Alexa Fluor® 647 anti-Nuclear Pore Complex Proteins Antibody

Catalog# / Size	682203 / 25 µg 682204 / 100 µg
Clone	MAb414
Regulatory Status	RUO
Other Names	107 kD nucleoporin, NPC proteins, Nuclear pore complex protein Nup107, Nucleoporin 107kD, Nucleoporin Nup107, NUP 107, NUP 84, NUP107, NUP153, NUP155, NUP84, NUP98
Isotype	Mouse IgG1
Description	Nuclear pores are large protein complexes that cross the nuclear envelope. The proteins that make up the nuclear pore complex are known as nucleoporins. About half of the nucleoporins typically contain solenoid protein domains—either an alpha solenoid or a beta-propeller fold, or in some cases both as separate structural domains. Each NPC contains at least 456 individual protein molecules and is composed of 30 distinct proteins (nucleoporins). The other half show structural characteristics typical of "natively unfolded" or intrinsically disordered proteins, i.e. they are highly flexible proteins that lack ordered secondary structure. These disordered proteins are the FG nucleoporins, so called because their amino-acid sequence contains many phenylalanine—glycine repeats. Nuclear pore complexes allow the transport of molecules across the nuclear envelope. This transport includes RNA and ribosomal proteins moving from nucleus to the cytoplasm and proteins (such as DNA polymerase and lamins), carbohydrates, signaling molecules and lipids moving into the nucleus. Although smaller molecules simply diffuse through the pores, larger molecules may be recognized by specific signal sequences and then be diffused with the help of nucleoporins into or out of the nucleus.. Each of the eight protein subunits surrounding the actual pore (the outer ring) projects a spoke-shaped protein over the pore channel. Nucleoporin p62 (p62) protein remains associated with the nuclear pore complex-lamina fraction. p62 is synthesized as a soluble cytoplasmic precursor of 61 kDa followed by modification that involve addition of N-acetylglucosamine residues, followed by association with other complex proteins.The protein encoded by this gene is a member of the FG-repeat containing nucleoporins and is localized to the nuclear pore central plug. This protein associates with the importin alpha/beta complex which is involved in the import of proteins containing nuclear localization signals. Multiple transcript variants of this gene encode a single protein isoform. P62 is a serine/threonine rich protein of ~520 amino acids, with tetrapeptide repeats on the amino terminus and a series of alpha-helical regions with hydrophobic heptad repeats. P62 assembles into a complex containing 3 addition proteins, p60, p54 and p45 forming the p62 complex of ~235 kDa. Glycosylation appears to be involved in the assembly and disassembly of p62 into higher order complexes, and a serine/threonine rich linker region between Ser270 to Thr294 appear to be regulatory. The p62 complex is localized to both the nucleoplasmic and cytoplasmic sides of the pore complex and the relative diameter of p62 complex relative to the nuclear pore complex suggests it interacts in pore gating. Antibodies to p62 complex are involved in 1 or more autoimmune diseases. P62 glycosylation is increased in diabetes. p62 is also more frequent in Stage IV primary biliary cirrhosis and is prognostic for severe disease. Reduced p62 production has been linked to Alzheimer's disease. It is thought oxidative damage of the p62 promoter is correlated with AD and other neurodegenerative disorders.

Product Details

Verified Reactivity	Vertebrate, Xenopus, Yeast
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	The antibody was raised using a nuclear pore complex mixture.
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide.

Preparation	The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 647 under optimal conditions.
Concentration	0.5 mg/ml
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. **Do not freeze.**
Application	ICC - *Quality tested* ICFC - *Verified*
Recommended Usage	Each lot of this antibody is quality control tested by immunocytochemistry. For immunocytochemistry, a concentration range of 0.5 - 2.0 µg/ml (1:250-1:500 dilution) is recommended. For intracellular flow cytometric staining, the suggested use of this reagent is ≤ 0.125 µg per million cells in 100 µl volume. It is recommended that the reagent be titrated for optimal performance for each application. * Alexa Fluor® 647 has a maximum emission of 668 nm when it is excited at 633 nm / 635 nm. Alexa Fluor® and Pacific Blue™ are trademarks of Life Technologies Corporation. View full statement regarding label licenses
Excitation Laser	Red Laser (633 nm)
Application Notes	This antibody is effective in immunoblotting (WB), immunohistochemistry (IHC), immunofluorescence (IF), immunoprecipitation (IP) and immunoelectron microscopy (IEM). This antibody has been used successfully with frozen sections. *Predicted MW = 62 kD MAb414 is a reliable general purpose monoclonal antibody which recognizes a related family of NPC proteins. This antibody is ideal for studying the morphology and composition of the nucleus and nuclear envelope. It is also useful in studying changes in the nuclear structure during mitosis and meiosis.
Application References	1. Zheng X, *et al*. 2012. *J. Biol. Chem.* 287:38254. (IF) PubMed 2. Kimura T, *et al*. 2003. *Mol Cell Biol.* 23:1304. (IHC) PubMed 3. Lopez-Soler RI, *et al.* 2001. *J Cell Biol.* 154:61. (IF, WB) PubMed 4. Aris JP, Blobel G. 1989. *J Cell Biol.* 108:2059. (WB, IP, IF, EM) PubMed 5. Davis LI, Blobel G. 1987. *PNAS USA.* 84:7552. (IP, IF) PubMed 6. Edens LJ, Levy DL. 2014. *J. Cell. Biol.* 206:473. 7. Davis LI, Blobel G. 1986. *Cell.* 45:699. 8. Blobel G. 1985. *PNAS USA* 82:8527.
Product Citations	1. Piracha ZZ, *et al.* 2020. J Virol. 94:00:00. PubMed 2. Chen IP, *et al.* 2022. Cell Rep. 40:111088. PubMed
RRID	AB_2728507 (BioLegend Cat. No. 682203) AB_2728508 (BioLegend Cat. No. 682204)

