

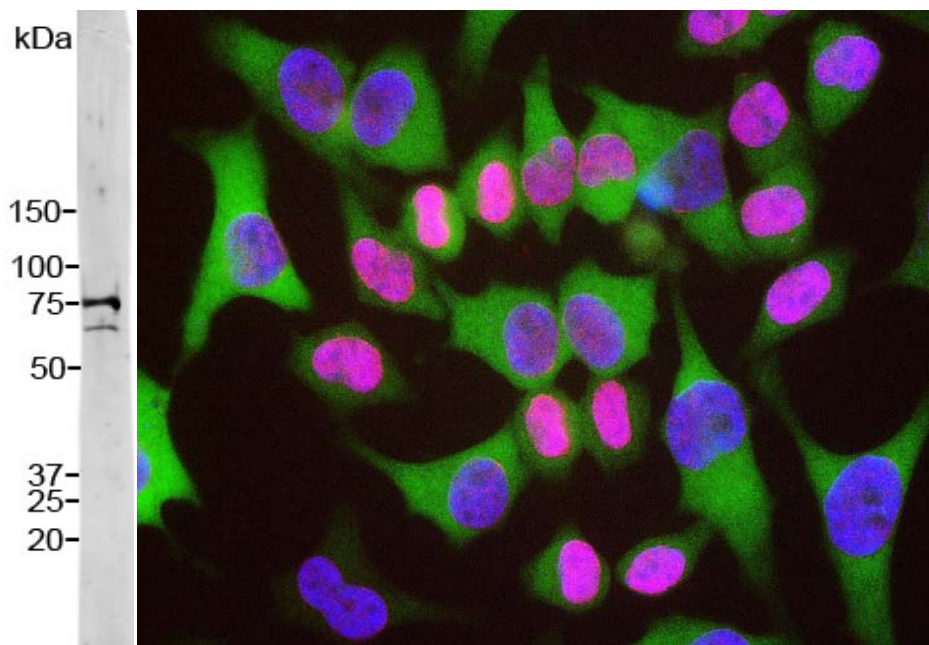
Catalogue# RPCA-LaminAC: Rabbit Polyclonal Antibody to Lamin A/C: LMNA

The Immunogen: The Lamin proteins are members of the [intermediate filament](#) protein family but are located inside the nucleus rather than in the cytoplasm (1). The lamins function as skeletal components tightly associated with the inner nuclear membrane.

Originally the proteins of the nuclear cytoskeleton were named Lamin A, B and C, from top to bottom as visualized on SDS-PAGE gels. Subsequently, it was found that Lamins A and C were coded for by a single gene (2), while the Lamin B band may contain two proteins encoded by two genes now called Lamin B1 and Lamin B2. Lamin A has a mass of about 74 kDa while Lamin C is 65 kDa. 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. Apart from these regions Lamin A and C are identical so that antibodies raised against either protein are likely to cross react with the other.

This is the case with this polyclonal, which was raised against full length recombinant human Lamin A. Lamin polymerization and depolymerization is regulated by phosphorylation by cyclin dependent protein kinase 1 (CDK1), the key component of "[maturation promoting factor](#)", the central regulator of cell division. Activity of this kinase increases during cell division and is responsible for the breakdown of the nuclear lamina.

Mutations in the LMNA 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](#), and [Hutchinson-Gilford progeria](#) syndrome. This family of diseases belong to a larger group which are often referred to as [Laminopathies](#), though some laminopathies are associated in defects in Lamin B1, B2 or one or other of the numerous nuclear lamina binding proteins. A truncated version of Lamin A, commonly known as [progerin](#), causes [Hutchinson-Gilford progeria syndrome](#), a form of premature aging (3). The [HGNC](#) name for this protein is [LMNA](#).



Left: Stripe blot of crude HeLa cell extract stained with RPCA-LaminAC. Note two strong and clean bands at 74 kDa and 65 kDa, corresponding to Lamin A and C. **Right:** HeLa cells staining with RPCA-LaminAC (red) counterstained with EnCor's monoclonal antibody to HSP27, [MCA-6H11](#) (green) and DNA (blue). The RPCA-LaminAC antibody reveals strong nuclear lamina staining, while the MCA-6H11 antibody reveals strong

cytoplasmic staining. Since both DNA (blue) and Lamin A/C (red) are associated with the nuclear compartment, this region appears crimson in this image.

Antibody characteristics: Antibody was raised in rabbit against recombinant full length purified Lamin A from *E. coli*. The antibody is provided in the form of crude rabbit serum. This antibody is known to react with Lamin A and Lamin C from human, cow, pig, mouse, rat and other mammals. Since Lamin A/C is highly conserved, it is likely that the antibody is effective on other species also.

Suggestions for use: The antibody solution can be used at dilutions of at least 1:5,000 in immunofluorescence experiments. In western blotting using chemiluminescence it can be used at dilutions of 1:5,000. Avoid repeated freezing and thawing, store at 4°C or -20°C.

OMIM Link: <http://omim.org/entry/150330>

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

References:

1. Fisher, D. Z., Chaudhary, N., Blobel, G. cDNA sequencing of nuclear lamins A and C reveals primary and secondary structural homology to intermediate filament proteins. [Proc. Nat. Acad. Sci. 83: 6450-6454 \(1986\)](#).
2. McKeon, F. D., Kirschner, M. W., Caput, D. Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. [Nature 319: 463-468 \(1986\)](#).
3. Liu, B. and Zhou, Z. Lamin A/C, laminopathies and premature ageing. [Histol. Histopathol. 23: 747-763 \(2006\)](#).

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