Pan Nuclear Pore Complex Mouse Monoclonal Antibody

MCA-39C7

Ordering Information
Web *www.encorbio.com*
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Phone *352-372-7022*
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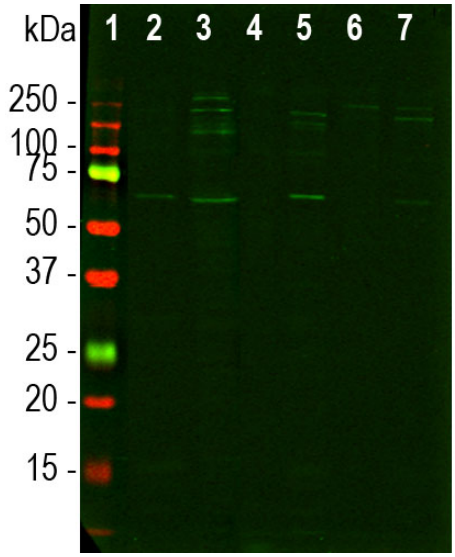
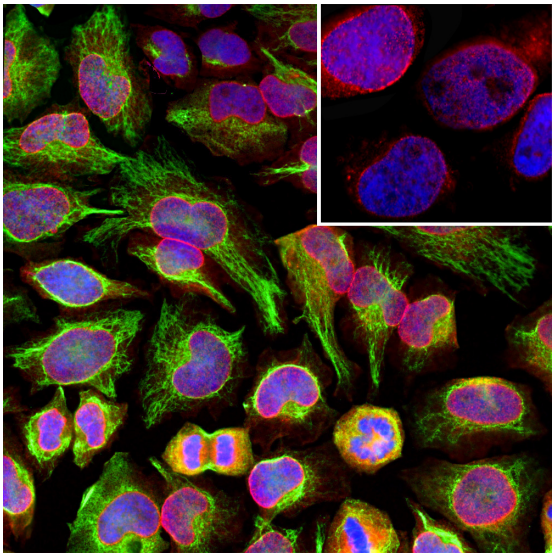
HGNC Name: *NA*
UniProt: *P39685*
RRID: *AB_2186243*
Immunogen: *Yeast nuclear preparations*
Format: *Concentrated hybridoma cell culture media supernatant plus 5mM NaN_3*
Storage: *Store at 4°C for short term, for longer term at -20°C. Avoid freeze/thaw cycles.*
Recommended dilutions:
WB: 1:100, IF/ICC: 1:100-1:500 (yeast cells), 1:50-1:100 (mammalian cells). IHC: 1:2

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Mouse	IgG1	~62kDa	Hu, Rt, Ms, Co, Pi, Ho, Ck, Dm, Ce, Sc



Western blot analysis of different cell lysates, cytosol or nuclear enriched fractions using pan-specific mouse mAb to the nuclear pore complex (NPC), MCA-39C7, dilution 1:100 in green: [1] protein standard (red), [2] HEK293 cytosol, [3] HEK293 nuclear, [4] NIH-3T3 cytosol, [5] NIH-3T3 nuclear, [6] HeLa cytosol, and [7] HeLa nuclear fraction lysate. The band at about 68kDa represents a currently unidentified NPC protein which is detected predominantly in the nuclear enriched fractions of all cell lines.



Immunofluorescent analysis of HeLa cells stained with panspecificmouse mAb to the nuclear pore complex (NPC), MCA-39C7, dilution 1:100 in red, and costained with chicken pAb to vimentin, CPCA-Vim, dilution 1:10,000, in green. The blue is DAPI staining of nuclear DNA. The MCA-39C7 antibody reveals strong granular staining of the nuclei corresponding to the NPC, while the CPCA-Vim antibody specifically labels intermediate filaments in these cells.

Background:

Nuclear pores form a barrier between the nucleus and cytoplasm in eukaryotiuc cells allowing regulated inflow and egress of proteins and RNA. They are composed of a family of nuclear pore proteins called nucleoporins with about 30 members in humans (1,2). This monoclonal antibody was raised by injecting mice with crude yeast nuclear preparations and screening the resulting hybridomas by immunofluorescence on yeast cells. The MCA-39C7 clone produced antibody which was one of several which strongly and specifically labelled nuclear pore complexes. When this antibody was tested on cells from other species, including rat, mouse and human cells, it has invariably strongly stained nuclear pore complexes, so it appears to bind to a highly conserved epitope and there to be an excellent and useful panspecific marker for these important structures.

Previous studies have not revealed convincing western blot data for this antibody, so the original immunogen was not known. We recently tested MCA-39C7 on western blots of mammalian cells binding to a ~62kDa protein and some higher molecular weight bands found in nuclear preparations of HeLa and other mammalian cells. We are currently unsure of the exact identity of these proteins, and work is in progress to to identify them. We note that the Mab 414 antibody described by Davis and Blobel has very similar properties (3). The antibody works well for western blotting and for IF, ICC and IHC on mammalian tissues (for IHC see data under "Additional Info" tab). For immunofluorescence on yeast cells, try MCA-39C7 diluted 1:100 to 1:500. For immunofluorescence on mammalian cells try at 1:50 to 1:100.

References:

1. Cronshaw JM, et al. Proteomic analysis of the mammalian nuclear pore complex. J. Cell Biol.158:915-27 (2002).
2. Alber F, et al. The molecular architecture of the nuclear pore complex. Nature 450:695-701 (2007).
3. Davis LI, Blobel G. Identification and characterization of a nuclear pore complex protein. Cell 45:699-709 (1986).

Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.