Antigen Details

Biology Area	Cell Biology, Cell Motility/Cytoskeleton/Structure, Neuroscience, Neuroscience Cell Markers
Molecular Family	Nuclear Markers
Antigen References	1. Yoshimura S, *et al*. 2013. *J. Cell Sci.* 126:3141-50.
Gene ID	NA

Related Protocols

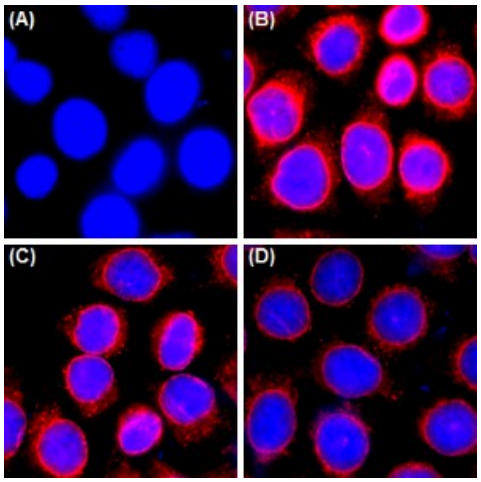
Immunocytochemistry Staining Protocol

Intracellular Flow Cytometry Staining Protocol

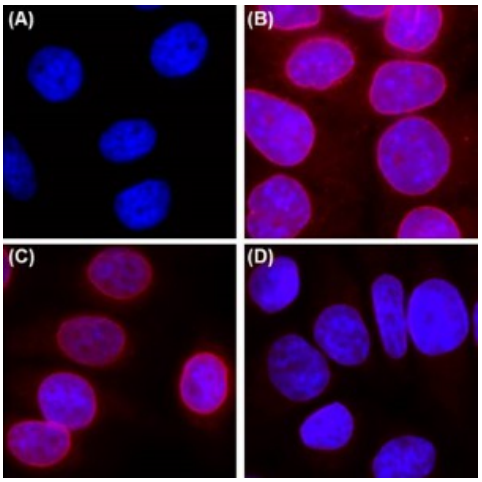
Other Formats

Purified anti-Nuclear Pore Complex Proteins , Alexa Fluor® 594 anti-Nuclear Pore Complex Proteins , Direct-Blot™ HRP anti-Nuclear Pore Complex Proteins , Alexa Fluor® 647 anti-Nuclear Pore Complex Proteins, TotalSeq™-A0451 anti-Nuclear Pore Complex Proteins Hashtag 1, TotalSeq™-A0452 anti-Nuclear Pore Complex Proteins Hashtag 2, TotalSeq™-A0453 anti-Nuclear Pore Complex Proteins Hashtag 3, TotalSeq™-A0454 anti-Nuclear Pore Complex Proteins Hashtag 4, TotalSeq™-A0456 anti-Nuclear Pore Complex Proteins Hashtag 6, TotalSeq™-A0457 anti-Nuclear Pore Complex Proteins Hashtag 7, TotalSeq™-A0458 anti-Nuclear Pore Complex Proteins Hashtag 8, TotalSeq™-A0459 anti-Nuclear Pore Complex Proteins Hashtag 9, TotalSeq™-A0460 anti-Nuclear Pore Complex Proteins Hashtag 10, TotalSeq™-A0455 anti-Nuclear Pore Complex Proteins Hashtag 5, TotalSeq™-A0462 anti-Nuclear Pore Complex Proteins Hashtag 12, TotalSeq™-A0463 anti-Nuclear Pore Complex Proteins Hashtag 13, TotalSeq™-A0465 anti-Nuclear Pore Complex Proteins Hashtag 15, TotalSeq™-A0461 anti-Nuclear Pore Complex Proteins Hashtag 11, TotalSeq™-A0464 anti-Nuclear Pore Complex Proteins Hashtag 14, TotalSeq™-B0453 anti-Nuclear Pore Complex Proteins Hashtag 3, TotalSeq™-B0452 anti-Nuclear Pore Complex Proteins Hashtag 2, TotalSeq™-B0451 anti-Nuclear Pore Complex Proteins Hashtag 1, TotalSeq™-B0458 anti-Nuclear Pore Complex Proteins Hashtag 8, TotalSeq™-B0457 anti-Nuclear Pore Complex Proteins Hashtag 7

