

**Formation of 8-oxo-7,8-dihydroguanine-radicals in γ -
irradiated DNA by multiple one-electron oxidations**

By

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Supplementary Material:

Figure S1

Figure S2

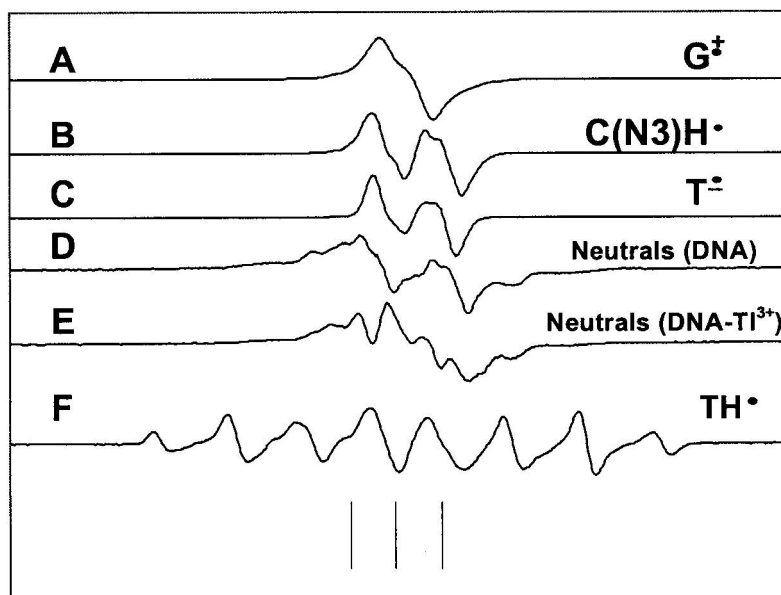


Figure S1. (A) The spectra of $G^{\bullet+}$ was obtained by oxidation of dGMP by radiation produced $Cl_2^{\bullet-}$ in 8 M LiCl in D_2O containing $\{Fe(CN)_6\}^{3-}$ (39). (B) The spectra of the one electron adduct of cytosine $C(N3H)^{\bullet}$ was obtained using an irradiated solution of 11 mg polydG · polydC in N_2 -saturated D_2O solution by subtraction of $G^{\bullet+}$ (39,40). (C) The spectra of $T^{\bullet-}$ was obtained by electron attachment to dTMP in N_2 -saturated D_2O solution of 8 M LiCl at 100K along with baseline zeroing (39). (D) The spectra of DNA neutral radicals were obtained in γ -irradiated (dose = 12kGy) hydrated-DNA ($\Gamma = 12 \pm 2$ in D_2O /nucleotide) in the presence of electron and hole scavengers $\{K_4Fe(CN)_6\}$ and $\{K_3Fe(CN)_6\}$ at 77K in which residual $G^{\bullet+}$ (15%) and $C(N3H)^{\bullet}$ (21%) have been subtracted (Shukla, L. I., Pazdro, R., Becker, D. and Sevilla, M.D. (manuscript in preparation)). (E) The spectrum of neutral radicals were obtained in irradiated DNA- Tl^{3+} samples (dose = 5.94 kGy) after subtraction of 54% $G^{\bullet+}$, and small amounts of $T^{\bullet-}$ (5%) and $C(N3H)^{\bullet}$ (7%) (F) TH^{\bullet} from irradiated-TMP in 10% H_2O / 90% D_2O (40-42). The three reference markers in this and in subsequent figures are Fremy's salt resonances (The central marker is at $g = 2.0056$ and each of three markers is separated from one another by 13.09 G).

