

5-Ethynyl-uridine (EU)

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

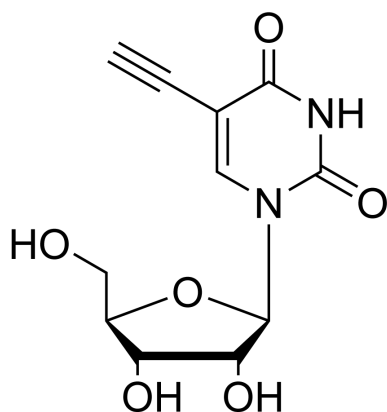
5-Ethynyl-uridine (EU) is a commonly used molecular biology reagent for RNA synthesis studies.

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 receipt at $-20^{\circ}C$ in the dark. Transportation: at room temperature for up to 3 weeks.