Procathepsin K, Human Recombinant

CATALOG #:

1026-10	10 µg
1026-50	50 µg
1026-1000	1 mg

ALTERNATE NAMES: CTSK, CTSO, CTSO3

SOURCE: E.Coli

PURITY: ≥95% by SDS–PAGE and gel-filtration analyses

MOL. WEIGHT: 35.9 kDa (19-329 aa)

FORMULATION: 1 mg/ml solution in 25 mM Na_2HPO_4 and 500 mM NaCl (pH 7.0).

SPECIFIC ACTIVITY: The specific activity is >1000 mU/mg (1U = 1 µmole/min/mg) as measured by Cathepsin K Activity Assay Kit (Catalog #K141-100)

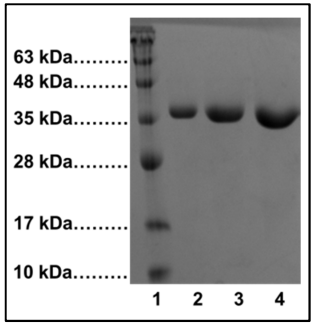
STORAGE CONDITIONS: Stable for 1 year at –80°C. After dilution to 0.2 mg/ml, aliquot and store at -80°C. Avoid repeated freezing and thawing cycles

ACTIVITY ASSAY: Procathepsin K can be auto-catalytically activated by adjusting the pH to 4.0 by adding an equal volume of 0.2 M NaOAc, 5 mM EDTA pH 4 containing fresh 25 mM DTT at RT. The enzyme is fully activated within 3-4 h of incubation at RT. After activation mature Cathepsin K 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, methyl methanthiosulfonate (1 mM final concentration; MeS-SO2Me; MMTS) could be added and sample should be frozen at -80°C. The activity can be restored by adding L-cysteine (3 M excess over MMTS) to the enzyme solution.

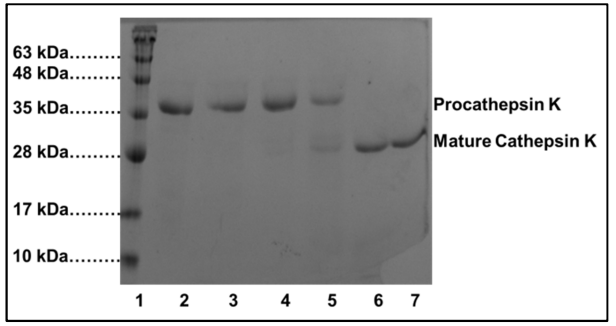
DESCRIPTION: Cathepsin K, a member of the papain cysteine proteinase family is the predominant proteinase responsible for the resorption of the bone matrix. Cathepsin cleaves proteins such as collagen type I, collagen type II and osteonectin, thereby playing a role in bone remodeling and resorption in 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.

FOR RESEARCH USE ONLY! Not to be used in humans

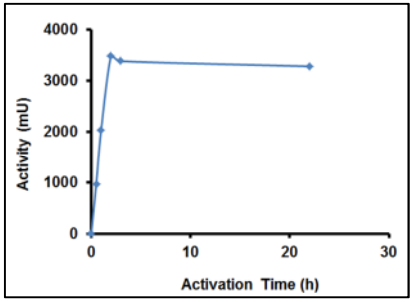
INHIBITORS: Leupeptin (IC_{50}: 70 nM), E-64 (IC_{50}: 5 nM), and Cystatin. Minimal effect shown by Pepstatin and PMSF (inhibitors of aspartyl and serine proteases respectively). No inhibition seen with EDTA or phenanthroline (classical inhibitors of metalloproteases).



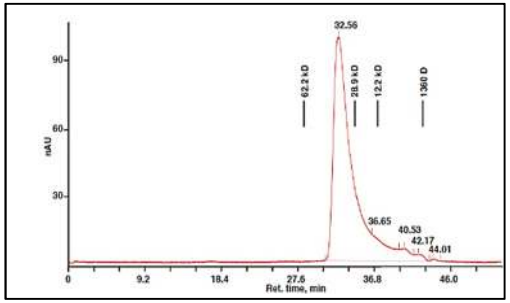
SDS-PAGE (15%) of h-Procathepsin K:
1: Protein Marker
2: Human Procathepsin K (5 µg)
3: Human Procathepsin K (10 µg)
4: Human Procathepsin K (20 µg)



SDS-PAGE (15%) of activation of h-Procathepsin K
1: Protein Marker
2: Human Procathepsin K (5 µg)
3 to 7: Human Procathepsin K (5 µg) after 30 min, 1 hr, 2 hrs, 3 hrs and 4 hrs of activation



Activation of Human Procathepsin K as monitored by BioVision's Cathepsin K activity assay kit, Cat # K141-100.



SEC analysis of Human Procathepsin K using a Superdex 200 HR 10/30 column at 0.5 ml/min in 50 mM Tris and 0.25 M NaCl pH 7.5.

RELATED PRODUCTS:

- Procathepsin K, mouse recombinant **(Cat. No. 1027-10, 50, -1000)**
- Cathepsin K activity assay kit **(Cat. No. K141-100)**
- Cathepsin K Antibody **(Cat. No. 3368-100, 3588-100)**
- Cathepsin K Antibody **(Cat. No. 3368BP-50, 3588BP-50)**
- Cathepsin K Antibody **(Cat # 3368-100)**
- Cathepsin K Blocking Peptide **(Cat # 3368BP-50)**
- Cathepsin K Antibody **(Cat # 3588-100)**
- Cathepsin K Blocking Peptide **(Cat # 3588BP-50)**