SANTA CRUZ BIOTECHNOLOGY, INC.

# HP1α (GA-62): sc-130446

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*The Power to Question*

## BACKGROUND

Chromatin assembly factor-1 (CAF-1) is a multisubunit protein complex that comprises three polypeptide subunits known as p150, p60, and p48. CAF-1 is a nucleosome assembly factor that deposits newly synthesized and acetylated Histones H3/H4 into nascent chromatin during DNA replication. The p150 subunit of CAF-1 also supports the maintenance of heterochromatin, which requires the synthesis of both new histones and heterochromatin proteins and their orderly assembly during DNA replication. Heterochromatin is characterized as densely coiled chromatin that generally replicates late during S phase, has a low gene density, and contains large blocks of repetitive DNA that is relatively inaccessible to DNA-modifying reagents. In late S phase, p150 directly associates with heterochromatin associated proteins 1 (HP1α, HP1β and HP1γ). As cells prepare for mitosis, CAF-1 p150 and some HP1 progressively dissociate from heterochromatin, coinciding with the phosphorylation of Histone H3. The HP1 proteins reassociate with chromatin at the end of mitosis, as Histone H3 is dephosphorylated.

## REFERENCES


1. Smith, S., et al. 1989. Purification and characterization of CAF-I, a human cell factor required for chromatin assembly during DNA replication *in vitro*. Cell 58: 15-25.
2. Kaufman, P.D., et al. 1995. The p150 and p60 subunits of chromatin assembly factor I: a molecular link between newly synthesized histones and DNA replication. Cell 81: 1105-1114.


## CHROMOSOMAL LOCATION

Genetic locus: CBX5 (human) mapping to 12q13.13; Cbx5 (mouse) mapping to 15 F3.

## SOURCE

HP1α (GA-62) is a mouse monoclonal antibody raised against full length recombinant HP1α of human origin.

## PRODUCT

Each vial contains 100 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

HP1α (GA-62) is recommended for detection of HP1α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HP1α siRNA (h): sc-37737, HP1α siRNA (m): sc-37738, HP1α shRNA Plasmid (h): sc-37737-SH, HP1α shRNA Plasmid (m): sc-37738-SH, HP1α shRNA (h) Lentiviral Particles: sc-37737-V and HP1α shRNA (m) Lentiviral Particles: sc-37738-V.

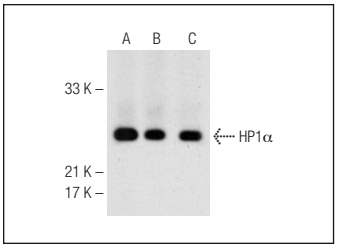
Molecular Weight of HP1α: 22 kDa.

Positive Controls: MCF7 nuclear extract: sc-2149, Jurkat nuclear extract: sc-2132 or K-562 nuclear extract: sc-2130.

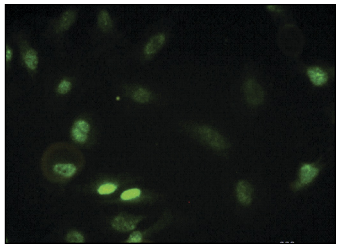
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA




HP1α (GA-62): sc-130446. Western blot analysis of HP1α expression in K-562 (**A**), MCF7 (**B**) and Jurkat (**C**) nuclear extracts.



HP1α (GA-62): sc-130446. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

## SELECT PRODUCT CITATIONS


1. Ye, S., et al. 2019. SET domain-containing protein 4 epigenetically controls breast cancer stem cell quiescence. Cancer Res. 79: 4729-4743.
2. Bosso, G., et al. 2019. NBS1 interacts with HP1 to ensure genome integrity. Cell Death Dis. 10: 951.
3. Albanesi, J., et al. 2020. Transcriptional and metabolic dissection of ATRA-induced granulocytic differentiation in NB4 acute promyelocytic leukemia cells. Cells 9: 2423.
4. Ka, N.L., et al. 2021. IFI16 inhibits DNA repair that potentiates type-I interferon-induced antitumor effects in triple negative breast cancer. Cell Rep. 37: 110138.
5. Zhang, L., et al. 2022. 53BP1 regulates heterochromatin through liquid phase separation. Nat. Commun. 13: 360.


## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.