5-Hydroxymethyl deoxyuridine (5-hm-dU) is a minor DNA base; its presence in DNA strands occurs by either oxidative attack via peroxide radicals, or ionizing radiation, on the 5-methyl group of thymine (1,2). Available evidence does not support 5-hm-dU being mutagenic; however, base excision repair enzymes specific to it (i.e., hydroxymethyluracil-DNA glycosylases) are known to exist in protists and animals (3), suggesting that this lesion nevertheless may have mutagenic potential. Incorporation of 5-hm-dU into synthetic oligos for use in studies into the molecular genetics and enzymology of DNA base excision repair pathways. However, because 5-hm-dU also appears as a deamination intermediate during the oxidative de-methylation of 5-methyl-dC to dC, 5-hm-dU can be used in studies into the role of 5-methyl-dC de-methylation in epigenetic regulation.

References