

Bleomycin – Induced DNA Damage and DNA Repair in Chicken Embryo Cells as Compared to X-Irradiation

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Following *in vitro*- and *in ovo*-exposure of chicken embryo cells, the level of bleomycin (BM) – induced damage was evaluated by using DNA synthesis, nucleoid sedimentation (SED), and viscometry of alkaline cell lysates (VISC). This damage was compared to X-irradiation, using 5.9–378 nM BM *in vitro*, 1.5–116 µg BM/egg *in ovo*, and 2–32 Gy, respectively, *in vitro* as well as *in ovo*. With respect to BM, the most notable result is the increase in DNA synthesis and VISC at the lowest concentrations of the drug. A decrease in both parameters was observed at high BM concentrations and following exposure to X-rays, concomitantly with an increase in SED. Regarding the radiomimetic drug BM and X-rays, different modes of DNA damage and DNA repair are suggested by previous investigations and the present results. Therefore, further evidence is presented, that the chicken embryo can act as a simple, rapid and inexpensive test system to characterize the biological effects of many nucleo- and/or cytotoxic agents.