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RPA1 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1698a

Product Information

Application	WB, IHC, FC, ICC, E
Primary Accession	P27694
Reactivity	Human, Monkey
Host	Mouse
Clonality	Monoclonal
Clone Names	4C4
Isotype	IgG1
Calculated MW	68138
Description	"This gene Plays an essential role in several cellular processes in DNA metabolism including replication, recombinationand DNA repair. Binds and subsequently stabilizes single-stranded DNA intermediates and thus prevents complementaryDNA from reannealing"
Immunogen	Purified recombinant fragment of human RPA1 expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide

Additional Information

Gene ID	6117
Other Names	Replication protein A 70 kDa DNA-binding subunit, RP-A p70, Replication factor A protein 1, RF-A protein 1, Single-stranded DNA-binding protein, Replication protein A 70 kDa DNA-binding subunit, N-terminally processed, RPA1, REPA1, RPA70
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 FC~~1/200 - 1/400 ICC~~N/A E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RPA1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RPA1

Synonyms	REPA1, RPA70
Function	As part of the heterotrimeric replication protein A complex (RPA/RP-A), binds and stabilizes single-stranded DNA intermediates that form during DNA replication or upon DNA stress. It prevents their reannealing and in parallel, recruits and activates different proteins and complexes involved in DNA metabolism (PubMed:17596542, PubMed:27723717, PubMed:27723720). Thereby, it plays an essential role both in DNA replication and the cellular response to DNA damage (PubMed:9430682). In the cellular response to DNA damage, the RPA complex controls DNA repair and DNA damage checkpoint activation. Through recruitment of ATRIP activates the ATR kinase a master regulator of the DNA damage response (PubMed:24332808). It is required for the recruitment of the DNA double-strand break repair factors RAD51 and RAD52 to chromatin in response to DNA damage (PubMed:17765923). Also recruits to sites of DNA damage proteins like XPA and XPG that are involved in nucleotide excision repair and is required for this mechanism of DNA repair (PubMed:7697716). Also plays a role in base excision repair (BER) probably through interaction with UNG (PubMed:9765279). Also recruits SMARCAL1/HARP, which is involved in replication fork restart, to sites of DNA damage. Plays a role in telomere maintenance (PubMed:17959650, PubMed:34767620). As part of the alternative replication protein A complex, aRPA, binds single-stranded DNA and probably plays a role in DNA repair. Compared to the RPA2- containing, canonical RPA complex, may not support chromosomal DNA replication and cell cycle progression through S-phase. The aRPA may not promote efficient priming by DNA polymerase alpha but could support DNA synthesis by polymerase delta in presence of PCNA and replication factor C (RFC), the dual incision/excision reaction of nucleotide excision repair and RAD51-dependent strand exchange (PubMed:19996105). RPA stimulates 5'-3' helicase activity of the BRIP1/FANCJ (PubMed:17596542).
Cellular Location	Nucleus. Nucleus, PML body. Note=Enriched in PML bodies in cells displaying alternative lengthening of their telomeres

References

Mol Cell. 2009 Oct 23;36(2):193-206. J Biol Chem. 2009 Dec 11;284(50):34682-91.

Images

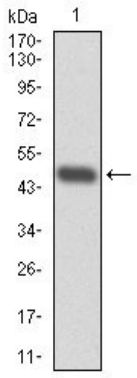
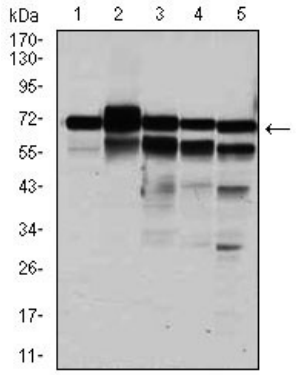


Figure 1: Western blot analysis using RPA1 mAb against human RPA1 (AA: 308-513) recombinant protein. (Expected MW is 48.3 kDa)

Figure 2: Western blot analysis using RPA1 mouse mAb against HeLa (1), MCF-7 (2), K562(3), A431(4), and COS-7 (6) cell lysate.



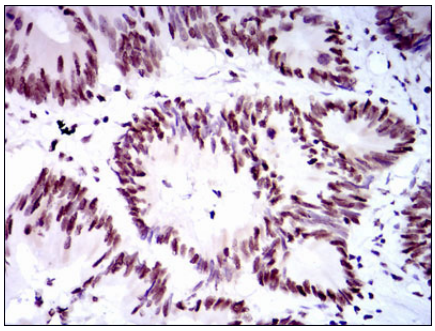


Figure 3: Immunohistochemical analysis of paraffin-embedded colon cancer tissues using RPA1 mouse mAb with DAB staining.

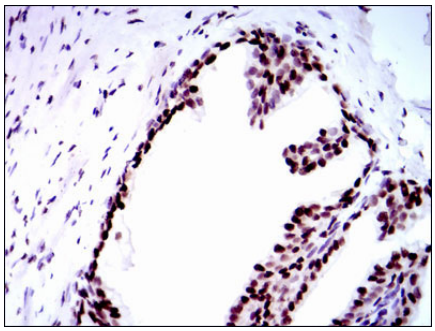


Figure 4: Immunohistochemical analysis of paraffin-embedded prostate tissues using RPA1 mouse mAb with DAB staining.

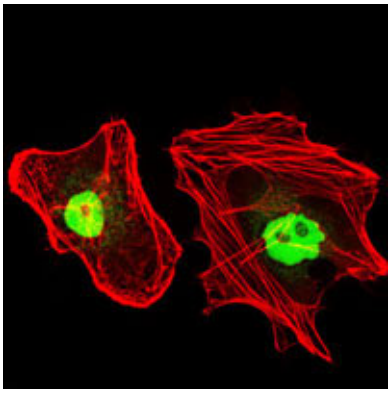


Figure 5: Immunofluorescence analysis of HeLa cells using RPA1 mouse mAb (green). Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

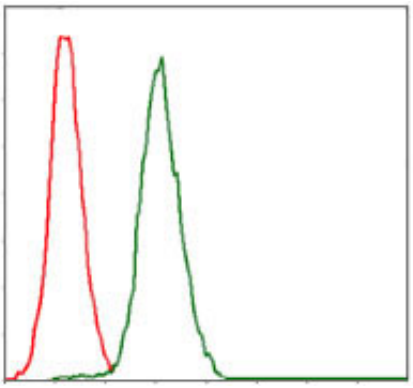


Figure 6: Flow cytometric analysis of Jurkat cells using RPA1 mouse mAb (green) and negative control (red).