

**COMPARATIVE EFFECTS OF CYTOTOXIC AGENTS ON LYMPHOMYELOID TISSUES IN MICE.** J. G. SHARP and D. K. NELSON, University of Nebraska Medical Center, Omaha.

The effects of x-irradiation, nitrogen mustard, vincristine and busulphan on the lymphomyeloid tissues have been compared in 2 strains of mice. The initial damaging effects of these agents on whole tissues are remarkably similar, even though their known modes of action and effects on stem cells are very different. Altered nutrition and the removal of damaged cells by the immune system appear to be implicated. The patterns and duration of the recovery phases show considerable differences between various lymphomyeloid tissues and strains of mice. These differences not only result from the differing effects of the various drugs on the precursor cell populations with differing kinetic properties, but also from the influence of systemic and local humoral (micro-environmental) factors which regulate the patterns of stem cell differentiation during the recovery phase. The differences between 2 strains of mice appear to result from the differing size of their stem cell compartments.

**INTERACTION OF TETRACYCLINE AND LUCANTHONE ON RADIATION DAMAGE IN MAMMALIAN EMBRYOS AS DEPENDENT ON LET (EXPERIMENTS WITH PIONS).** H. FRITZ-NIGGLI and CH. MICHEL, Strahlenbiologisches Institut der Universität Zürich.

The very high sensitizing effects of iodoacetamide, tetracyclines and lucanthone for embryonic systems of rat and mouse are presented. In comparison, we studied the effect of tetracyclines and lucanthone on malignant tumours and tissue cultures (Fritz-Niggli, Michel and Rao, *Agents and Actions*, 1974, 4, 54). Interesting differences in response are shown. The sensitizing effects of the drugs mentioned are studied in relation to LET. Data with the pions of 590 MeV proton accelerator of SIN are represented as well as experiments with 31 MeV photons and 15 MeV electrons. Although the relative biological effectiveness of pions on embryonic damage seems to be extremely high, a radiosensitizing effect of lucanthone can still

be demonstrated. The results agree with our working hypothesis of the important action of sensitizers on energy metabolism (membranic systems), (Fritz-Niggli and Michel, *Atomkernenergie*, 1971, 18, 105).

**INVESTIGATIONS ON SERUM PROTEIN CHANGES IN MICE AFTER WHOLE - BODY X - IRRADIATION COMBINED WITH OPEN SKIN WOUNDS.** R. HENNEBERG and O. MESSERSCHMIDT, 8-München 22, Schackstr. 5.

Changes in the serum protein composition of mice after irradiation with 600 R only or after additional infliction of a skin wound 2 days after irradiation (600 R) were investigated using Sephadex G-200. In animals burdened with radiation as well as mechanical skin injury, the acute phase of serum protein alterations appeared much earlier and was more distinct. In spite of a striking decrease of albumin (60%) a slight increase of the relative area of the third peak compared with the total peak was found. Analysis of single eluates of the third peak by disc electrophoresis in polyacrylamide gel revealed that the decrease of albumin results in an increase of a protein of similar molecular weight, situated between the albumin and  $\alpha_2$ -macroglobulin ranges. B. J. Davis assigns this to transferrin. The increase of this protein seems to be correlated with the decrease of albumin. The extent of the change seems to depend on the radiation dose, the second trauma (skin wound) and on the time interval between the 2 traumata.

**IDENTIFICATION OF HYPOXIC MOUSE BONE MARROW CFU IN VIVO.** H. J. KEIZER and L. M. VAN PUTTEN, Radiobiological Institute TNO, Rijswijk.

Immobilization of mice during whole body irradiation, both by anaesthesia and restraint without anaesthesia, decreases the radiosensitivity of mouse bone marrow CFU (Keizer *et al.*, *Int. J. radiat. Biol.*, 1971, 20, 192).

Compound Ro-07-0582 (1 g/kg i.p. 1 h before irradiation), a 2-nitroimidazole, radiosensitizes hypoxic bone marrow CFU *in vivo* (animals killed 10 min before irradiation), as shown by a decrease of the  $D_0$  from 281 to 161 rad  $\gamma$ -rays. The radiosensitivity of well oxygenated bone marrow CFU *in vivo* was