MICROBIOLOGY AND MOLECULAR BIOLOGY

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ABSTRACTS

Therapy of Leukemic AKR Mice by Allogeneic Bone Marrow Transplantation. Robert L. Truitt and Morris Pollard, Lobund Laboratory, University of Notre Dame, Notre Dame, Indiana 46556.——AKR mice develop spontaneous lymphatic leukemia at average age of 8 months (range 3-13 months) and rarely survive for 10 days after the appearance of symptoms. We have reported previously that mice with allogeneic bone marrow chimerism survived as long as they remained germfree (Rad. Res. 45:577, 1971); and that germfree AKR mice with DBA/2 bone marrow cells did not develop spontaneous leukemia if transplanted when 11 weeks old (Proc.Soc.Exp.Biol.Med. 144:659, 1973). In this report, allogeneic bone marrow transplantation was applied to AKR mice with advanced stages of leukemia in an effort to "cure" the disease. Leukemic mice were obtained from our germfree and conventional colonies, or they were conventional mice which had been decontaminated through an antibiotic regimen. Immediately after diagnosis of leukemia, the AKR mice (H^{-2k}) were administered 850 or 1000R X-rays (whole-body) and 24 hours later injected with at least 10^7 viable bone marrow cells from DBA/2 mice (H^{-2d}). The results show that while untreated leukemic AKR mice died within 2 weeks after diagnosis, germfree and decontaminated, chimeric AKR mice survived longer than 90 days. These mice remain under observation. Conventional counterpart chimeras died of secondary disease within 60 days. Thus, allogeneic bone marrow cells have therapeutic value for the treatment of spontaneous leukemia in germfree or in decontaminated AKR mice.

Prostate Carcinomas in Germfree Rats. Morris Pollard, Lobund Laboratory, University of Notre Dame, Notre Dame, Indiana 46556.——Germfree (GF) Wistar rats live significantly longer than conventional counterparts; and show few of the life-limiting diseases of conventional animals. Early deaths in the latter group have been attributed to pneumonitis, enteritis, and a high incidence of neoplasms, some of which were malignant. Up to age 24 months, GF rats had few benign tumors and no malignant tumors. Older germfree rats developed increasing numbers of benign neoplasms (adenomas) of endocrine and of endocrine-related organs. In GF rats beyond age 36 months, some of their adenomas assumed characteristics of malignancy: increased numbers of mitotic figures, and extensions of tumor cells beyond the normal limits of the organ. Malignant adenocarcinomas

of the prostate gland were found in four-aged GF Wistar rats. In three of them, the tumors had metastasized to other visceral organs; they showed leukemoid reactions, and elevated serum acid phosphatase levels. There is, as yet, no experimental model system for studies on prostatic carcinoma as it occurs in man, which the GF Wistar rat may provide. The GF status assures attainment of this age-related disease. It is conceivable that the development of endocrine tumors reflect an age-related dyshomeostasis. Since viruses have not yet been detected in GF rats, it is likely that the malignant prostate tumors described herein were not associated with viruses.