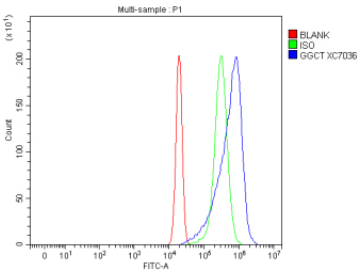
GGCT Antibody / Gamma-glutamylcyclotransferase (FY12401)

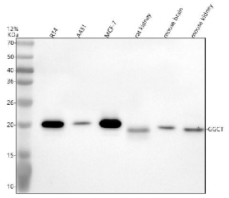
Catalog No.	Formulation	Size
FY12401	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
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	O75223
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This GGCT antibody is available for research use only.



Flow Cytometry analysis of RT4 cells using anti-GGCT antibody. Overlay histogram showing RT4 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-GGCT 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 GGCT using anti-GGCT antibody. Electrophoresis was performed on a 12% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human RT4 whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: rat kidney tissue lysates, Lane 5: mouse brain tissue lysates, Lane 6: mouse kidney tissue 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-GGCT 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. The expected molecular weight of GGCT is ~21 kDa.

Description

The GGCT antibody targets Gamma-glutamylcyclotransferase, an enzyme encoded by the GGCT gene that participates in glutathione metabolism and cellular antioxidant defense. Gamma-glutamylcyclotransferase catalyzes the conversion of gamma-glutamyl amino acids to 5-oxoproline and free amino acids, playing a vital role in the gamma-glutamyl cycle. This pathway is central to maintaining intracellular glutathione levels and protecting cells from oxidative damage. The GGCT antibody provides researchers with a reliable reagent for studying redox balance, metabolic regulation, and stress response mechanisms.

Gamma-glutamylcyclotransferase localizes primarily to the cytosol, where it regulates the degradation of glutathione conjugates. By catalyzing gamma-glutamyl bond cleavage, the enzyme supports the recycling of amino acids used for glutathione synthesis. The GGCT antibody enables visualization and quantification of this enzyme in cells and tissues, supporting research into oxidative stressÂ–related pathways and cellular detoxification processes. Through its activity, GGCT contributes to maintaining redox homeostasis and protecting against reactive oxygen species (ROS) accumulation.

Upregulation of Gamma-glutamylcyclotransferase has been reported in various cancers, including breast, lung, and bladder tumors, where it is associated with enhanced proliferation and stress resistance. Elevated GGCT expression supports tumor growth by maintaining redox stability and promoting metabolic flexibility. The GGCT antibody is used to investigate these oncogenic functions, providing insight into how altered glutathione metabolism contributes to tumorigenesis. It also enables assessment of GGCT as a potential biomarker or therapeutic target in oxidative stressÂ–driven cancers.

Beyond cancer, Gamma-glutamylcyclotransferase plays roles in neuroprotection and metabolic adaptation. Its regulation affects glutathione turnover in the brain, liver, and kidneys, influencing detoxification capacity and antioxidant defense. The GGCT antibody allows researchers to track expression changes in response to nutritional status, xenobiotic exposure, and oxidative injury. Dysregulation of GGCT may contribute to neurodegenerative diseases and metabolic disorders characterized by redox imbalance.

The GGCT antibody performs effectively in western blotting, immunofluorescence, and immunohistochemistry, showing strong cytoplasmic staining consistent with its enzymatic localization. NSJ Bioreagents provides this antibody with validated specificity and reproducibility for biochemistry, oncology, and redox biology research. By enabling accurate detection of Gamma-glutamylcyclotransferase, the GGCT antibody supports studies into glutathione metabolism, oxidative stress, and disease-related metabolic reprogramming.

Application Notes

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

Immunogen

E.coli-derived human GGCT recombinant protein (Position: N25-L188) was used as the immunogen for the GGCT

antibody.

Storage

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

Copyright © NSJ Bioreagents. All rights reserved.