818 LYMPHOCYTE SUBSETS IN CYSTIC FIBROSIS (CF). Joseph A. Church, Chun-I Wang, William Bowders. USC School of Medicine, Childrens Hospital of Los Angeles, Department of Pediatrics, Los Angeles.

Pulmonary infection, malabsorption and elevated immunoglobulin levels may be interrelated in CF. To examine the immunologic processes in these patients (pts), lymphocyte subsets were quantitated and correlated with Schwackman scores for overall clinical status (SS), nutritional status (SSn) and chest X-ray scores (SSx). Fifty-four CF pts, 31M, 23F, age 17±10 years were studied. Lymphocyte subsets were quantitated with monoclonal antibodies for T-cells (Leu1), T "helpers" (Leu3) T "suppressors" (Leu2) and B-cells (surface immunoglobulin positive, sIg+) using an indirect immunofluorescent technique. Pt values were compared to controlls obtained concurrently. SS, SSn and SSx were determined independently.

Analyses of relative numbers (%) of lymphocyte subsets revealed no apparent differences between pts and controls. However, absolute numbers of lymphocyte subsets revealed that pts had significantly higher sIg+ cell numbers than controls (expressed as logs, 2.15 vs. 1.83, p=.038) and decreased Leu2+ cells (9.7 vs. 10.2, p=0.006). Leu3+ cells correlated inversely with SS, SSn and SSx (r's>-.32), p's<.03).

In summary, CF pts have heightened immune responses as reflected in increased sIg+ and decreased Leu2+ numbers; poor clinical, nutritional and chest X-ray status is associated with elevated Leu3+ numbers. In contrast to previous reports of T-cell dysfunction in malnourished pts, malnourished CF pts do not have deficiencies of lymphocyte subsets.

●819 LONGITUDINAL STUDY OF HIV ANTIBODY AND ANTIGEN IN INFANTS AND CHILDREN. F.Cohen, J.S.Webber, E.C.Moore, G.Dawson, M.Leuther, P.M.Long, E.M.Ustrea. Wayne State Univ., Children's Hosp. of Michigan, Dept. of Peds., Detroit, and Abbott Laboratories, No. Chicago.

Thirteen infants of IV drug-addicted mothers with cord blood positive for HIV antibody were studied at 1-3 mo. intervals for 3-16 mos. Thus far, 3 manifest HIV infection; 4 passive transfer of HIV antibody; and 6 indeterminate. Also studied were 2 HIV congenitally infected children (2 1/2 & 3 1/2 yrs.) and 9 adults.

We sought to determine the significance of antibodies reactive with various HIV structural proteins. Serum/plasma was serially tested for antibody by 1) EIA screening assay (sample/cutoff [S/CO]); 2) Western blot; and 3) competitive enzyme immunoassay using HIV recombinant antigens (ENV/CORE)(titer). Antigen was determined by the Abbott HIV antigen test.

Soon after birth, the results of all infant antibody tests closely paralleled those of the mothers. In infants with passive tranfer, the EIA(S/CO), ENV and CORE titers decreased in parallel, with the time of disappearance proportionate to the levels at birth. Infants with HIV infection manifested symptoms within the first few mos. (3-7) of life, and had lower EIA(S/CO), ENV and CORE titers than adults with HIV infection. While EIA(S/CO) and ENV titers remained stable during the study period in both infants and adults, there was loss of detectable antibody to CORE proteins, earlier in infants than adults; and this was generally associated with detection of antigen in both. Infants with HIV infection had lower CORE titers ($\bar{x}$5.1) than adults with HIV infection ($\bar{x}$4868), but comparable to adults with AIDS ($\bar{x}$7.1) Clinical decline in infants and adults consistently paralleled reduction of CORE antibody titer and the concommitant detection of antigen.

●820 CARRIER DETECTION IN TYPICAL AND ATYPICAL X-LINKED AGAMMAGLOBULINEMIA (XLA). M.E. Conley, and J.M. Puck, Children's Hospital of Philadelphia

XLA is characterized by hypogammaglobulinemia and absent B cells, but normal numbers of pre-B cells. Atypical cases of XLA have been reported in which immunoglobulin concentrations are higher than expected or pre-B cells are absent. We have recently demonstrated that B cells from obligate carriers of typical XLA selectively use the X chromosome that does not carry the gene defect as the active X. To extend this observation, we developed a technique that combines the production of somatic cell hybrids that retain the active X, with the use of X-linked RFLPs that permit the distinction of the two X chromosomes. This technique, which allows the identification of the active X in cells from any woman, was used to study an obligate carrier and 4 women at risk in families with typical XLA. We also studied the mother of a boy with atypical XLA who has low numbers of B cells, absent IgA and IgM but normal IgG and no family history. All 10 B cell hybrids from the known carrier used the same X as the active X; 3 of the 4 women at risk also demonstrated nonrandom X chromosome inactivation in B cells; 7 of the hybrids from the last woman used one X chromosome and 8 used the other, indicating that this woman is not a carrier. All 19 B cell hybrids from the mother of the sporadic case also used the same X, indicating that this woman is a carrier for an X-linked form of disease. These results show that this technique can be used for carrier detection in both sporadic cases of XLA and in XLA pedigrees. Further, by increasing the number of individuals who are informative for mapping in atypical XLA families, we will be able to examine heterogeneity of XLA.

