BioVision

rev. 07/12

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Recombinant Human Procathepsin K

CATALOG #: 1026-10

AMOUNT: 10 µg

SOURCE: *E. coli* (amino acid 19 – 329). Methionine was introduced at amino acid number 18 to create a new amino-terminal sequence MEEIL. Genbank: S79895; Swiss Prot: P43235

PURITY: >95% by SDS-PAGE analyses

FORM: Liquid (25 mM Tris pH 8.0, 500 mM NaCl)

CONCENTRATION: 150 µg/ml

SPECFIC ACTIVITY: After auto-catalytical activation at pH 4.0 the specific activity is >1000 mU/mg (international unit 1 µmole/min/mg)

ACTIVATION:

Procathepsin K can be activated by adjusting the pH 4.0 by adding an equal volume of 100mM NaAc pH 3.9, 10 mM DTT, 5 mM EDTA followed by incubation for 40 min at RT. Activated mature Cathepsin is highly auto-proteolytic at pH 4.0, and care must be taken to avoid self-proteolysis. If the activated enzyme is not used immediately, we recommend to add methyl methanthiosulfonate (1 mM final concentration; MeS-SO_2Me; MMTS) and to freeze the sample in liquid nitrogen or on dry ice. The hydrophobic thiol-reactive compound MMTS modifies cysteine's by attaching its relatively small, uncharged thiomethyl-blocking group to reactive sulfhydryl groups (Nishimura et al., 1975).This reversible reaction arrests the auto-proteolytic process. The activity of the enzyme can be restored to nearly unmodified levels by adding L-cysteine (3M excess over MMTS) to the enzyme solution.

STORAGE CONDITIONS:

Procathepsin K can be aliquoted and stored at -80°C. Repeated freeze-thaw cycles must be avoided.

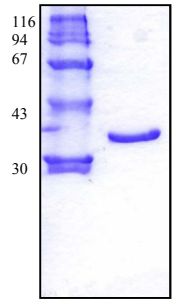
DESCRIPTION:

Cathepsin K is a member of the papain cysteine proteinase family and has been identified as the predominant proteinase responsible for the resorption of the bone matrix. The enzyme cleaves proteins such as collagen type I, collagen type II and osteonectin and therefore plays a role in bone remodeling and resorption in diseases such as osteoporosis, osteolytic bone metastasis and rheumatoid arthritis (Bromme and Okamoto, 1995; Drake, F. et al 1996; Bossard et al, 1996). Cathepsin K is synthesized as an inactive proenzyme (35.1 kDa) that is converted to its mature active form (23.6 kDa) by proteolytic cleavage of its 99-amino-acid propeptide domain. The *in-vitro* processing of procathepsin K to mature cathepsin K is autocatalytic.

INHIBITORS:

leupeptin (IC50 ; 70 nM), E-64 (IC50 ; 5nM), and cystatin. Minimal effect shows pepstatin and phenylmethylsulfonyl fluoride, inhibitors of aspartyl and serine proteases, respectively. No inhibition was observed by addition of EDTA or phenanthroline, classical inhibitors of metalloproteases.

IMAGE:



RELATED PRODUCTS:

Cathepsin K Antibody **(Cat# 3368-100)**
Cathepsin K Activity Assay Kit **(Cat# K141-100)**
Cathepsin K Antibody **(Cat#3588-100)**
Cathepsin K Blocking Peptide **(Cat# 3368BP-50)**
Cathepsin K Blocking Peptide **(Cat#3588BP-50)**

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