8-Oxo deoxyguanosine (8-Oxo-dG) is classified as an oxidized nucleotide, and is primarily used in studies of oxidative DNA damage and associated repair mechanisms. In the cell, 8-Oxo-dG DNA lesions are formed by reaction with reactive oxygen species (ROS) generated either via normal oxidative metabolic processes, UV ionizing radiation, or 2-nitropropane (an industrial solvent and component of tobacco smoke) (1). 8-Oxo-dG can potentially mispair with A (leading to G-to-T transversions) (2). As a single-base lesion, 8-Oxo-dG is removed by the base excision repair (BER) mechanism and the native guanine base restored (3). In the cell, 8-Oxo-dG does not appear to be strongly mutagenic (4).

References