

## Product datasheet

### APC Anti-RNA polymerase II CTD repeat YSPTSPS (phospho S2) antibody [EPR18855-87] (ChIP Grade) ab305756

Recombinant RabMAb

1 Image

#### Overview

|                     |  |
|---------------------|--|
| Product name        | APC Anti-RNA polymerase II CTD repeat YSPTSPS (phospho S2) antibody [EPR18855-87] (ChIP Grade)   |
| Description         | APC Rabbit monoclonal [EPR18855-87] to RNA polymerase II CTD repeat YSPTSPS (phospho S2) - ChIP Grade  |
| Host species        | Rabbit   |
| Conjugation         | APC. Ex: 645nm, Em: 660nm  |
| Tested applications | <b>Suitable for:</b> Target binding affinity, Antibody labelling   |
| Immunogen           | Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.  |
| General notes       | <p>This <b>conjugated primary antibody</b> is released using a quantitative quality control method that evaluates binding affinity post-conjugation and efficiency of antibody labeling.</p> <p>For suitable applications and species reactivity, please refer to the unconjugated version of this clone. This conjugated antibody is eligible for Abtrial: learn more <a href="#">here</a>.</p> <p>This product is a recombinant monoclonal antibody, which offers several advantages including:</p> <ul style="list-style-type: none"> <li>- High batch-to-batch consistency and reproducibility</li> <li>- Improved sensitivity and specificity</li> <li>- Long-term security of supply</li> <li>- Animal-free production</li> </ul> <p>For more information <a href="#">see here</a>.</p> <p>Our RabMAb<sup>®</sup> technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to <a href="#">RabMAb<sup>®</sup> patents</a>.</p> |

#### Properties

|                      |  |
|----------------------|--|
| Form                 | Liquid   |
| Storage instructions | Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at +4°C. Store In the Dark. |
| Storage buffer       | pH: 7.40   |

|                     |   |
|---------------------|---|
|                     | Preservative: 0.02% Sodium azide<br>Constituents: 98% PBS, 1% BSA |
| <b>Purity</b>       | Protein A purified  |
| <b>Clonality</b>    | Monoclonal  |
| <b>Clone number</b> | EPR18855-87   |
| <b>Isotype</b>      | IgG   |

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab305756 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

| Application             | Abreviews | Notes                                    |
|-------------------------|-----------|--|
| Target binding affinity |           | Use at an assay dependent concentration. |
| Antibody labelling      |           | Use at an assay dependent concentration. |

## Target

|   |   |
|---|---|
| <b>Function</b>                         | DNA-dependent RNA polymerase catalyzes the transcription of DNA into RNA using the four ribonucleoside triphosphates as substrates. Largest and catalytic component of RNA polymerase II which synthesizes mRNA precursors and many functional non-coding RNAs. Forms the polymerase active center together with the second largest subunit. Pol II is the central component of the basal RNA polymerase II transcription machinery. It is composed of mobile elements that move relative to each other. RPB1 is part of the core element with the central large cleft, the clamp element that moves to open and close the cleft and the jaws that are thought to grab the incoming DNA template. At the start of transcription, a single-stranded DNA template strand of the promoter is positioned within the central active site cleft of Pol II. A bridging helix emanates from RPB1 and crosses the cleft near the catalytic site and is thought to promote translocation of Pol II by acting as a ratchet that moves the RNA-DNA hybrid through the active site by switching from straight to bent conformations at each step of nucleotide addition. During transcription elongation, Pol II moves on the template as the transcript elongates. Elongation is influenced by the phosphorylation status of the C-terminal domain (CTD) of Pol II largest subunit (RPB1), which serves as a platform for assembly of factors that regulate transcription initiation, elongation, termination and mRNA processing. Acts as an RNA-dependent RNA polymerase when associated with small delta antigen of Hepatitis delta virus, acting both as a replicate and transcriptase for the viral RNA circular genome. |
| <b>Sequence similarities</b>            | Belongs to the RNA polymerase beta' chain family.   |
| <b>Domain</b>                           | The C-terminal domain (CTD) serves as a platform for assembly of factors that regulate transcription initiation, elongation, termination and mRNA processing.   |
| <b>Post-translational modifications</b> | The tandem heptapeptide repeats in the C-terminal domain (CTD) can be highly phosphorylated. The phosphorylation activates Pol II. Phosphorylation occurs mainly at residues 'Ser-2' and 'Ser-5' of the heptapeptide repeat and is mediated, at least, by CDK7 and CDK9. CDK7 phosphorylation of POLR2A associated with DNA promotes transcription initiation by triggering dissociation from DNA. Phosphorylation also takes place at 'Ser-7' of the heptapeptide repeat, which is required for efficient transcription of snRNA genes and processing of the transcripts. The  |

