830 TREATMENT OF RECURRENT LARYNGEAL PAPILLOMATOSIS WITH AN INTERFERON INDUCER. Brigid Leventhal*, John Whisnant+, Haskins Kashima*, Arthur Levine# & Hilton Levy**, Johns Hopkins University*, University of North Carolina+, National Cancer Institute# & National Institute of Allergy & Infectious Diseases**, National Institutes of Health.

Papillomatosis is a potentially life-threatening proliferative lesion of the larynx; a viral etiology is postulated. Repeated recurrence can occur requiring frequent surgery for maintenance of a patent airway. The synthetic interferon inducer polyinosinic-polycytidilic acid stabilized with poly-L-lysine (Poly ICLC) was used i.v. in 6 patients. Doses ranged from 2.5 mg/m^2 to 12 mg/m^2 t.i.w. for a three month course. In all patients a marked decrease in the requirement for surgery was seen. No regression of pulmonary lesions was seen in 3/3 patients with such lesions.

	Age (Years)		Frequency of Surgery	
Patient	at Dx	at Rx	During 9 Months Before Rx	During 3 Months of Rx
1	1.5	4	18	0
2	1.5	3	23	4
3	2	3	8	0
4	2	6	5	1
5	54	61	4	0
6	41	47	3	0

Toxicity consisted of fever, nausea and headache; mild neutropenia lasting 1-3 days and transient transaminase elevations. Variable serum interferon titers ranging from 100-3000 units were seen 8 hours after each dose (peak titer). The dramatic decrease in the requirement for surgery in these patients suggests that additional studies of antiviral agents in papillomatous diseases are indicated. Supported in part by General Clinical Research Center-Pediatrics grant RR-0052 and General Research grant RR-0046.

831 WISKOTT-ALDRICH SYNDROME: IMMUNE STATUS AFTER BONE MARROW TRANSPLANTATION. Lawrence G. Lum, Hans D. Ochs, F. Leonard Johnson, Rainer F. Storb. University of Washington, Departments of Pediatrics and Medicine, Seattle.

An 18 month old boy with Wiskott-Aldrich Syndrome (WAS) received a marrow transplant from an HLA-matched sister after being conditioned with cyclophosphamide and dimethyl-myleran; post transplant methotrexate was given for 6 weeks. Complete hematologic reconstitution with donor cells occurred. In vitro immunoglobulin (Ig) synthesis was determined with a direct and an indirect hemolytic plaque assay using pokeweed mitogen activation and co-culture techniques. Before transplantation, Ig secretion of B cells was impaired; T-cells provided adequate help and suppressor T-cells were not detected. Following transplantation, a transient impairment of IgG secretion by patient's B-cells in the presence of autologous or normal allogeneic T-cells was observed. During three months of post-transplant study, T-helper activity was persistently defective and Ig secretion by normal B and T cells was suppressed (> 95%) by the patient's T cells. Recovery from the transplant procedure was rapid and 3 months after the transplant the patient was infection-free and without signs of graft versus host disease; serum immunoglobulin concentrations were normal and isohemagglutinins became demonstrable; he responded to bacteriophage ØX 174 with adequate antibody titers and in vitro lymphocyte transformation to mitogens was 16-51% of normal. Presently, eight months after the transplant, he is asymptomatic and thriving. These observations indicate that hematologic and immunologic reconstitution can be achieved in WAS without total body irradiation prior to marrow infusion, and that the appearance of donor derived suppressor T cells may play a role in the homeostasis between the host and graft.

832 ABNORMAL CT BRAIN SCANS IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL). Donald H. Mahoney, Jr., Daniel G. Glaze, L. Paul Gerson, Kenneth A. Starling, and James D. Easley. Baylor College of Medicine, Departments of Pediatrics, Radiology, and Radiotherapy, Houston.

The results of CT brain scans in 2 groups of children with ALL are reviewed. In Group I, 25 asymptomatic children 3-5 yrs from initial diagnosis were studied upon discontinuation of therapy. Mild ventricular dilation (5/25) and cerebral calcifications (1/25) were noted. Of the 6 patients with abnormal CT scans, radiotherapy + intrathecal methotrexate were used in 4/6 patients and intrathecal therapy alone in 2/6 patients. Subsequent neurological complications were uncommon (1/25). In Group II, 14 children who developed neurologic syndromes were studied while still receiving therapy. Leukoencephalopathic syndromes were diagnosed in 10/14 children; central nervous system (CNS) leukemia occurred in 6/10 children. CT scan abnormalities occurred in 9/10 patients. CT scans indicated ventricular dilation alone in 1 patient, and both ventricular and subarachnoid space dilation in 8 patients; in addition, 2 patients had areas of intracerebral calcification in areas of decreased attenuation coefficient. CNS infections were subsequently identified in 2/10 patients (toxoplasmosis and St. Louis encephalitis). Significant CT scan abnormalities are more likely to be seen in patients with antecedent clinical problems or in patients receiving more intensive CNS therapy.

