

# Recombinant human Replication protein A 14 kDa subunit



Catalog No: #AP72307

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Package Size: #AP72307-1 20ug #AP72307-2 100ug #AP72307-3 1mg

## Description

Product Name	Recombinant human Replication protein A 14 kDa subunit
Brief Description	Recombinant Protein
Host Species	E.coli
Purification	Greater than 90% as determined by SDS-PAGE.
Immunogen Description	Expression Region:1-119aaSequence Info:Partial
Other Names	Replication factor A protein 3 ;RF-A protein 3
Accession No.	P35244
Uniprot	P35244
GeneID	6119;
Calculated MW	40.3 kDa
Tag Info	N-terminal GST-tagged
Target Sequence	MVDMMDLPRSRINAGMLAQFIDKPVCFVGRLEKIHPTGKMFILSDGEGKNGTIELMEPLDEEISGIVEVVGVRT AKATILCTSIVVQFKEDSHPFDLGLYNEAVKIIHDFPQFYPLGIVQ
Formulation	Tris-based buffer50% glycerol
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.  Generally, the shelf life of liquid form is 6 months at -20°C,-80°C. The shelf life of lyophilized form is 12 months at -20°C,-80°C.Notes:Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.

## Background

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. Thereby, it plays an essential role both in DNA replication and the cellular response to DNA damage . 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 . It is required for the recruitment of the DNA double-strand break repair factors RAD51 and RAD52 to chromatin, in response to DNA damage. 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 . Plays also a role in base excision repair (BER), probably through interaction with UNG . Through RFD3 may activate CHEK1 and play a role in replication checkpoint control. Also recruits SMARCAL1,HARP, which is involved in replication fork restart, to sites of DNA damage. May also play a role in telomere maintenance. RPA3 has its own single-stranded DNA-binding activity and may be responsible for polarity of the binding of the complex to DNA . 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 .

## References

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Cloning, overexpression, and genomic mapping of the 14-KDA subunit of human replication protein A. Umbricht C.B., Kelly T.J.J. Biol. Chem. 268:6131-6138(1993) Research Topic: Epigenetics and Nuclear Signaling

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Note: This product is for in vitro research use only