Thymidine

Cell Culture Tested

Product Code: TC174

Product Description :

Molecular weight: 242.23
Molecular formula: $C_{10}H_{14}N_2O_5$
CAS No.: 50-89-5
Synonyms: 1-(2-Deoxy-β-D-ribofuranosyl)-5-methyl uracil, 2'-Deoxy-3,4-dihydrothymidine, Deoxythymidine

Thymidine is a DNA nucleoside (T) that pairs with adenosine (A) in double stranded DNA. It consists of the pyrimidine base thymine joined to the pentose sugar deoxyribose. This nucleoside is not present in RNA (except in the T-loop of tRNA).

It is used as a component of wide range of classical and serum free media. Thymidine is an important component of hypoxanthine-aminopterin-thymidine (HAT) medium used for selection of monoclonal antibody-producing hybridoma cells. A combination of hypoxanthine and thymidine promotes cell growth and volumetric production of monoclonal antibodies. On entering the cells, it gets converted to deoxythymidine triphosphate (dTTP) which reduces the amount of deoxycytidine triphosphate (dCTP) thereby blocking DNA synthesis. This property of thymidine is used during cell synchronization studies in exponentially growing cells by blocking G1/S phase of cell cycle.

Cell proliferation studies involve radioactive ^{3}H- or ^{14}C-thymidine labeling of replication strands of DNA produced during mitotic cell division. This helps to qualitatively detect DNA synthesis in cells as well as determine the toxic effect of test substance on DNA synthesis. A non-radioactive approach of DNA synthesis detection involves labeling with bromodeoxyuridine (BrdU), a thymidine analogue. The growth of cells incapable of utilizing folic acid gets affected due to improper biosynthesis of purines, thymidine, and glycine.

Directions :

Preparation instructions:
For cell culture applications, Thymidine solutions can be prepared as per required concentrations in water. In the HAT and HT systems, thymidine is typically used by dissolving in phosphate buffered saline.
Solutions can be sterilized by filtering through a sterile membrane filter with a porosity of 0.22 microns or less.

Quality Control:

Appearance
White powder

Solubility
Clear colorless solution at 5gm in 100ml of water

Assay
NLT 99%

Cell Culture Test
Passes

Storage and Shelf Life:

Store powder at room temperature in air tight containers and away from bright light.
Use before expiry date given on product label.

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