

## ARG51679 anti-Histone H3 phospho (Ser10) antibody

Package: 100 µl, 50 µl  
Store at: -20°C

### Summary

|                     |                                                                                                                                                                      |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Description | Rabbit Polyclonal antibody recognizes Histone H3 phospho (Ser10)                                                                                                     |
| Tested Reactivity   | Hu, Ms, Rat, Cydippids                                                                                                                                               |
| Tested Application  | FACS, ICC/IF, IHC-P, WB                                                                                                                                              |
| Host                | Rabbit                                                                                                                                                               |
| Clonality           | Polyclonal                                                                                                                                                           |
| Isotype             | IgG                                                                                                                                                                  |
| Target Name         | Histone H3                                                                                                                                                           |
| Species             | Human                                                                                                                                                                |
| Immunogen           | Peptide sequence around phosphorylation site of serine 10 (R-K-S(p)-T-G) derived from Human Histone H3.1.                                                            |
| Conjugation         | Un-conjugated                                                                                                                                                        |
| Alternate Names     | Histone H3/f; Histone H3.1; Histone H3/d; Histone H3/b; Histone H3/c; Histone H3/a; Histone H3/l; Histone H3/j; Histone H3/k; Histone H3/h; H3/A; H3FA; Histone H3/i |

### Application Instructions

| Application table | Application                                                                                                                                | Dilution        |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   | FACS                                                                                                                                       | Assay-dependent |
|                   | ICC/IF                                                                                                                                     | 1:100 - 1:200   |
|                   | IHC-P                                                                                                                                      | 1:50 - 1:100    |
|                   | WB                                                                                                                                         | 1:500 - 1:1000  |
| Application Note  | * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist. |                 |

### Properties

|               |                                                                                                                                                                                                                                                                                               |
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| Form          | Liquid                                                                                                                                                                                                                                                                                        |
| Purification  | Antibodies were produced by immunizing rabbits with KLH-conjugated synthetic phosphopeptide. Antibodies were purified by affinity-chromatography using epitope-specific phosphopeptide. In addition, non-phospho specific antibodies were removed by chromatography using non-phosphopeptide. |
| Buffer        | PBS (without Mg2+ and Ca2+, pH 7.4), 150mM NaCl, 0.02% Sodium azide and 50% Glycerol.                                                                                                                                                                                                         |
| Preservative  | 0.02% Sodium azide                                                                                                                                                                                                                                                                            |
| Stabilizer    | 50% Glycerol                                                                                                                                                                                                                                                                                  |
| Concentration | 1 mg/ml                                                                                                                                                                                                                                                                                       |

|                     |                                                                                                                                                                                                                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage instruction | For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use. |
| Note                | For laboratory research only, not for drug, diagnostic or other use.                                                                                                                                                                                                                                              |

