

BrdU (BU1/75 ICR1): sc-56258

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. and Lieberman, M.W. 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.

SOURCE

BrdU (BU1/75 ICR1) is a rat monoclonal antibody raised against BrdU.

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml PBS with < 0.1% sodium azide, 0.1% gelatin and 5% glycerol.

APPLICATIONS

BrdU (BU1/75 ICR1) 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 10⁶ cells); may cross-react with chlorodeoxyuridine with reduced staining; non cross-reactive with thymidine or IdU.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use goat anti-rat IgG-FITC: sc-2011 (dilution range: 1:100-1:400) or goat anti-rat IgG-TR: sc-2782 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 2) Immunohistochemistry: use ABC: sc-2019 rat IgG Staining System.

SELECT PRODUCT CITATIONS

1. Sandoval, R., et al. 2006. A mutant allele of BARR/LIN-9 rescues the cdk4^{-/-} phenotype by releasing the repression on E2F-regulated genes. *Exp. Cell Res.* 312: 2465-2475.
2. Shu, R.Z., et al. 2009. Adiponectin deficiency impairs liver regeneration through attenuating STAT3 phosphorylation in mice. *Lab. Invest.* 89: 1043-1052.
3. Zydek, M., et al. 2011. General blockade of HCMV immediate early mRNA expression in S/G₂ by a nuclear, Daxx- and PML-independent mechanism. *J. Gen. Virol.* 92: 2757-2769.
4. Muranishi, Y., et al. 2011. An essential role for RAX homeoprotein and NOTCH-HES signaling in Otx2 expression in embryonic retinal photoreceptor cell fate determination. *J. Neurosci.* 31: 16792-16807.
5. Gómez-Nicola, D., et al. 2013. Regulation of microglial proliferation during chronic neurodegeneration. *J. Neurosci.* 33: 2481-2493.
6. Gómez-Nicola, D., et al. 2014. Differential role of CCR2 in the dynamics of microglia and perivascular macrophages during prion disease. *Glia* 62: 1041-1052.
7. Gomez-Nicola, D., et al. 2014. Temporal dynamics of hippocampal neurogenesis in chronic neurodegeneration. *Brain* 137: 2312-2328.
8. Li, Y., et al. 2014. Postacute stromal cell-derived factor-1α expression promotes neurovascular recovery in ischemic mice. *Stroke* 45: 1822-1829.
9. Tang, Y., et al. 2014. Neural stem cell protects aged rat brain from ischemia-reperfusion injury through neurogenesis and angiogenesis. *J. Cereb. Blood Flow Metab.* 34: 1138-1147.
10. Gomez-Nicola, D. and Perry, V.H. 2016. Analysis of microglial proliferation in Alzheimer's disease. *Methods Mol. Biol.* 1303: 185-193.

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 or our catalog for detailed protocols and support products.



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