Active Recombinant Human Procathepsin K

Cat. No. CTSK-680H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant human procathepsin K of amino acids Glu19 - Met215 is expressed in E. coli with an additional M-residue at the N-terminus.
Species	Human
Source	E.coli
ProteinLength	19-215 a.a.
Description	The protein encoded by this gene is a lysosomal cysteine proteinase involved in bone remodeling and resorption. This protein, which is a member of the peptidase C1 protein family, is predominantly expressed in osteoclasts. However, the encoded protein is also expressed in a significant fraction of human breast cancers, where it could contribute to tumor invasiveness. Mutations in this gene are the cause of pycnodysostosis, an autosomal recessive disease characterized by osteosclerosis and short stature. This gene may be subject to RNA editing.
Molecular Mass	Active cathepsin obtained after removal of the propeptide has a molecular weight of about 24 kDa.
Form	The proenzyme is dissolved in 500 mM NaCl, 25 mM TrisHCl, pH 8.0.
Purity	Recombinant procathepsin K appears as a major protein band of about 35 kDa in SDS-PAGE (> 95 % of total protein) and Western Blotting.

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Specific activity	The specific activity of activated cathepsin K is > 1 U/mg. One U is the activity that hydrolyses 1 μmole substrate BOC-Phe-Arg-7-amido-4-methylcoumarin per min at 37oC in 2.5 mM EDTA, 5 mM DTT, 50 mM MES, pH 5.5.
Inhibitors	Cathepsin K is inhibited by leupeptin (IC50: 70 nM), E-64 (IC50: 5 nM), and cystatin.
Stability andstorage	Procathepsin K is stable until the expiry date given on the label if stored at -80°C. Repeated freezing and thawing must be avoided. After activation the enzyme is rather unstable. If the activated enzyme is not used immediately, it is recommended to add MMTS (1 mM final concentration). For activity measurements L-cysteine must then be added to restore the active conformation of the enzyme.
Applications	Characterization of cathepsin K structure and function; Screening of inhibitors for cathepsin K; Drug target for diseases characterized by excessive bone reabsorption, such as osteoporosis.
OfficialSymbol	CTSK

GENE INFORMATION

Gene Name	CTSK cathepsin K [Homo sapiens]
Synonyms	CTSK; cathepsin K; CTSO; PKND; PYCD; CTS02; CTSO1; CTSO2; MGC23107; cathepsin K; cathepsin X; cathepsin O1; cathepsin O2; EC 3.4.22.38; cathepsin K (pycnodysostosis); OTTHUMP00000032938; Cathepsin O
Gene ID	1513
mRNA Refseq	NM_000396
Protein Refseq	NP_000387

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MIM	601105
UniProt ID	P43235
Chromosome Location	1q21
Pathway	Lysosome; Activation of Matrix Metalloproteinases; Adaptive Immune System
Function	cysteine-type endopeptidase activity; cysteine-type peptidase activity
Ribbon diagram ofcathepsin K, colored by secondary structure.	

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