FISH with EdU labelling

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Introduction

DNA Fluorescent In-Situ Hybridization (FISH) is a technique to visualize stretches of chromatin in fixed cells the technique has been originally developed in the early 80s[1] and extensively optimized by Cremer lab.[2–4] This protocol describes the combination of EdU labeling (as a marker for cell cycle) and 3D DNA-FISH in HCT116 cells, but with optimization can be used for all adherent cells.

Material

1. Langer-Safer, P. R., Levine, M. & Ward, D. C. Immunological method for mapping genes on Drosophila polytene chromosomes. *Proceedings of the National Academy of Sciences of the United States of America* **79**, 4381–5 (1982).

2. Solovei, I. *et al.* Spatial preservation of nuclear chromatin architecture during three-dimensional fluorescence in situ hybridization (3D-FISH). *Experimental Cell Research* (2002).doi:10.1006/excr.2002.5513

3. Solovei, I. & Cremer, M. 3D-FISH on Cultured Cells Combined with Immunostaining. 117–126 (2010).doi:10.1007/978-1-60761-789-1_8

4. Markaki, Y., Smeets, D., Cremer, M. & Schermelleh, L. Fluorescence In Situ Hybridization Applications for Super-Resolution 3D Structured Illumination Microscopy. In *Nanoimaging* **950**, 43–64 (Humana Press, Totowa, NJ, 2013).