

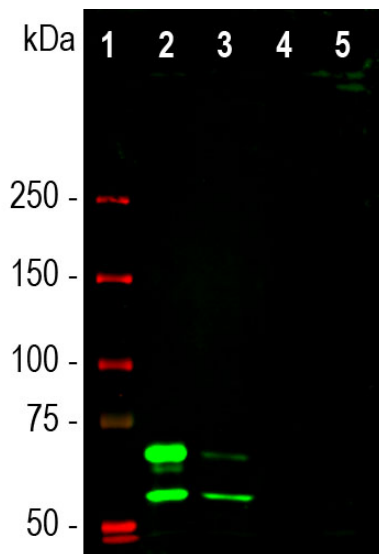
Ordering Information
 Web www.encorbio.com
 Email admin@encorbio.com
 Phone 352-372-7022
 Fax 352-372-7066

HGNC Name: LMNA
UniProt: P02545
RRID: AB_2572339
Immunogen: Full length recombinant human lamin A expressed in and purified from *E. coli*.
Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN₃
Storage: Stable at 4°C for one year, for longer term store at -20°C
Recommended dilutions:
 WB: 1:1,000-1:2,000. IF/ICC 1:1,000. IHC not recommended

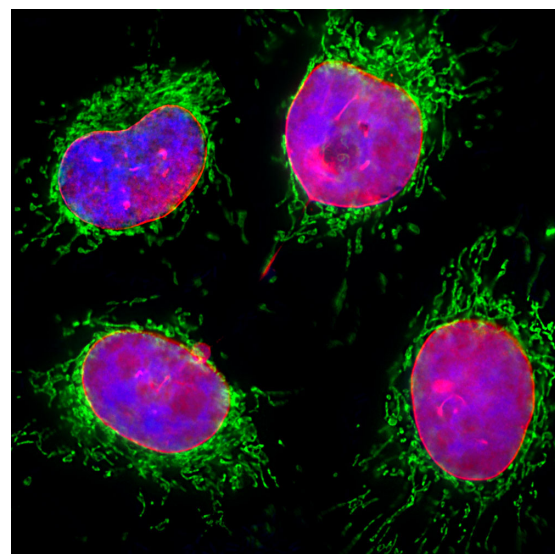
References:

1. Fisher DZ, Chaudhary N, Blobel G. cDNA sequencing of nuclear lamins A and C reveals primary and secondary structural homology to intermediate filament proteins. *PNAS* 83:6450-54 (1986).
2. McKeon FD, Kirschner MW, Caput D. Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. *Nature* 319:463-8 (1986).
3. Bonne G, et al. Mutations in the gene encoding lamin A/C cause autosomal dominant Emery-Dreifuss muscular dystrophy. *Nat. Genet.* 21:285-8 (1999).
4. Novelli G, et al. Mandibuloacral dysplasia is caused by a mutation in LMNA-encoding lamin A/C. *Am. J. Hum. Genet.* 71:426-31 (2002).
5. De Sandre-Giovannoli A, et al. Homozygous Defects In Lmna, Encoding Lamin A/C Nuclear-Envelope Proteins, Cause Autosomal Recessive Axonal Neuropathy In Human (Charcot-Marie-Tooth Disorder Type 2) And Mouse *Am. J. Hum. Genet.* 70:726-36 (2002).
6. Liu B and Zhou Z. Lamin A/C, laminopathies and premature ageing. *Histol. Histopathol.* 23:747-63 (2006).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Mouse	IgG1	65kDa, 74kDa	Hu, not Ms, Rt



Western blot analysis of different cell lysates using mouse mAb to lamin A/C, MCA-4C4, dilution 1:1,000 in green: [1] protein standard in red, [2] HeLa, [3] HEK293 [4] C6, and [5] NIH-3T3 cell lysates. Two strong bands at 74 and 65kDa correspond to the lamin A and lamin C proteins respectively, detected only in the cells of human origin. MCA-4C4 antibody failed to recognize rat or mouse proteins.



Immunofluorescent analysis of HeLa cells stained with mouse mAb to lamin A/C, MCA-4C4, dilution 1:2,000 in red, and costained with rabbit pAb to HSP60, RPCA-HSP60, dilution 1:5,000, in green. The blue is Hoechst staining of nuclear DNA. MCA-4C4 antibody specifically labels the nuclear lamina, while the RPCA-HSP60 antibody reveals protein expressed in mitochondria.

Background:

Lamin A and lamin C are members of the **intermediate filament** protein family and are located in the nucleus where they function as skeletal components of the inner nuclear membrane (1). The two proteins are generated by alternate transcription from the single *LMNA* gene. Lamin A has a molecular weight of about 74kDa while lamin C is 65kDa. The lamin A protein includes a C-terminal segment of 98 amino acids missing from lamin C, while lamin C has a unique C-terminal 6 amino acid peptide not present in lamin A. As a result antibodies raised against lamin A are very likely bind to lamin C, as is the case with MCA-4C4. During cell division the nuclear lamina breaks down and lamin A/C containing filaments depolymerize, this being regulated by phosphorylation by cyclin dependent protein kinase 1 (CDK1). Mutations in the lamin A/C gene are associated with several serious human diseases, including **Emery-Dreifuss muscular dystrophy**, **familial partial lipodystrophy**, **limb girdle muscular dystrophy**, **dilated cardiomyopathy**, **Charcot-Marie-Tooth disease type 2B1**, **Hutchinson-Gilford progeria syndrome** and **Hutchinson-Gilford progeria syndrome** (3-6).

The MCA-4C4 was raised against full length recombinant human lamin A, and binds human lamin C also. However it does not recognize rodent lamin A or C. Since MCA-4C4 antibody is human specific, it can be used to monitor human material in a rodent background. It works well on western blots and for IF and ICC but is not recommended for IHC. mWe also market a chicken antibody to lamin A/C **CPCA-LaminAC** with similar properties to MCA-4C4.

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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*.