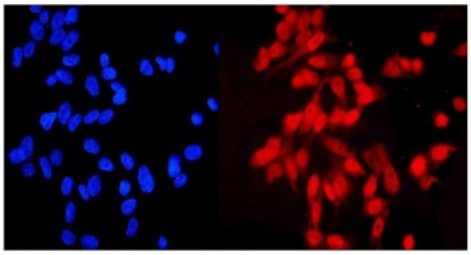
NDC80 Antibody / HEC1 (RQ5648)

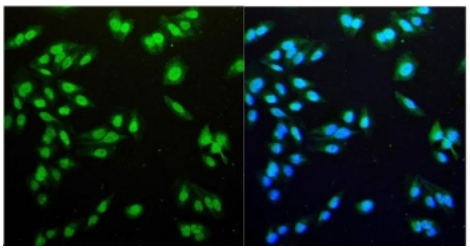
Catalog No.	Formulation	Size
RQ5648	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

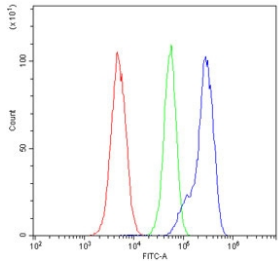
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	O14777
Localization	Nuclear
Applications	Western blot: 0.5-1ug/ml Immunofluorescence: 2-4ug/ml Flow cytometry: 1-3ug/million cells Direct ELISA: 0.1-0.5ug/ml
Limitations	This NDC80 antibody is available for research use only.



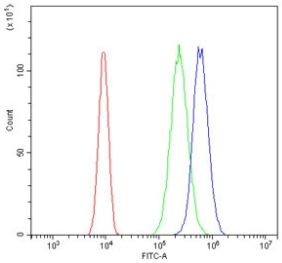
Immunofluorescent staining of FFPE human U-2 OS cells with NDC80 antibody (red) and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



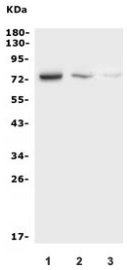
Immunofluorescent staining of FFPE human U-2 OS cells with NDC80 antibody (green) and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



Flow cytometry testing of human HL-60 cells with NDC80 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= NDC80 antibody.



Flow cytometry testing of human SiHa cells with NDC80 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= NDC80 antibody.



Western blot testing of 1) human K562, 2) rat spleen and 3) mouse spleen lysate with NDC80 antibody. Expected molecular weight: 74-80 kDa.

Description

NDC80 antibody detects NDC80 (also known as HEC1), a core kinetochore protein essential for chromosome segregation during mitosis and meiosis. The UniProt recommended name is Kinetochore protein NDC80 homolog (NDC80). This conserved coiled-coil protein forms part of the NDC80 complex, which anchors spindle microtubules to kinetochores and ensures accurate chromosome alignment and segregation. NDC80 is crucial for maintaining genomic stability during cell division and preventing aneuploidy.

NDC80 functions as one of four core components of the outer kinetochore complex, along with NUF2, SPC24, and SPC25. These proteins assemble into a rod-shaped structure that extends outward from the centromere, forming the primary attachment site for microtubule plus-ends. The N-terminal domain of NDC80 binds directly to microtubules through calponin homology motifs, while the C-terminal region interacts with SPC25 and NUF2 to stabilize the entire complex. This microtubule-binding activity is regulated by phosphorylation of key serine and threonine residues by Aurora B kinase, which adjusts kinetochore-microtubule attachment strength throughout mitosis.

The NDC80 gene is located on chromosome 1q42.13 and encodes a protein of approximately 74 kDa. NDC80 expression is tightly regulated through the cell cycle, peaking in mitotic cells. It localizes predominantly to kinetochores during metaphase and early anaphase and disperses as cells exit mitosis. Its expression level and localization serve as markers for proliferating cells and accurate spindle checkpoint control. Misexpression or mutation of NDC80 disrupts kinetochore

structure and microtubule attachment, leading to chromosome missegregation and genomic instability, phenomena frequently observed in tumor cells.

Beyond its role in chromosome segregation, NDC80 participates in mitotic checkpoint signaling by recruiting regulatory proteins such as MAD1, MAD2, and BUB1 to the kinetochore. It acts as a scaffold for spindle checkpoint assembly, ensuring that anaphase onset is delayed until all kinetochores achieve proper microtubule attachment. Dysregulation of NDC80 has been reported in several cancers, including breast, lung, and hepatocellular carcinomas, where overexpression correlates with high proliferative indices and poor clinical prognosis.

NDC80 antibody is useful for detecting NDC80 expression in dividing cells and for studying kinetochore architecture, mitotic progression, and checkpoint signaling. It serves as a reliable marker of proliferative activity in cultured cells and tissue sections. NSJ Bioreagents provides NDC80 antibody validated for use in relevant research applications supporting studies in mitosis, chromosomal dynamics, and cell cycle regulation.

Application Notes

Optimal dilution of the NDC80 antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids N87-E602) was used as the immunogen for the NDC80 antibody.

Storage

After reconstitution, the NDC80 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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