894 CELL SUBPOPULATIONS IN HISTIOCYTOSIS X. Euan M. McMillan, G. Bennett Humphrey, Lloyd Stoneking, Louis Strauss, Curt Civins, Toru Abo, Charles Balch and David Mason. Depts. of Dermatology, Pediatrics and Pathology, University of Oklahoma, Oklahoma City, Dept. of Pediatrics, Johns Hopkins University, Baltimore, Depts. of Microbiology and Surgery, University of Alabama, Birmingham, John Radcliffe Infirmary, Oxford.

Histiocytosis X (HX) is currently believed to be a Langerhans' cell neoplasm. Cell subpopulations in 5 biopsies from 3 cases of HX were scrutinized using an indirect immunoperoxidase technique and 21 McAbs. The following McAbs were used: Leu 1(pan T), Leu 3A (Helper T, macrophages), Leu 2A (suppressor T), OKT 3 (pan T), OKT 6 (cortical thymocyte, Langerhans'), HLADR (macrophages, activated T,B), R423 (dendritic reticulum cell), My 3 (monocyte), Leu M1 (myelomonocytic), Leu M3 (monocyte), OKT 9 (transferrin receptor), OKT 10 (prothymocyte, bone marrow progenitor), B1 (B cells), B2 (B subset), T 11 (E receptor), HNK 1 (K/NK), My 10-13 (immature myeloid), J5 (C.A.L.A.). The tumor phenotype was OKT 6^+ $HLADR^+$ Leu $3A^+$. However, cells reacting with Leu 1, Leu 2A, OKT 3, My3, Leu M1, Leu M3, 10, 11, 13 were also present. This study indicates considerable heterogeneity of cells in HX and suggests that numerous cell-cell interactions may be occurring. The OKT 6 marker may be a useful adjunct in the diagnosis of Histiocytosis X.

897 PLATELET ASSOCIATED IMMUNE GLOBULINS IN PATIENTS TAKING CARBAMAZEPINE. S.Miller, V.N.Gowda, P.McFall & A.K. Brown. Depts. of Pediatrics, Downstate Med.Ctr. Brooklyn, NY and Stanford University, CA.

Carbamazepine (Tegretol), a widely used anticonvulsant, is known to be associated with various hematologic toxicities including thrombocytopenia. Platelet associated immune globulin (PAIg) was measured in two children who were taking carbamazepine. PAIgG and PAIgM were significantly elevated in a patient with pancytopenia which developed 2 months after intitiation of the drug. Platelet counts and PAIg levels returned toward normal within 3 weeks of drug stoppage. PAIg was also found to be elevated in a second patient who had been on carbamazepine for 4 months and in whom there was no hematologic abnormality. There was no evidence of underlying autoimmune disorder in either patient.

Patients	Day	Platelet Counts	PAIgG*	PAIgM*
1	0	70,000	39.1	5.3
	8	37,000	22.8	8.9
	15	150,000	9.1	0.5
2	0	200,000	121.0	10.7

*normal PAIgG<5.3 fg/pl, PAIgM<0.8fg/pl.

Elevated PAIg in patients on carbamazepine has not been reported. It appears that thrombocytopenia seen with carbamazepine adminstration may in some instances be due to production of specific antibody. Alternatively, the drug may induce a change in platelet membrane which allows adsorption of Ig. Investigation of this phenomenon could lead to a better understanding of the significance of PAIg in thrombocytopenia.

895 SYNOVIAL SARCOMA IN CHILDREN AND YOUNG ADULTS. N.B. McWilliams, N.L. Dunn, H.M. Maurer, E.C. Russell Medical College of Virginia, Department of Pediatrics Children's Medical Center, Richmond, Virginia.

Synovial sarcoma (SS) is a rare malignancy in adults and children. Between 1976 and 1981 5 patients with SS were seen on our pediatric oncology service. All were male, 2 were black and ages ranged from 5½ to 22 yrs., median 14. Sites of origin were the mid-back, ankle, popliteal fossa, thigh and upper arm. Histologically 3 were bimorphic and 2 monomorphic. No patient had evidence of metastasis (METS) at diagnosis. Initial surgery included incomplete resection (IR) in 2 and complete resection (CR) in 3. In the 2 patients with IR, 1 had 2nd surgery with CR and 1 refused amputation. All patients received adjuvant "sarcoma type" VACA chemotherapy (CT) and the 2 with initial IR had local radiation. Outcome is shown below:

PT	INITIAL RX	TIME TO LR/TIME TO METS (months)	STATUS
1	CR, CT	-/-	NED 7.5
2	IR,CT,XRT	19/28	Dead
3	CR, CT	-/2	Dead
4	IR,CT,XRT	11/11	Dead
5	CR, CT	-/-	NED 2 years

We conclude that SS in the young is not well controlled with local XRT and standard VACA therapy. Complete tumor excision should be the primary goal and other chemotherapy regimens investigated.

