Note: To obtain the best results in different techniques and preparations we recommend on determining optimal working concentration by calibration test.

References

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