SANTA CRUZ BIOTECHNOLOGY, INC.

BrdU (3G26): sc-70443

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The halogenated pyrimidine thymidine analog bromodeoxyuridine (BrdU) is incorporated into newly synthesized DNA strands of S-phase cells and is useful for estimating the fraction of cells in S-phase. Additionally, the analysis of the uptake of BrdU is a reliable method to quantitate the degree of DNA-synthesis. BrdU is also useful for studying sister chromatid exchange and to isolate nascent DNA. UV-induced excision-repair synthesis is one method for incorporating BrdU into cellular DNA. Anti-BrdU antibodies bind to the exposed BrdU in single-stranded DNA after a hydrochloric acid denaturation step or nuclease digestion. Protease antigen recovery is necessary for most tissues or cells fixed with crosslinking agents such as formalin but may decrease the specificity of BrdU immunodetection.

REFERENCES

1. Morstyn, G., et al. 1983. Bromodeoxyuridine in tumors and chromosomes detected with a monoclonal antibody. J. Clin. Invest. 72: 1844-1850.
2. Cohn, S.M., et al. 1984. The use of antibodies to 5-bromo-2'-deoxyuridine for the isolation of DNA sequences containing excision-repair sites. J. Biol. Chem. 259: 12456-12462.
3. Magaud, J.P., et al. 1989. Double immunocytochemical labeling of cell and tissue samples with monoclonal antibromodeoxyuridine. J. Histochem. Cytochem. 37: 1517-1527.
4. Williamson, K., et al. 1994. Hydrochloric acid denaturation of colorectal tumour tissue infiltrated with bromodeoxyuridine. Cytometry 15: 162-168.
5. Bak, P.M., et al. 1997. Protease antigen recovery decreases the specificity of bromodeoxyuridine detection in formalin-fixed tissue. J. Histochem. Cytochem. 45: 1165-1170.
6. Buckiova, D., et al. 1998. Hyperthermia in the chick embryo: HSP and possible mechanisms of developmental defects. Int. J. Dev. Biol. 42: 737-740.
7. Stanek, D., et al. 2000. Pre-ribosomal RNA is processed in permeabilised cells at the site of transcription. Eur. J. Cell Biol. 79: 202-207.
8. Diermeier, S., et al. 2004. Exposure to continuous bromodeoxyuridine (BrdU) differentially affects cell cycle progression of human breast and bladder cancer cell lines. Cell Prolif. 37: 195-206.
9. Qu, T.Y., et al. 2004. Bromodeoxyuridine increases multipotency of human bone marrow-derived stem cells. Restor. Neurol. Neurosci. 22: 459-468.

SOURCE

BrdU (3G26) is a mouse monoclonal antibody raised against 5-bromodeoxyuridine (BrdU) conjugated to hemocyanine.

PRODUCT

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

STORAGE

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

APPLICATIONS

BrdU (3G26) is recommended for detection of BrdU, a proliferation marker incorporated into newly synthesized DNA during S-phase of a cell cycle, by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells); recognizes BrdU in denatured DNA of cells labeled with BrdU.

SELECT PRODUCT CITATIONS

1. Roh, M., et al. 2012. Tumorigenic polyploid cells contain elevated Ros and ARE selectively targeted by antioxidant treatment. J. Cell. Physiol. 227: 801-812.
2. Malla, R.R., et al. 2012. uPAR and cathepsin B inhibition enhanced radiation-induced apoptosis in gliomainitiating cells. Neuro-oncology 14: 745-760.
3. Kato, S., et al. 2014. Enhanced radiosensitization by the cationic liposome-encapsulated thymidine analogue BrdU through the increased intracellular BrdU-uptake on human melanoma as compared to anionic or nonionic liposomal or free BrdU. J. Biomed. Nanotechnol. 10: 3280-3290.
4. David, D., et al. 2014. Smurf2 E3 ubiquitin ligase modulates proliferation and invasiveness of breast cancer cells in a CNKSR2 dependent manner. Cell Div. 9: 2.
5. Kirschner, A.N., et al. 2015. PIM kinase inhibitor AZD1208 for treatment of MYC-driven prostate cancer. J. Natl. Cancer Inst. 107: dju407.
6. Lam, F.C., et al. 2020. BRD4 prevents the accumulation of R-loops and protects against transcription-replication collision events and DNA damage. Nat. Commun. 11: 4083.

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.

CONJUGATES

See **BrdU (IIB5): sc-32323** for BrdU antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488, 546, 594, 647, 680 and 790.