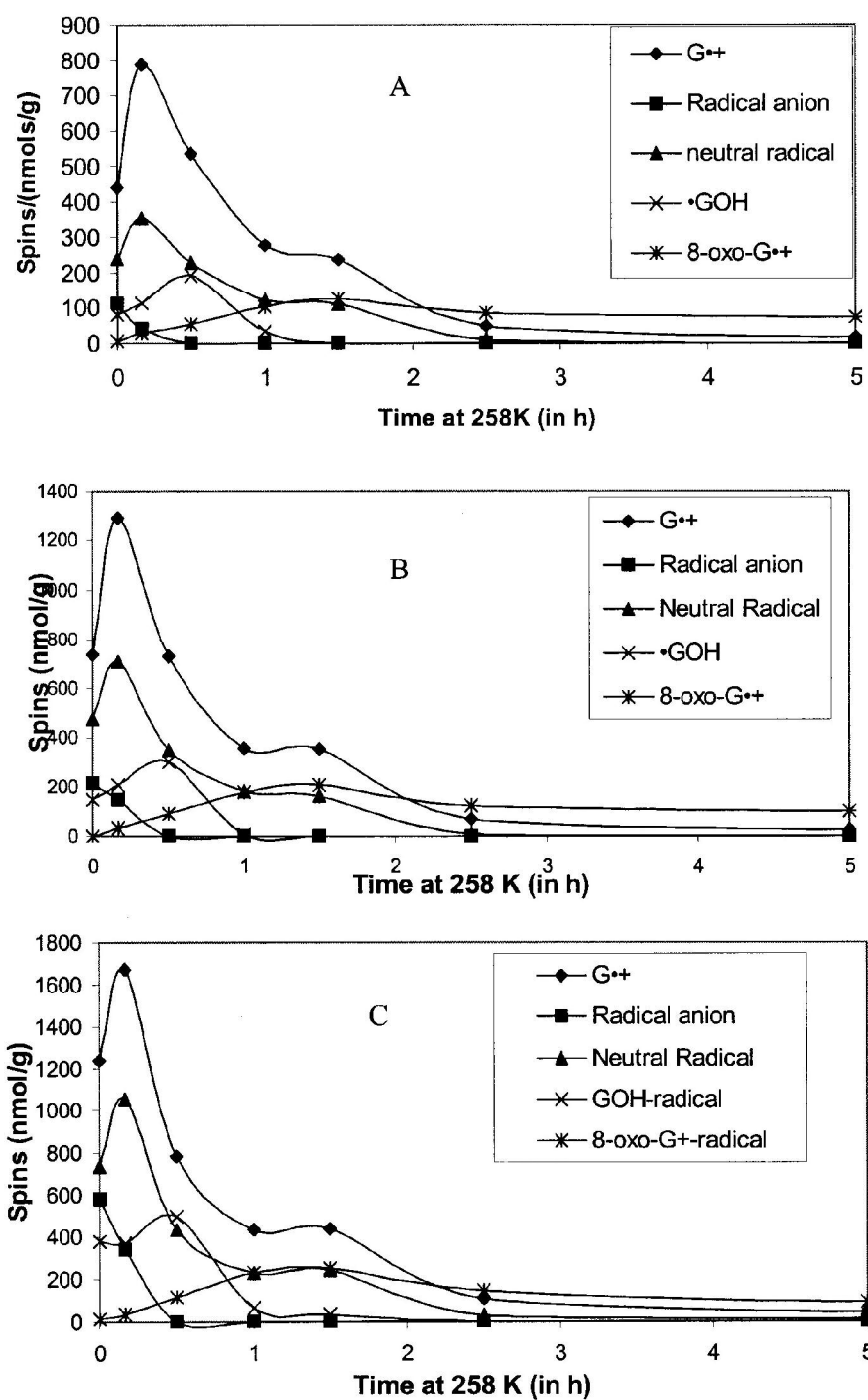


Figure S2. Variation of spins upon annealing for different time periods at 258K of DNA- Tl^{3+} samples (Tl^{3+} , 1/20 bp) in D_2O at various irradiation doses (A) 4.75 kGy, (B) 9.5 kGy and (C) 19 kGy.