821 IN VIVO T CELL DEPLETION IN NEWBORN MICE TREATED WITH ANTI-THY MONOCLONAL ANTIBODY. Kenneth Culver, David Wofsy, Wayne Smith, Morton Cowan. Univ of Calif, Dept of Ped, & VAMC, Dept of Med, San Francisco, CA.

The newborn mouse is relatively immunoincompetent and potentially susceptible to tolerance to allogeneic cells. As a prelude to assessing the effects of monoclonal antibody (MoAb) on newborn immune function, we evaluated the kinetics of clearance of Thyl.2 positive cells following the injection of 1 day old C57BL/6 mice with anti-Thyl.2 MoAb (30-H12). The percentage (mean ± SD) of splenocytes staining with Thyl.2 at 2, 7 and 14 days following the injection was significantly lower in both adults and newborns compared to control animals:

	Percentage Thyl.2 Cells After Injection		
	Day 2	Day 7	Day 14
Newborn-Controls (6)	7.4 (pooled)	11.9 ± 8	23.8 ± 8
-MoAb Tx (8)	3.0 (pooled)	4.9 ± 4	14.4 ± 4
Adult-Controls (2)	31.4 ± 2	25.9 ± 3	35.6 ± 10
-MoAb Tx (2)	4.2 ± 2	4.2 ± 0.1	15.5

The rate of clearance in newborn mice was slower and less efficient than in adults. Changes in the percent of L3T4+ and LyT2+ cells indicated little modulation. Anti-Thy antibody was detected in the serum of newborn mice 7 days after injection and 2 days after injection in adults. Results indicate that the newborn C57BL/6 mouse can clear antibody-coated cells from the spleen and may be an appropriate model for the study of selective immunomodulation and tolerance induction.

822 IMMUNOLOGICAL ANALYSIS OF PATIENTS WITH THALASSEMIA MAJOR AT RISK FOR AIDS. S. Cunningham-Rundles, P. Giardina, and M.W. Hilgartner, Cornell University Medical Center-New York Hospital, Division of Ped. Hematology/Oncology, New York, N.Y.

Immunological analysis of 29 patients with thalassemia major has been undertaken to determine factors that might influence development of AIDS in cases of blood transfusion acquired Human Immunodefiency Virus, HIV, disease. Natural Killer, NK, activity against the K562 tumor target was very reduced in 72% (21 of 29) of cases initially and in 7 of 9 patients studied repeatedly. Augmentation in vitro with interferon α (800 I.U.) could be achieved in 11, or 52% of cases in contrast to 100% of controls. Of these 11, 8 showed boosting into low normal range. In addition some patients with normal endogenous NK could not be boosted in vitro. Of 25 patients studied for mononuclear proliferation in vitro 14 (56%) had reduced activation to mitogen. Study of lymphocyte subpopulations by flow cytometry showed that few patients had percentages of T3+, T4+, or T8+ lymphocytes outside normal range although low normal T8+% was seen. However, 4 patients had reduced T4+/T8+ ratios with proportionately increased T8+% and borderline T4+%. All of these patients had serum antibodies to HIV. All 4 had very low endogenous NK that could not be augmented into normal range in vitro and 3 of 4 had poor proliferative response. Three patients with normal T4+/T8+ but poor function (1 had low T3+%) also had HIV antibodies. These data indicate probable high risk ofAIDS in thalassemia patients with HIV disease and suggest that altered NK associated with thalassemia may potentiate this process since low NK and absence of interferon are found in both HIV antibody negative and positive patients.

†823 A SIMPLIFIED METHOD FOR SUSTAINED PURE CULTURES OF HUMAN PERITONEAL MACROPHAGES (HPM) Robert A. Dracker, Marie J. Stuart, Roger E. Spitzer, SUNY, Health Science Center, Department of Pediatrics, Syracuse, New York

Peritoneal fluid is a readily available source of human macrophages and monocyte/macrophage colony stimulating factor (M-CSF). We describe a simple means of developing pure macrophage cultures, utilizing dialysate from patients undergoing peritoneal dialysis as a source of both macrophages and M-CSF. Sterile saline was infused and allowed to dwell intraperitoneally for 45 minutes. The fluid was drained and centrifuged at 400G for 20 minutes; the cellular fraction was resuspended in McCoy's modified medium (MMM) with 10% FCS and incubated at 37°C in 5% CO_2 for 2 hours. Adherent cells were rinsed with Hanks buffer and overlayed with MMM containing 5% of the supernatant dialysate fluid. Half of the culture medium was replaced twice a week. Cells reached near confluence by 14 days in culture and were characterized histologically and immunologically. The cells stained uniformly for nonspecific esterase and were >98% positive for the monoclonal macrophage markers DR and LeuM5. Active phagocytosis was demonstrated with opsonized fluorescent latex beads. A hemolytic complement assay revealed significant C_2 production by cells cultured over 7 days. Arachidonate (AA) metabolism was evaluated following incubation of macrophages with ^{14}C-AA (20μM) and separation by TLC and HPLC. Adherent cells produced the AA metabolites PGD_2, TXB_2, PGE_2, $PGF_{2\alpha}$ and $6KPGF_{1\alpha}$ in the approximate ratio of 4:4:4:4:1. Cells also produced HHT and 15-HETE in small amounts. Macrophage cultures remained viable for >60 days. This method describes a readily available source of cells and M-CSF for developing pure, differentiated, and functional long term cultures of HPM in serum-free medium.