abcam

ab37259

Anti-Cathepsin K antibody [3F9]

Anti-Cathepsin K antibody [3F9] (ab37259) is a mouse monoclonal antibody detecting Cathepsin K in **Western Blot, Flow Cytometry, IHC-P**. Suitable for **Human, Mouse**.

- Over 30 publications
- Trusted since 2006

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	Constituents: PBS, 0.58% Sodium chloride
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human CTSK aa 100 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P43235
Carrier free	Yes
Clone number	3F9
Purification technique	Affinity purification Protein G
Epitope	The monoclonal antibody ab37259 (clone 3F9) reacts with an epitope located between aa 115-329:APDSVDYRKKGYVTPNQGQCGSCWAFSSVGALEGQLKKKTGKLLNLSPQNLVDCVSENDGCGGGYMTNAFQYVQKNRGIDSEDAYPYVGQEESCMYNPT(
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information CTSK

Function	Thiol protease involved in osteoclastic bone resorption and may participate partially in the disorder of bone remodeling. Displays potent endoprotease activity against fibrinogen at acid pH. May play an important role in extracellular matrix degradation. Involved in the release of thyroid hormone thyroxine (T4) by limited proteolysis of TG/thyroglobulin in the thyroid follicle lumen (PubMed:11082042).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-80°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Cathepsin K antibody [3F9] (ab37259) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P) in Human, Mouse samples.

What is the molecular weight of Cathepsin K?
Anti-Cathepsin K [3F9] (ab37259) specifically detects a band for Cathepsin K (UniProt: P43235) at a molecular weight of 37kDa.

Trusted by the scientific community
Anti-Cathepsin K [3F9] (ab37259) was first used in a scientific publication in 2006 and has been cited over 30 times in peer-reviewed journals.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Cathepsin K also known as CTSK is a protease enzyme that belongs to the papain family of cysteine proteases. With a molecular weight of approximately 37 kDa Cathepsin K is mainly expressed in osteoclasts which are cells involved in bone resorption. This enzyme functions by cleaving collagen a vital component of bone extracellular matrix which facilitates bone remodeling and turnover. Known for its collagenolytic activity Cathepsin K is important in processes where breakdown of collagen fibers is required.
Biological function summary	Cathepsin K plays a significant role in bone metabolism. It operates within the osteoclasts where it degrades type I collagen and other matrix proteins essential for normal bone maintenance and repair. Cathepsin K does not function as part of a complex but acts independently in its enzymatic role. It is highly specific to substrates found in the bone matrix differentiating it from other cathepsins like cathepsin L or B that may have broader expression and role.
Pathways	Cathepsin K is an important player in the bone remodeling pathway. This pathway involves a series of coordinated actions between osteoclasts and osteoblasts to maintain bone health. Cathepsin K's activity is tightly regulated within this pathway to ensure proper bone density and structure. It is associated with other proteins such as osteopontin and matrix metalloproteinases which work together to modulate bone turnover. Within the RANK/RANKL pathway Cathepsin K acts as a downstream effector following osteoclast activation by RANKL.
Associated diseases and disorders	Cathepsin K is most notably linked to osteoporosis and pycnodysostosis. Osteoporosis arises due to excessive bone resorption where elevated Cathepsin K activity leads to weakened bone structure increasing fracture risk. Pycnodysostosis is a rare genetic disorder caused by mutations in the gene coding for Cathepsin K resulting in impaired bone resorption and abnormally dense but brittle bones. In these conditions proteins such as RANKL and osteoprotegerin also play critical roles by influencing osteoclast differentiation and activity thereby modulating Cathepsin K's effects.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

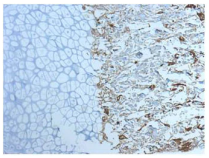
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

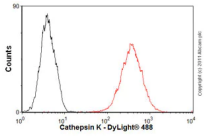
3 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cathepsin K antibody [3F9] (ab37259)

Cathepsin K Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Cathepsin K antibody

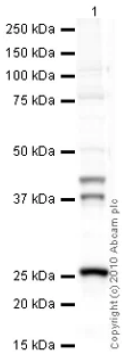
Bone from mouse foot (bone marrow with osteoclasts (positive). IHC-P image was obtained after deparaffinization, antigen retrieval with 0.1 M EDTA (6-8 min, 72 C), drying of slide before staining (10 min, 62 C), and subsequent staining with primary antibody (1/100) in 1% horse serum (1 h, 37 C).



Flow Cytometry - Anti-Cathepsin K antibody [3F9] (ab37259)

Cathepsin K Flow Cytometry staining using mouse Anti-Cathepsin K antibody

Overlay histogram showing U20S cells stained with ab37259 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab37259, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2b [PLPV219] (ab91366, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in U20S cells fixed with 4% paraformaldehyde (10 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.



Western blot - Anti-Cathepsin K antibody [3F9] (ab37259)

Cathepsin K Western blot staining of Human bone tumor tissue lysate - total protein (ab29359) using mouse Anti-Cathepsin K antibody

Cathepsin K contains a potential glycosylation site (SwissProt) which may explain its migration at a higher molecular weight than predicted, seen at 40 kDa. The band observed at 25 kDa could potentially be a cleaved form of Cathepsin K due to the presence of both a 15 amino acid signal prptide and a 99 amino acid propeptide. Cathepsin K in its mature form has an expected molecular weight of 25 kDa.
All lanes:
Western blot - Anti-Cathepsin K antibody [3F9] (ab37259) at 1 µg/mL

All lanes:
Human bone tumor tissue lysate - total protein (ab29359) at 10 µg

Secondary

All lanes:
Goat polyclonal Secondary Antibody to Mouse IgG - H&L (HRP), pre-adsorbed at 1/3000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 37 kDa

Observed band size: 26 kDa, 37 kDa, 40 kDa

Exposure time: 1min

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.