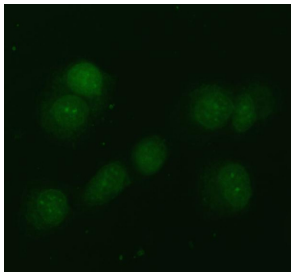
NDRG2 Antibody (R32351)

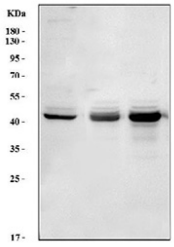
Catalog No.	Formulation	Size
R32351	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q9UN36
Localization	Nuclear, cytoplasmic
Applications	Western blot: 0.1-0.5ug/ml Immunofluorescence: 5ug/ml
Limitations	This NDRG2 antibody is available for research use only.



Immunofluorescent staining of FFPE human T-47D cells with NDRG2 antibody (green). HIER: steam section in pH6 citrate buffer for 20 min.



Western blot testing of 1) human HeLa, 2) rat brain and 3) mouse brain lysate with NDRG2 antibody. Expected molecular weight ~41 kDa.

Description

NDRG2 antibody detects N-myc downstream regulated gene 2, a stress-responsive, cytoplasmic protein involved in cellular differentiation, metabolic regulation, and tumor suppression. The UniProt recommended name is Protein NDRG2. Belonging to the NDRG family of growth-related genes, NDRG2 participates in diverse processes including cell stress adaptation, signal transduction, and maintenance of cellular homeostasis. Although ubiquitously expressed, it is especially abundant in brain, heart, skeletal muscle, endocrine tissues, and immune cells, reflecting its broad physiological significance.

NDRG2 antibody identifies a protein of approximately 371 amino acids localized mainly in the cytoplasm, with additional distribution at the plasma membrane depending on cell state. NDRG2 expression is strongly regulated by stress signals such as hypoxia, nutrient deprivation, oxidative injury, and hormonal cues. Under these conditions, NDRG2 contributes to metabolic stabilization by modulating glucose utilization, mitochondrial function, and cell survival pathways. It also participates in cellular differentiation programs by influencing transcriptional networks that guide lineage maturation in neurons, astrocytes, hepatocytes, and immune cells.

Functionally, NDRG2 integrates upstream signaling from pathways such as PI3K-AKT, MAPK, and AMPK. One of its well-recognized roles is suppression of aberrant cell growth: NDRG2 negatively regulates oncogenic signaling by limiting phosphorylation of AKT, reducing MYC activity, and modulating factors involved in proliferation and migration. Through these mechanisms, NDRG2 contributes to maintenance of normal cell polarity, adhesion, and cytoskeletal architecture. Its influence over ion transport and metabolic flux also supports cellular adaptation under physiologic and stress conditions.

The NDRG2 gene, located on chromosome 14q11.2, is expressed in both mature tissues and developing organs. In the central nervous system, NDRG2 is enriched in astrocytes, where it contributes to metabolic coupling with neurons, regulation of extracellular ion balance, and protection against oxidative damage. In immune cells, NDRG2 influences cytokine production, maturation, and inflammatory thresholds, highlighting its role at the intersection of metabolic and immune signaling. In endocrine tissues such as adrenal gland and thyroid, NDRG2 expression responds to hormonal states and contributes to tissue-specific metabolic function.

Pathologically, NDRG2 downregulation is associated with a wide spectrum of malignancies, including glioma, hepatocellular carcinoma, colorectal cancer, breast cancer, and thyroid carcinoma. Reduced NDRG2 expression correlates with increased tumor invasiveness, angiogenesis, and poor clinical prognosis. Experimental re-expression of NDRG2 in cancer models suppresses proliferation, migration, and chemoresistance, supporting its function as a tumor suppressor. In contrast, enhanced NDRG2 activity in non-malignant settings contributes to resistance against metabolic stress, improved mitochondrial function, and reduced production of reactive oxygen species.

Beyond oncology, NDRG2 is implicated in metabolic and neurodegenerative disease. Altered NDRG2 expression is observed in Alzheimer's disease, where it may affect astrocyte function and energy metabolism. In metabolic stress conditions, NDRG2 modulates gluconeogenic gene expression, lipid utilization, and hepatic energy balance. Its involvement in cardiac and skeletal muscle biology further underscores its importance in tissues with high metabolic demand.

As research increasingly focuses on the interplay between metabolism, stress response, and disease progression, NDRG2 has emerged as a valuable molecular marker and regulatory node. NDRG2 antibody supports studies investigating metabolic adaptation, tumor suppression mechanisms, neural homeostasis, and immune regulation. It is validated for use in relevant research applications to detect N-myc downstream regulated gene 2 expression in cells and tissues. NSJ Bioreagents provides NDRG2 antibody reagents optimized for research across neuroscience, oncology, metabolism, and stress biology.

Application Notes

Optimal dilution of the NDRG2 antibody should be determined by the researcher.

Immunogen

Amino acids NSELIQKYRNIITHAPNLDNIELYWNSYNNRRDLNFER of human NDRG2 were used as the immunogen for the NDRG2 antibody.

Storage

After reconstitution, the NDRG2 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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