



Catalog Number:	MO22108	Host:	Mouse
Product Type:	Protein G purified IgG ₁	Species Reactivity:	Human, Mouse, Rat
Immunogen Sequence:	Mice were injected with yeast nuclear preparations and hybridomas were screened by immunofluorescence on yeast cells and by western blotting on yeast protein homogenates.	Format:	Sterile-filtered cell culture fluid from an Integra CL-350 bio-chamber with 10 mM sodium azide as a preservative. Concentration: unknown.
Applications:	Western Blot-1:500 (cell lysates)-1,10,000 (nuclear fractions) Immunofluorescence: 1:500-1:5,000 Dilutions listed as a recommendation. Optimal dilution should be determined by investigator.		
Storage:	Antibody can be aliquotted and stored frozen at -20° C to -70° C in a manual defrost freezer for six months without detectable loss of activity. The antibody can be stored at 2° - 8° C for 1 month without detectable loss of activity. <i>Avoid repeated freeze-thaw cycles.</i>		
References:	<ol style="list-style-type: none">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, Tollervy 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. Paeschke 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).		

Application Notes

Western Blot:

For western blots of yeast protein samples, use antibody diluted 1/2,000 (cell lysates) to 1/10,000 (nuclear fractions), followed by chemiluminescent detection (ECL). For other (non-ECL) western detection methods, try diluted 1/1,000 to 1/5,000. To detect mammalian fibrillarin on western blots by ECL, try at 1/500 dilution.

Immunofluorescence:

For mammalian cells, start dilution at 1:500.

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Description/Data:

The Nop1p protein is 327 amino acids in size (34.5kDa), 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 protein lacks the RGG rich N-terminal extension but is clearly homologous to the other sequences throughout all of the fibrillarin domain. The 3D structure of this molecule has been determined and shown to consist of 2 extended b-sheets flanked by 4 a-helices (Medline link). Patients with the autoimmune disease scleroderma often have strong circulating autoantibodies to a ~34kDa 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 antibody is becoming widely used as a convenient marker for nucleoli in a wide variety of species (e.g. 4-6).

Image: Human SH-SY5Y cells stained with Fibrillarin/Nop1p showing prominent specular nucleolar staining. The nuclei are counter stained with blue DAPI DNA stain, so these spots appear very pale blue. Cells are also stained with Neurofilament NF-H.

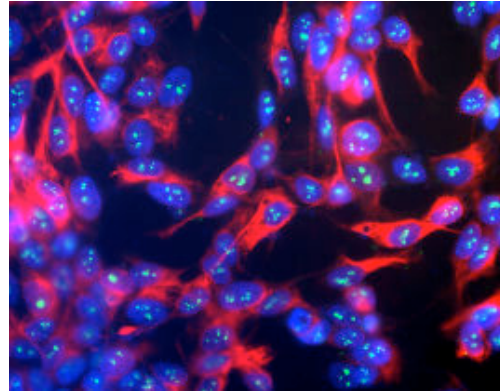
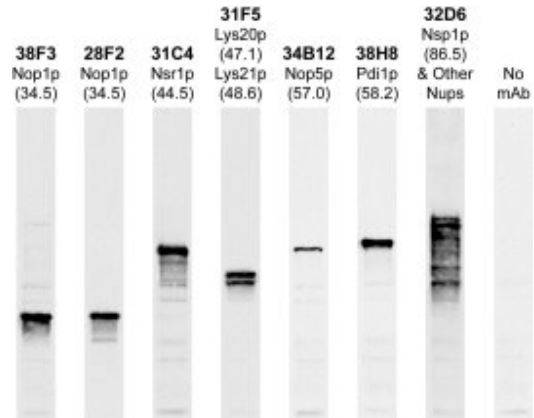


Image: Strip blots of yeast protein extracts stained with the indicated Fibrillarin/Nop1p and related markers.



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