## Bioinformation

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|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Database links | <a href="#">GeneID: 8350 Human</a><br><a href="#">Swiss-port # P68431 Human</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Gene Symbol    | HIST1H3A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Gene Full Name | histone cluster 1, H3a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Background     | Core component of nucleosome. Nucleosomes wrap and compact DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones, also called histone code, and nucleosome remodeling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function       | Core component of nucleosome. Nucleosomes wrap and compact DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones, also called histone code, and nucleosome remodeling. [UniProt]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Highlight      | <p>Related Antibody Duos and Panels:<br/> <a href="#">ARG30139 Cell Cycle Marker Antibody Panel (Cyclin B1, Cyclin E)</a></p> <p>Related products:<br/> <a href="#">Histone H3 antibodies</a>; <a href="#">Histone H3 Duos / Panels</a>; <a href="#">Anti-Rabbit IgG secondary antibodies</a>;</p> <p>Related news:<br/> <a href="#">Understanding Your Cells: Choose the right markers</a><br/> <a href="#">Choose the Best ZIKA Virus Antibodies</a><br/> <a href="#">Fight microcephaly with arigo</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Research Area  | Controls and Markers antibody; Gene Regulation antibody; Loading Control antibody; Loading Control antibody for Nuclear Fractions; Organelle Marker antibody for Nucleus; Nuclear translocation Study antibody; CARM1 mediated histone arginine methylation antibody; Cell Cycle Study antibody; Polycomb Complexes antibody                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Calculated Mw  | 15 kDa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| PTM            | <p>Acetylation is generally linked to gene activation. Acetylation on Lys-10 (H3K9ac) impairs methylation at Arg-9 (H3R8me2s). Acetylation on Lys-19 (H3K18ac) and Lys-24 (H3K24ac) favors methylation at Arg-18 (H3R17me). Acetylation at Lys-123 (H3K122ac) by EP300/p300 plays a central role in chromatin structure: localizes at the surface of the histone octamer and stimulates transcription, possibly by promoting nucleosome instability.</p> <p>Citrullination at Arg-9 (H3R8ci) and/or Arg-18 (H3R17ci) by PADI4 impairs methylation and represses transcription.</p> <p>Asymmetric dimethylation at Arg-18 (H3R17me2a) by CARM1 is linked to gene activation. Symmetric dimethylation at Arg-9 (H3R8me2s) by PRMT5 is linked to gene repression. Asymmetric dimethylation at Arg-3 (H3R2me2a) by PRMT6 is linked to gene repression and is mutually exclusive with H3 Lys-5 methylation (H3K4me2 and H3K4me3). H3R2me2a is present at the 3' of genes regardless of their transcription state and is enriched on inactive promoters, while it is absent on active promoters.</p> <p>Methylation at Lys-5 (H3K4me), Lys-37 (H3K36me) and Lys-80 (H3K79me) are linked to gene activation. Methylation at Lys-5 (H3K4me) facilitates subsequent acetylation of H3 and H4. Methylation at Lys-80 (H3K79me) is associated with DNA double-strand break (DSB) responses and is a specific target for TP53BP1. Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are linked to gene repression.</p> <p>Methylation at Lys-10 (H3K9me) is a specific target for HP1 proteins (CBX1, CBX3 and CBX5) and prevents subsequent phosphorylation at Ser-11 (H3S10ph) and acetylation of H3 and H4. Methylation at Lys-5 (H3K4me) and Lys-80 (H3K79me) require preliminary monoubiquitination of H2B at 'Lys-120'.</p> <p>Methylation at Lys-10 (H3K9me) and Lys-28 (H3K27me) are enriched in inactive X chromosome chromatin. Monomethylation at Lys-57 (H3K56me1) by EHMT2/G9A in G1 phase promotes interaction with PCNA and is required for DNA replication.</p> <p>Phosphorylated at Thr-4 (H3T3ph) by GSG2/haspin during prophase and dephosphorylated during</p> |

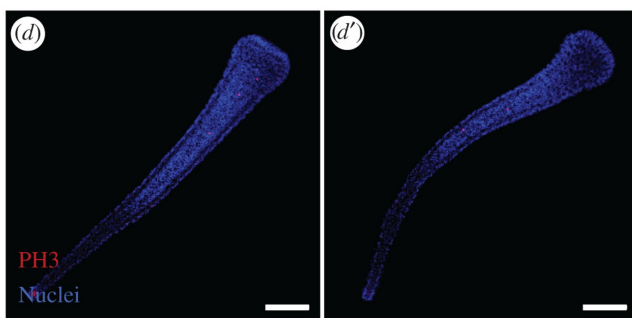
anaphase. Phosphorylation at Ser-11 (H3S10ph) by AURKB is crucial for chromosome condensation and cell-cycle progression during mitosis and meiosis. In addition phosphorylation at Ser-11 (H3S10ph) by RPS6KA4 and RPS6KA5 is important during interphase because it enables the transcription of genes following external stimulation, like mitogens, stress, growth factors or UV irradiation and result in the activation of genes, such as c-fos and c-jun. Phosphorylation at Ser-11 (H3S10ph), which is linked to gene activation, prevents methylation at Lys-10 (H3K9me) but facilitates acetylation of H3 and H4. Phosphorylation at Ser-11 (H3S10ph) by AURKB mediates the dissociation of HP1 proteins (CBX1, CBX3 and CBX5) from heterochromatin. Phosphorylation at Ser-11 (H3S10ph) is also an essential regulatory mechanism for neoplastic cell transformation. Phosphorylated at Ser-29 (H3S28ph) by MAP3K20 isoform 1, RPS6KA5 or AURKB during mitosis or upon ultraviolet B irradiation. Phosphorylation at Thr-7 (H3T6ph) by PRKCB is a specific tag for epigenetic transcriptional activation that prevents demethylation of Lys-5 (H3K4me) by LSD1/KDM1A. At centromeres, specifically phosphorylated at Thr-12 (H3T11ph) from prophase to early anaphase, by DAPK3 and PKN1. Phosphorylation at Thr-12 (H3T11ph) by PKN1 is a specific tag for epigenetic transcriptional activation that promotes demethylation of Lys-10 (H3K9me) by KDM4C/JMJD2C. Phosphorylation at Thr-12 (H3T11ph) by chromatin-associated CHEK1 regulates the transcription of cell cycle regulatory genes by modulating acetylation of Lys-10 (H3K9ac). Phosphorylation at Tyr-42 (H3Y41ph) by JAK2 promotes exclusion of CBX5 (HP1 alpha) from chromatin.

