Collagenase, Type 4

Description: Collagenase, Type 4 is isolated from *Clostridium histolyticum* and is prepared to contain lower trypsin activity levels to limit damage to membrane proteins and receptors but has normal to above normal collagenase activity when compared to other collagenase types. Crude collagenase preparations contain a mixture of several different enzymes, including collagenases and proteases, that effectively break down intercellular matrices. The ratio of collagenolytic and proteolytic activities is an important part of tissue dissociation. Crude collagenase is inhibited by metal chelating agents, such as cysteine, EDTA, or o-phenanthroline, but not DFP. Calcium ions provide structural stability for enzyme activity (1). Collagenases are used at various concentrations for tissue dissociation, generally ranging from 0.1 to 5 mg/ml, and various time points depending on the desired affect (2-4). Several types of collagenases (Types 1, 2, 3, and 4) have been established based on the enzymatic profile.

Specificity/Sensitivity: Collagenase, Type 4 is suggested for pancreatic islet primary isolation.

Source/Purification: Collagenase, Type 4 is produced by the bacterium *Clostridium histolyticum* and dialyzed prior to lyophilization.

Activity: ≥ 160 units per mg dry weight

Unit Definition: One unit releases 1 µmol of L-leucine equivalents from collagen in 5 hours at 37°C, pH7.5.

Storage: Collagenase, Type 4 is supplied as a lyophilized powder. This product is stable for 12 months when stored at 4°C, protected from moisture. It is recommended to reconstitute as needed and to store solutions at 1 mg/ml concentration at -20°C or -80°C. Aliquot to avoid multiple freeze/thaw cycles.

Directions for Use: Collagenase, Type 4 is soluble from 1-20 mg/ml with an optimal pH range of 6.3-7.5. It is recommended to reconstitute with a buffer compatible with the intended assay. Vials should be brought to room temperature prior to opening and they should not be opened in humid areas.

Background References: