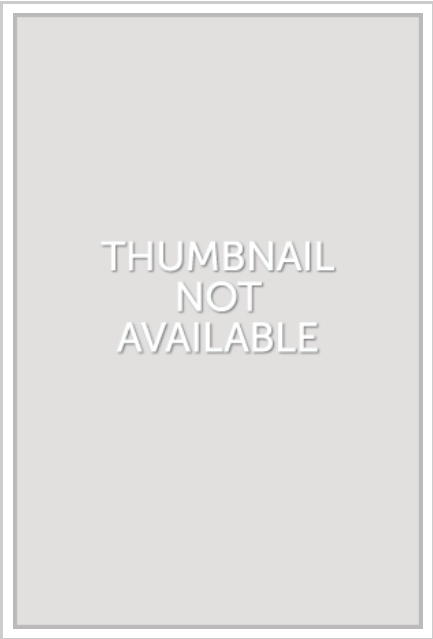

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I-Modified Nucleosides as DNA-Sugar Centered Radical Precursors II-DNA Excess Electron Transfer Studies III-A new Direct DNA Detection Method: DNA-Photography

By Antonio Manetto

Cuvillier Verlag Apr 2008, 2008. Taschenbuch. Book Condition: Neu. 211x149x17 mm. Neuware - During cellular metabolism of oxygen to water in the mithocondria, a small fraction of the oxygen is reductively converted into superoxide (O2¿-) as a by product. Through complex biochemical processes, superoxide may be converted into various reactive oxygen species (ROS), e.g. hydroxyl radicals (¿OH), H2O2, 1O2, etc. These ROS and in particular the highly diffusible ¿OH are known to cause chemical modifications on DNA through the formation of strand breaks and nucleobase modifications. DNA damage and strand breaks may also be induced through other environmental influences such as ionizing radiation, photooxidation and naturally occurring or synthetic chemical mutagens. Oxidative DNA damage can be produced by the oxidation of the nucleobases or of the sugar units. In the last case carbon centered radicals are formed by direct or indirect hydrogen abstraction. In the first part of this thesis (Chapter 1), the fate of the carbon centered radicals C5' and pseudo C4' of the sugar was investigated at the nucleoside level. The syntheses of new thermal or photolabile C5' and pseudo C4' radical precursors were achieved to this end and the mechanistic aspects were studied under various conditions. Kinetic...

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