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8-Hydroxy-2'-deoxyguanosine

National Cancer Institute

Source

National Cancer Institute. *8-Hydroxy-2'-deoxyguanosine*. NCI Thesaurus. Code C1297.

A major spontaneous oxidized derivative of 2'-deoxyguanosine and a biomarker of oxidative DNA damage. 8-hydroxy-2'-deoxyguanosine (8-oxo-dG) is formed through the reaction of guanine with reactive oxygen species. Although normally repaired and removed by the base excision repair mechanism, 8-oxo-dG can potentially mispair with deoxyadenine leading to G-to-T transversion mutations, which cause frequent recombinations and single nucleotide polymorphisms (SNPs) in the human genome. The concentration of 8-oxo-dG within a cell is a measurement of oxidative stress and may thus be used to assess the extent of physiological and environmental damage to DNA.