

Resource Summary Report

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[Click histochemistry for whole-mount staining of brain structures](#)

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Protocol Information

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Summary: Labeling of the replicating DNA with synthetic thymidine analogs is commonly used for marking the dividing cells. However, until now this method has only been applied to histological sections. A growing number of current approaches for three-dimensional visualization of large tissue samples requires detection of dividing cells within whole organs. Here we describe a method for labeling dividing cells with 5-ethynyl-2'-deoxyuridine (EdU) and their further detection in whole brain structures (for example, hippocampus) using the Cu (I) -catalyzed [3?+?2] cycloaddition reaction (so-called click-reaction). The presented method can be used for brain neurogenesis studies as well as for whole-mount staining of any preparations in which the terminal ethynyl group has been introduced. • New click histochemistry method based on Cu (I) -catalyzed [3?+?2] cycloaddition reaction allows whole-mount staining of brain structures and other tissues. • Our whole-mount click histochemistry method allows to visualize dividing cells in 3D and can be used in neurogenesis studies, i.e. for birthdating dividing early progenitors and further tracking of proliferation, survival, migration, differentiation, and fate of their progeny. • Our whole-mount click histochemistry staining demonstrates high staining specificity, high signal intensity, and low background levels in young and adult mouse brain tissue.

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