833 MONOCYTE FUNCTIONS IN CHILDREN WITH SICKLE CELL AND RELATED HEMOGLOBINOPATHIES. Donald H. Mahoney, Jr. and Kenneth A. Starling. Baylor College of Medicine, Department of Pediatrics, Houston.

Monocyte functions were studied in 18 children with hemoglobinopathies. Mononuclear fractions were isolated from peripheral blood according to standard Ficoll-Hypaque methods and adjusted to 10^6 monocytes/ml in media plus fetal calf serum. Compared to normal controls, there was no significant difference in percent monocyte glass adhesion (76.4 ± 14.5 vs 83.3 ± 11.4), or cell spreading (μ = microns) at 2 hrs (12.7 ± 1.7μ vs 3.4 ± 1.7μ) or 24 hrs (16.9 ± 2.7μ vs 17.5 ±2.5μ). Phagocytosis and killing of 2 species of Candida--C. pseudotropicalis (CP) and C. albicans (CA)--were studied. Except for CA killing (patient = 25 ± 5.4% vs control = 28.6 ± 4.7%, p = .046) results of patient studies were similar to controls. Patient phagocytosis and killing of Staphylococcus aureus (502A) after 1-hr incubation was also comparable to controls (55.7 ± 17.9 vs 57.1 ± 14.3). Chemotaxis was measured under agarose and by Boyden chamber technique, utilizing zymosan-activated serum. A chemotactic index was determined for directed chemotaxis under agarose and results were similar (patient = 1.5 ± 0.2 vs control = 1.6 ± 0.3). For Boyden chamber techniques, a migratory index (LIm), based on numbers of cells migrating and distance migrating into filters, was determined and results were also similar (patient = 48.7 ± 6.0 vs control = 55.4 ± 8.3, p = 0.11). These experiments suggest that the monocyte/macrophage arm of the host immune system is intact in these patients.

834 GLUCOSE-6-PHOSPHATASE: A MARKER ENZYME FOR NON-RENAL WILM'S TUMOR. Reuben Matalon, Emily J. M. Pang, Kimberlee Michals, and Kevin Pringle. Dept. of Pediatrics, Univ. of Ill. Chicago, Ill.

The histological diagnosis of extra renal Wilm's tumor may be difficult to make. A 7 year old female had an intrabdominal tumor which histologically was undifferentiated and no diagnosis could be reached. Glucose-6-phosphatase as a marker for kidney tissue was assayed. A small fragment of tumor was sonicated in 2 volumes of cacodylate buffer 0.15 M, pH 6.5, then centrifuged at 750 x g for 10 min. Assay for glucose-6-phosphatase was carried out using 0.1 ml of supernatant extract incubated with 0.1 ml of 0.15 M glucose-6-phosphate. Incubation was carried out at 37°C for 60 min. Glucose liberated in this reaction was determined by the glucose oxidase method. The enzyme extract from the tumor was found to have glucose-6-phosphatase activity similar to the activity in a control kidney extract. The tumor sample released 1.07 μM, glucose/mg protein/hour, while human kidney extracted hydrolyzed 1.01 μM glucose/mg protein/hour. Blood cells, muscle and ovarian tissues were assayed for glucose-6-phosphatase had no measurable activity. These studies suggested renal origin of the tumor, and subsequent electron microscopy confirmed the diagnosis of Wilm's tumor. Another case of intrarenal tumor was studied with no measurable glucose-6-phosphatase activity, while extract from the same kidney released 1.6 μM/glucose/mg protein/hour. Subsequently the diagnosis of Burkitt lymphoma was made. These data indicate that glucose-6-phosphatase can be used to ascertain the renal origin of intraabdominal tumors.

835 PURIFICATION, BIOCHEMICAL CHARACTERIZATION AND FUNCTION OF FETAL AT-III. Marilyn M. McDonald, E. Basil Reeve, and Wm. E. Hathaway, University of Colorado School of Medicine, Department of Pediatrics, Denver.

Heparin clearance in the newborn is more rapid than in the normal adult and anticoagulation with heparin is clinically difficult to achieve. Circulating levels of antithrombin III (AT-III) are physiologically low in term and preterm infants and minor differences in the function of AT-III in the newborn would have significant implications for the treatment of thrombosis. AT-III was isolated by heparin affinity chromatography from adult venous and newborn umbilical cord blood. The proteins thus purified were compared by SDS-PAGE, rocket immunoelectrophoresis, protein concentration by microbiuret relative to optical density at 280 nm, heparin cofactor specific activity, progressive neutralization of thrombin and factor Xa at 37° C, and pH related anti-thrombin kinetics. Finally, the reaction rates of thrombin neutralization relative to the concentration of heparin present were measured. The structural evaluations revealed a fetal AT-III molecule of molecular weight, charge and electrophoretic migration indistinguishable from that of normal adult. The functional studies showed that, on an equimolar basis, the rates of thrombin and Xa interactions with fetal AT-III were as rapid as those with adult AT-III. The catalytic rates of various concentrations of heparin were also normal. These findings suggest that "heparin resistance" in the newborn is the result of a quantitative deficiency of a normally functioning protein and support considerations for replacement therapy with AT-III.