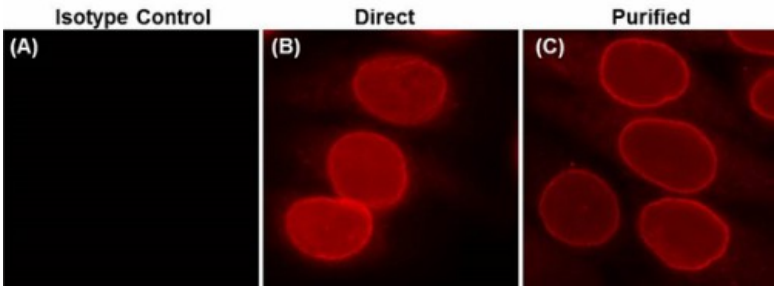
Product Data



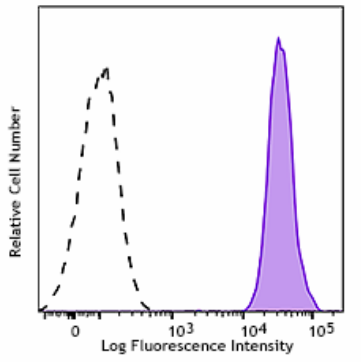
HeLa cells were fixed with methanol for 10 minutes and blocked with 5% FBS for 60 minutes. Then the cells were intracellularly stained with (A) Alexa Fluor® 647 Mouse IgG1, κ Isotype control antibody (Negative, Cat. No. 400136) or (B-D) Alexa Fluor® 647 Nuclear Pore Complex (Clone Mab414) overnight at 4°C. Nuclei were counterstained with DAPI (Blue, Cat. No. 422801). The images were captured with a 60X objective using KEYENCE BZ-X700 fluorescence microscope. Exposure time (Seconds) for (A-D) is 1/5. Concentrations of primary antibodies for (A-B) are 2 µg/ml (1:1000 dilution), (C) is 1 µg/ml (1:500 dilution) and (D) is 0.5 µg/ml (1:250 dilution).



HeLa cells were fixed with 4% paraformaldehyde (PFA) for 15 minutes, permeabilized with 0.5% Triton X-100 for 3 minutes, and blocked with 5% FBS for 60 minutes. Then the cells were intracellularly stained with (A) Alexa Fluor® 647 Mouse IgG1, κ Isotype control antibody (Negative, Cat. No. 400136) or (B-D) Alexa Fluor® 647 Nuclear Pore Complex (Clone Mab414) overnight at 4°C. Nuclei were counterstained with DAPI (Blue, Cat. No. 422801). The image was captured with a 60X objective using KEYENCE BZ-X700 fluorescence microscope. Exposure time (Seconds) for (A-D) is 1/5. Concentrations of primary antibodies for (A-B) are 5 µg/ml, (C) is 2 µg/ml and (D) is 1 µg/ml.



HeLa cells were fixed with 4% paraformaldehyde (PFA) for 15 minutes, permeabilized with 0.5% Triton X-100 for 3 minutes, and blocked with 5% FBS for 60 minutes. Then the cells were intracellularly stained with (A) Alexa Fluor® 647 Mouse IgG1, κ Isotype control antibody (Negative, Cat. No. 400136) (B) Alexa Fluor® 647 Nuclear Pore Complex (Clone Mab414) or (C) Purified Nuclear Pore Complex (Clone Mab414) and Alexa Fluor® 594 (Red) Goat anti-Mouse IgG (Cat. No. 405326). The image was captured with a 60X objective using KEYENCE BZ-X700 fluorescence microscope. Exposure time (Seconds) for (A-C) is 1/5. Concentration of primary antibodies for (A-C) is 2 µg/ml. Concentrations of secondary antibody for (C) is 2 µg/ml.



Jurkat cells were fixed, permeabilized and intracellularly stained with anti-Nuclear Pore Complex Proteins (clone MAb414) Alexa Fluor® 647 (closed histogram), or mouse IgG1, κ Alexa Fluor® 647 isotype control (open histogram).

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