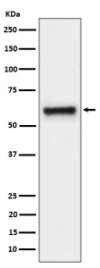
FPGS Antibody / Folylpolyglutamate synthase [clone 29F90] (FY13003)

Catalog No.	Formulation	Size
FY13003	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	29F90
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q05932
Applications	Western Blot : 1:500-1:2000
Limitations	This FPGS antibody is available for research use only.



Western blot analysis of FPGS expression in human HeLa cell lysate using FPGS antibody. Predicted molecular weight ~65 kDa.

Description

FPGS antibody detects Folylpolyglutamate synthase, encoded by the FPGS gene. Folylpolyglutamate synthase is a key enzyme in folate metabolism that catalyzes the addition of glutamate residues to folate and antifolate compounds, converting them into polyglutamated forms that are retained within cells. These polyglutamates are essential for nucleotide biosynthesis and methylation reactions, as they serve as cofactors in one-carbon metabolism. FPGS antibody provides researchers with a powerful tool to study folate biology, cancer metabolism, and drug resistance.

Folylpolyglutamate synthase is localized to both mitochondria and cytosol, ensuring polyglutamation occurs in multiple compartments. This enzyme plays an indispensable role in maintaining pools of tetrahydrofolate derivatives required for DNA synthesis and repair. Research using FPGS antibody has revealed that reduced enzyme activity decreases intracellular folate retention and disrupts nucleotide biosynthesis, leading to impaired proliferation. These findings explain why mutations or dysregulation of FPGS contribute to megaloblastic anemia and developmental defects.

In oncology, FPGS is highly relevant because it modulates the activity of antifolate chemotherapeutics such as methotrexate and pemetrexed. These drugs require polyglutamation by FPGS for retention and enhanced potency. Research using FPGS antibody has demonstrated that low expression of Folylpolyglutamate synthase confers resistance to antifolate therapy, while high activity sensitizes cells to treatment. This makes FPGS an important biomarker for predicting drug response in leukemia, lymphoma, and solid tumors. Studies continue to evaluate whether modulation of FPGS expression can overcome resistance and improve outcomes in antifolate-based regimens.

Beyond cancer, folate metabolism plays critical roles in pregnancy, neural tube development, and cardiovascular health. Research with FPGS antibody has shown that adequate polyglutamate production is required for normal development, and deficiencies in this pathway contribute to congenital malformations and disease. As such, FPGS remains an important protein in both clinical and nutritional studies. Immunohistochemistry and western blotting using FPGS antibody have confirmed its widespread expression across tissues, with particular enrichment in proliferative and metabolically active cells.

FPGS antibody is used in western blotting, immunohistochemistry, and enzyme activity assays. Western blotting measures relative abundance in normal and tumor tissue, immunohistochemistry demonstrates tissue distribution, and enzymatic assays link FPGS expression with catalytic activity. Together, these methods provide a full picture of how Folylpolyglutamate synthase supports cell metabolism, proliferation, and therapeutic responses.

By providing validated FPGS antibody reagents, NSJ Bioreagents supports studies of folate biology, drug resistance, and one-carbon metabolism. Detection of Folylpolyglutamate synthase enables researchers to explore fundamental metabolic pathways and their implications in health and disease.

Application Notes

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

Immunogen

A synthesized peptide derived from human FPGS was used as the immunogen for the FPGS antibody.

Storage

Store the FPGS antibody at -20oC.