phosphorylation state is believed to result from the balanced action of site-specific CTD kinases and phosphatases, and a 'CTD code' that specifies the position of Pol II within the transcription cycle has been proposed. Dephosphorylated by the protein phosphatase CTDSP1.

Among tandem heptapeptide repeats of the C-terminal domain (CTD) some do not match the Y-S-P-T-S-P-S consensus, the seventh serine residue 'Ser-7' being replaced by a lysine. 'Lys-7' in these non-consensus heptapeptide repeats can be alternatively acetylated, methylated and dimethylated. EP300 is one of the enzyme able to acetylate 'Lys-7'. Acetylation at 'Lys-7' of non-consensus heptapeptide repeats is associated with 'Ser-2' phosphorylation and active transcription. It may regulate initiation or early elongation steps of transcription specially for inducible genes.

Methylated at Arg-1810 prior to transcription initiation when the CTD is hypophosphorylated, phosphorylation at Ser-1805 and Ser-1808 preventing this methylation. Symmetrically or asymmetrically dimethylated at Arg-1810 by PRMT5 and CARM1 respectively. Symmetric or asymmetric dimethylation modulates interactions with CTD-binding proteins like SMN1/SMN2 and TDRD3. SMN1/SMN2 interacts preferentially with the symmetrically dimethylated form while TDRD3 interacts with the asymmetric form. Through the recruitment of SMN1/SMN2, symmetric dimethylation is required for resolving RNA-DNA hybrids created by RNA polymerase II, that form R-loop in transcription terminal regions, an important step in proper transcription termination. CTD dimethylation may also facilitate the expression of select RNAs. Among tandem heptapeptide repeats of the C-terminal domain (CTD) some do not match the Y-S-P-T-S-P-S consensus, the seventh serine residue 'Ser-7' being replaced by a lysine. 'Lys-7' in these non-consensus heptapeptide repeats can be alternatively acetylated, methylated and dimethylated. Methylation occurs in the earliest transcription stages and precedes or is concomitant to 'Ser-5' and 'Ser-7' phosphorylation.


Ubiquitinated by WWP2 leading to proteasomal degradation (By similarity). Following UV treatment, the elongating form of RNA polymerase II (RNA pol Ilo) is ubiquitinated UV damage sites without leading to degradation: ubiquitination is facilitated by KIAA1530/UVSSA and promotes RNA pol Ilo backtracking to allow access to the nucleotide excision repair machinery.

## Cellular localization


Nucleus.

## Images


Why choose a recombinant conjugated antibody?



**Research with confidence**  
Consistent and reproducible results



**Long-term and scalable supply**  
Recombinant technology



**Guaranteed long-term performance**  
Quantitative quality control

APC Anti-RNA polymerase II CTD repeat YSPTSPS (phospho S2) antibody [EPR18855-87] (ChIP Grade) (ab305756)

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

### **Our Abpromise to you: Quality guaranteed and expert technical support**

---

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
  
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

### **Terms and conditions**

---

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors