

# BrdU (3H579): sc-70441

## 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 cross-linking agents such as formalin but may decrease the specificity of BrdU immunodetection. The monoclonal antibody Bu20a against BrdU stains BrdU incorporated into the nuclei of a wide range of proliferating cell types including human tumors growing in nude mice and tonsil lymphoid.

## 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.

## SOURCE

BrdU (3H579) is a rat monoclonal antibody raised against BrdU.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 5% glycerol.

BrdU (3H579) is available conjugated fluorescein (sc-70441 FITC, 100 tests in 2 ml), for IF, IHC(P) and FCM.

## APPLICATIONS

BrdU (3H579) is recommended for detection of BrdU 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<sup>6</sup> cells); may cross-react with chlorodeoxyuridine with reduced staining; non cross-reactive with thymidine or IdU.

## SELECT PRODUCT CITATIONS

1. de La Rosa-Prieto, C., et al. 2010. Neurogenesis in subclasses of vomeronasal sensory neurons in adult mice. *Dev. Neurobiol.* 70: 961-970.
2. Guo, F., et al. 2011. Macroglial plasticity and the origins of reactive astroglia in experimental autoimmune encephalomyelitis. *J. Neurosci.* 31: 11914-11928.
3. Jopling, C., et al. 2012. Hypoxia induces myocardial regeneration in zebrafish. *Circulation* 126: 3017-3027.
4. Sander, V., et al. 2013. Isolation and *in vitro* culture of primary cardiomyocytes from adult zebrafish hearts. *Nat. Protoc.* 8: 800-809.
5. Williams, D. and Jarrold, C. 2013. Assessing planning and set-shifting abilities in autism: are experimenter-administered and computerised versions of tasks equivalent? *Autism Res.* 6: 461-467.
6. Ridenour, D.A., et al. 2014. The neural crest cell cycle is related to phases of migration in the head. *Development* 141: 1095-1103.
7. de La Rosa-Prieto, C., et al. 2015. Olfactory and cortical projections to bulbar and hippocampal adult-born neurons. *Front. Neuroanat.* 9: 4.
8. Kondratiuk, I., et al. 2015. Epileptogenesis following kainic acid-induced status epilepticus in cyclin D2 knock-out mice with diminished adult neurogenesis. *PLoS ONE* 10: e0128285.

## 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](http://www.scbt.com) for detailed protocols and support products.



See **BrdU (IIB5): sc-32323** for BrdU antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647.