898 CANCER IN LONG-TIME SURVIVORS OF CHILDHOOD CANCER AND THEIR OFFSPRING. J.J. Mulvihill, M.H. Myers, S.C. Steinhorn, R.R. Connelly, M.R. Hanson, D.D. Hassinger, M.D. Naughton, D.F. Austin, V.A. Gurgin, F.F. Holmes, G.F. Holmes, H.B. Latourette, P.J. Weyer, J.W. Meigs, M.J. Teta, L.C. Strong, and J.A. Cook (Clinical Epidemiology and Biometry Branches, National Cancer Institute, Bethesda, MD 20205, and Collaborating Centers.)

A multi-institutional study of survivors of childhood cancer (and sibling controls) focused on the occurrence of new primary cancers, late morbidity and infertility, and, in offspring, the frequency of cancer and birth defects. Cases from five US cancer registries had histopathologically confirmed malignant neoplasm or brain tumor diagnosed under age 20 years, between 1945 and 1974, survived at least five years, and reached the age of 21 years. The distribution of tumor types were lymphoma, 28%; brain 19%; bone and soft tissue sarcoma, 15%; thyroid, 10%; gonad, 7%; retinoblastoma, 6%; and others, 10%. Of 2644 eligible subjects, 2305 cases or proxies (87%) were successfully interviewed, and their medical records abstracted. The 2305 cases had 89 (4%) subsequent cancers, and their 3299 sibling controls had 54 (2%). Eight (0.3%) of 2328 offspring of cases had cancer and 10 (0.2%) of 4789 offspring of controls. Familial aggregation occurred as expected for certain tumor types and was largely attributable to single gene traits that predisposed to cancer, such as retinoblastoma and neurofibromatosis.

896 INCREASED CHROMOSOME FRAGILITY OF DONOR CELLS IN FANCONI'S ANEMIA AFTER BONE MARROW TRANSPLANTATION. Thomas D. Miale, Iftikharuddin Ahmed, Robert C. Gould, Sudha Rao, and Ira M. Rosenthal. Department of Pediatrics, University of Illinois, College of Medicine, Chicago, Il, USA.

Bone marrow transplantation appears to be an effective method of treatment of cases of Fanconi's anemia (FA) in the aplastic phase. A 20 year old Hispanic female with FA was successfully treated by bone marrow transplantation from her sister as donor. There was a polymorphism involving chromosome 20 between the donor and the recipient. Following the successful engraftment, karyotypes prepared from the blood of the recipient (presumably donor cells) had the karyotype of the donor. The chromosome breakage rate of the recipient before radiation and marrow transplant was 10.9 breaks per 100 mitotic cells using mitomycin C technique. The breakage rate of the donor before transplant was 2.0. Following the transplantation procedure, lymphocytes from the recipient (presumably donor cells) had a breakage rate of 9.8. These clinical and experimental findings suggest that a plasma or other marrow microenvironmental factor in FA may be responsible for the increased chromosomal fragility previously observed in this disease.

● **899** LONG TERM BONE MARROW CULTURE IN CHEDIAK-HIGASHI SYNDROME (CHS). Peter E. Newburger, Cheryl Speier, and Joel S. Greenberger (Spon. by James B. Hanshaw). Univ. Mass. Medical School, Dept. Pediatrics, Worcester, and Harvard Medical School, Joint Center for Radiation Therapy, Boston.

The granulocyte defects of CHS include neutropenia, giant lysosomal granule morphology, and abnormal cell motility. Findings of elevated levels of adenosine 3', 5' cyclic monophosphate nucleotide (cAMP) and of concanavalin A (Con A) capping have suggested a pathogenic role for these changes. In order to test which defects derive from the cells' genetic program and which from the host environment, we examined granulocytes produced by CHS long term bone marrow cultures. These cells exhibited the giant granule morphology and defective cell motility of CHS. However, they had normal cAMP contents and normal spontaneous capping of Con A despite elevated values in the patient's peripheral blood granulocytes. Granulopoiesis diminished dramatically after five weeks in culture, with accompanying autophagocytosis by mononuclear phagocytes, possibly corresponding to the in vivo neutropenia with intramedullary autophagia of CHS. In mixing experiments of CHS hematopoietic cell engrafted on normal stroma and vice versa, the phenotype of the resultant granulocytes corresponded to the genotype of the hematopoietic component of the culture rather than the stroma. These results indicate that the giant granule morphology and cell motility defect of CHS are expressions of the genetic program of the hematopoietic cells, but abnormalities in cAMP and microtubule regulation may be secondary manifestations of the disease.