Monoubiquitinated by RAG1 in lymphoid cells, monoubiquitination is required for V(D)J recombination (By similarity). Ubiquitinated by the CUL4-DDB-RBX1 complex in response to ultraviolet irradiation. This may weaken the interaction between histones and DNA and facilitate DNA accessibility to repair proteins.

Lysine deamination at Lys-5 (H3K4all) to form allysine is mediated by LOXL2. Allysine formation by LOXL2 only takes place on H3K4me3 and results in gene repression (PubMed:22483618).

Crotonylation (Kcr) is specifically present in male germ cells and marks testis-specific genes in post-meiotic cells, including X-linked genes that escape sex chromosome inactivation in haploid cells. Crotonylation marks active promoters and enhancers and confers resistance to transcriptional repressors. It is also associated with post-meiotically activated genes on autosomes.

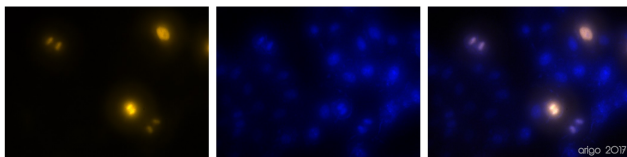
## Images



ARG51679 anti-Histone H3 phospho (Ser10) antibody ICC/IF image

Immunofluorescence: Hydractinia stained with ARG51679 anti-Histone H3 phospho (Ser10) antibody.

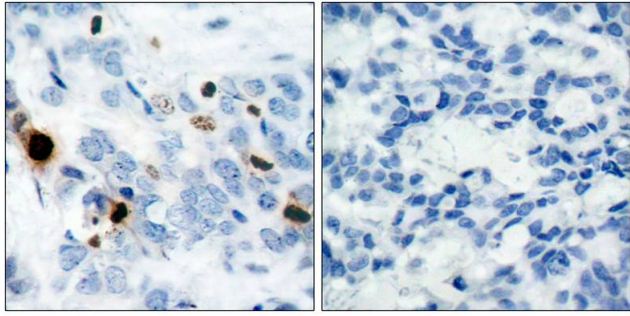
From Gonzalo Quiroga-Artigas et al. Open Biol. (2022), [doi: 10.1098/rsob.220120](https://doi.org/10.1098/rsob.220120), Fig. 3.



ARG51679 anti-Histone H3 phospho (Ser10) antibody ICC/IF image

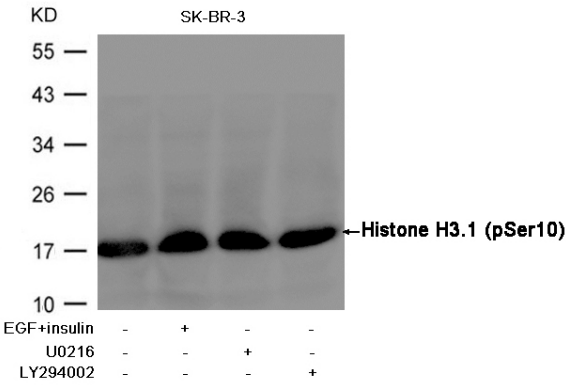
Immunofluorescence: 100% Methanol fixed (RT, 10 min) HeLa cells stained with ARG51679 anti-Histone H3 phospho (Ser10) antibody at 1:100 dilution. Left: primary antibody (orange). Middle: DAPI (blue). Right: Merge.

Secondary antibody: ARG21917 Goat anti-Rabbit IgG antibody (TRITC).



ARG51679 anti-Histone H3 phospho (Ser10) antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human breast carcinoma tissue stained with ARG51679 anti-Histone H3 phospho (Ser10) antibody (left) or the same antibody preincubated with blocking peptide (right).



ARG51679 anti-Histone H3 phospho (Ser10) antibody WB image

Western blot: Extracts from SK-BR-3 cells, treated with insulin and EGF, and pretreated with U0126 and LY294002 cells stained with ARG51679 anti-Histone H3 phospho (Ser10) antibody.