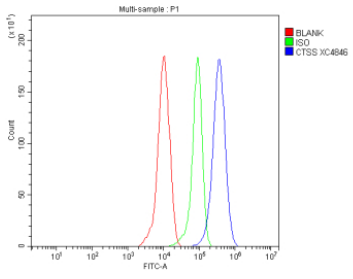
CTSS Antibody / Cathepsin S (FY13108)

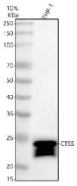
Catalog No.	Formulation	Size
FY13108	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P25774
Applications	Western Blot: 0.25-0.5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This CTSS antibody is available for research use only.



Flow Cytometry analysis of human THP-1 cells using anti-CTSS antibody. Overlay histogram showing THP-1 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CTSS antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of CTSS using anti-CTSS antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human THP-1 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-CTSS antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. CTSS antibody detects a predominant ~25 kDa band in THP-1 lysate, consistent with the mature heavy chain of cathepsin S. A weaker ~37 kDa species corresponding to the zymogen may be present in some samples, and occasional lower fragments likely reflect additional processing during or after activation.

Description

CTSS antibody detects Cathepsin S, a lysosomal cysteine protease that degrades extracellular matrix and participates in antigen processing. The UniProt recommended name is Cathepsin S (CTSS). This proteolytic enzyme plays a central role in endosomal protein degradation and MHC class II-mediated antigen presentation, particularly within antigen-presenting cells such as macrophages and dendritic cells.

Functionally, CTSS antibody identifies a 331-amino-acid protein synthesized as an inactive proenzyme that undergoes autocatalytic cleavage to form an active mature enzyme in acidic endosomes. Cathepsin S hydrolyzes invariant chain peptides to allow loading of antigenic peptides onto MHC class II molecules, supporting adaptive immune responses. It also contributes to extracellular matrix remodeling during inflammation and immune cell migration.

The CTSS gene is located on chromosome 1q21.3 and is highly expressed in lymphoid tissues and mononuclear phagocytes. Cathepsin S activity is regulated by cystatin protease inhibitors and by pH-dependent activation within the lysosomal environment. Its stability at neutral pH distinguishes it from other cathepsins, enabling extracellular activity during inflammation.

Pathologically, excessive CTSS activity has been associated with autoimmune diseases, atherosclerosis, and cancer. Inhibiting CTSS reduces antigen presentation and inflammatory damage, making it a therapeutic target for chronic inflammatory disorders. Research using CTSS antibody supports studies in immunology, inflammation, and protease biology.

CTSS antibody is validated for western blotting, immunohistochemistry, and enzymatic assays to detect Cathepsin S in immune tissues and cultured cells. NSJ Bioreagents provides high-quality CTSS antibody reagents optimized for proteolytic enzyme and immune pathway research.

Structurally, Cathepsin S belongs to the papain family of cysteine proteases and contains a catalytic dyad of cysteine and histidine within its active site. This antibody facilitates detection and quantification of CTSS in studies of antigen processing, protease regulation, and immune signaling.

Application Notes

Optimal dilution of the CTSS antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human CTSS was used as the immunogen for the CTSS antibody.

Storage

After reconstitution, the CTSS antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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