

Catalogue# CPCA-Fib: Chicken polyclonal antibody to Fibrillarin

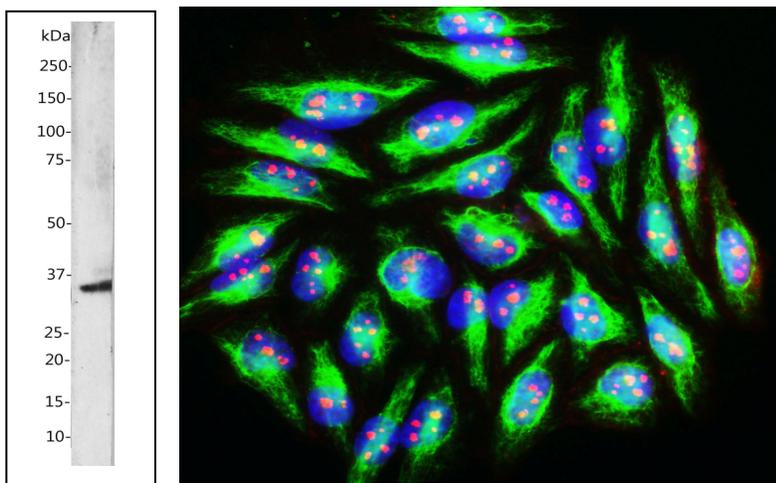
The Immunogen: Nop1p was originally identified as a nucleolar protein of baker's yeast, *Saccharomyces cerevisiae* ([accession P15646](#)). The Nop1p protein is 327 amino acids in size (34.5 kDa), is essential for yeast viability, and is localized in the nucleoli (1). The systematic name for *S. cerevisiae* Nop1 is YDL014W, and it is now known to be part of the small subunit processome complex, involved in the processing of pre-18S ribosomal RNA.

Nop1p is the yeast homologue of a protein apparently found in all eukaryotes and archea generally called fibrillarin. Fibrillarin/Nop1p is extraordinarily conserved, so that the yeast and human proteins are 67% identical, and the human protein can functionally replace the yeast protein. This means that suitably cross-reactive antibodies to Nop1p/fibrillarin, can be used to reveal nucleoli and study fibrillarin/Nop1p in all eukaryotes and archea tested to date.

Human fibrillarin has been characterized ([accession P22087](#)) and the human fibrillarin gene is located on chromosome 19 ([19q13.1](#)). Fibrillarin/Nop1p proteins have been cloned and sequenced from several other species (e.g. *Mouse*, [accession P35550](#), *Xenopus* [accession P22232](#), *C. elegans* [accession Q22053](#), and *S. pombe* [accession P35551](#)). The N terminal ~80 amino acids contain multiple copies based on the peptide RGG, or arginine-glycine-glycine, sometimes referred to as GAR repeats, characteristic of the GAR family of molecules. The remaining ~240 amino acids consist of the so called fibrillarin domain.

A fibrillarin homologue has also been identified in the genome of the archaean *Methanococcus* ([accession NC_000909](#)). This protein lacks the RGG rich N-terminal extension but is clearly homologous to the other sequences throughout all of the fibrillarin domains. The 3D structure of this molecule has been determined and shown to consist of 2 extended β -sheets flanked by α -helixes ([Medline link](#)). Patients with the autoimmune disease scleroderma often have strong circulating autoantibodies to a ~34 kDa protein which was subsequently found to be fibrillarin. Recent studies show that knock out of the fibrillarin gene in mice results in embryonic lethality, although mice with only one functional fibrillarin/Nop1p gene were viable (3).

This polyclonal antibody against Fibrillarin/nop1 can be used as a convenient marker for nucleoli in a wide variety of species (e.g. 4-6). The [HGNC](#) name for this protein is [FBL](#).



Left: Western blots of HeLa cell lysate using CPCA-Fib. This antibody recognizes a clean band at 35 kDa. **Right:** Staining of HeLa cells with CPCA-Fib which binds to nucleoli (red). Cells are also stained in green with EnCor's monoclonal antibody against vimentin [MCA-2A52](#) (green). DNA is labeled with DAPI (blue).

Antibody Characteristics: The antibody was raised against a full length human fibrillarin expressed in and purified from *E.coli*, and is supplied as an aliquot of IgY preparation.

Suggestions for Use: The IgY solution has been tested for WB, ICC/IF and IHC. Suggested dilutions are 1:1,000-5,000 for WB and 1:2,000-5,000 for ICC/IF and IHC, but users should titrate their own working dilutions depending on each experiment.

Storage Instructions: Shipped on ice. Please store at 4°C for regular uses. For long term storage, please leave frozen at -20°C and avoid freeze/thaw cycles.

References:

1. Ochs RL, Lischwe MA, Spohn WH, Busch H. Fibrillarin: a new protein of the nucleolus identified by autoimmune sera. [Biol Cell 54:123-133 \(1985\).](#)
2. Aris JP and Blobel G. Identification and characterization of a yeast nucleolar protein that is similar to a rat liver nucleolar protein. [J. Cell Biol. 107:17-31 \(1988\).](#)
3. Newton K, Petfalski E, Tollervey D, Caceres JF. Fibrillarin is essential for early development and required for accumulation of an intron-encoded small nucleolar RNA in the mouse. [Mol Cell Biol. 23:8519-8527 \(2003\).](#)
4. Tyagi S and Alsmadi O. Imaging native beta-actin mRNA in motile fibroblasts. [Biophys J. 87:4153-62 \(2004\).](#)
5. Paeschke1 K, Simonsson T, Postberg J, Rhodes D, Lipps H-J. Telomere end-binding proteins control the formation of G-quadruplex DNA structures in vivo [Nature Structural & Molecular Biology 12, 847-854 \(2005\)](#)
6. Vermaak D, Henikoff S, Malik HS. Positive selection drives the evolution of rhino, a member of the heterochromatin protein 1 family in Drosophila. [PLoS Genetics 1:96-108 \(2005\).](#)

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

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