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5-Ethynyl-uridine (EU)

http://www.lumiprobe.com/p/ethynyl-uridine

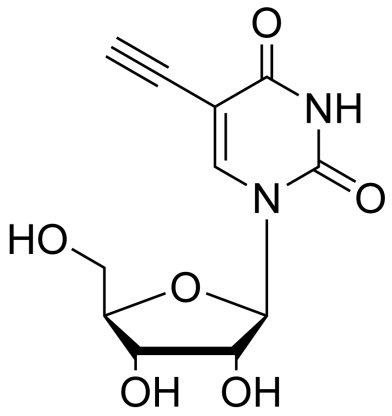
5-Ethynyl-uridine (EU) is a commonly used molecular biology reagent for RNA synthesis studies.

EU is readily taken up by living cells and phosphorylated through the pyrimidine salvage pathway. Generated 5-ethynyluridine-5'-triphosphate is incorporated by RNA polymerases I, II, and III into *de novo* RNA instead of uridine, but not into DNA.

EU-labeled nascent cellular RNA can be detected quickly and with high sensitivity via click chemistry following fluorescent visualization. Alkyne group attached at the 5-position of uridine in modified RNA reacts with dye or biotin azides via Cu(I)-catalyzed azide-alkyne cycloaddition (CuAAC).

Labeled RNA can be detected with different methods, e.g. fluorescent microscopy or flow cytometry, which allows estimating transcriptional levels in the cells.

5-Ethynyl-uridine has an advantage over its analog, 5-bromo-uridine, because azide-containing dyes are very small in size and exhibit better membrane permeability compared to antibodies used for the detection of 5-bromo-uridine. Thus, the click chemistry approach allows whole-mount staining of large samples like organs or tissue fragments.



Structure of 5-Ethynyluridine

General properties

Appearance:	off white solid
Molecular weight:	268.22
CAS number:	69075-42-9
Molecular formula:	$C_{11}H_{12}N_2O_6$
IUPAC name:	1-((2R,3R,4S,5R)-3,4-dihydroxy-5-(hydroxymethyl)tetrahydrofuran-2-yl)-5-ethynylpyrimidine-2,4(1H,3H)-dione
Solubility:	good in water, DMSO, DMF
Quality control:	NMR ^1H, HPLC-MS (95%)
Storage conditions:	Storage: 24 months after receival at -20°C in the dark. Transportation: at room temperature for up to 3 weeks.