955 MONOCLONAL ANTI-ACTIN ANTIBODIES BIND TO DIFFERENTIATION ANTIGEN ON NORMAL HUMAN LYMPHOCYTES AND PREVENT REACTIVITY TO MITOGENS. K.S. Barron, H.M. Rosenblatt, J.E. McClure, and W.T. Shearer, Baylor College of Medicine, Department of Pediatrics, Houston, Texas.

There have been conflicting claims to the presence of the cytoskeletal protein actin on the surface membrane of the normal human lymphocyte. We now report our present investigations using monoclonal murine anti-actin antibodies suggesting the presence of non-muscle cell actin on mitogen transformed human lymphocytes. This monoclonal antibody repeatedly inhibited the stimulation of normal lymphocytes by mitogens (PHA, ConA, PWM) by >90% (as measured by the incorporation of ^{3}HdThd) when added to the culture system in a final dilution of 1:12 to 1:12,000 ($p<0.0001$), however a control myeloma cell line supernatant did not. The addition of purified rabbit thymus actin (RTA) to the culture system reversed this inhibition of lymphocyte proliferation induced by the anti-actin antibody. However, it was not reversed by the addition of purified chicken muscle actin (CMA), nor bovine serum albumin (BSA).

	Anti-actin				Control			*cpm x 10^{-3}
	1:12	1:120	1:1200	1:12000	1:12	1:120	1:1200	1:12000
RTA	1.8*	3.6	54.5	94.5	134.2	89.7	106.9	104.6
CMA	1.2	2.1	5.3	29.7	109.2	74.9	75.6	73.0
BSA	1.5	2.5	4.9	19.4	101.8	80.2	81.5	85.1
Buffer	1.6	2.1	6.2	21.4	81.6	71.5	74.0	71.9

These studies establish the presence of surface actin on mitogen activated lymphocytes and suggest that the surface actin molecule plays a key role in the activation of normal lymphocytes.

● 956 ROLE OF CALCIUM IN INCREASED COMPLEMENT RECEPTOR EXPRESSION DURING NEUTROPHIL ACTIVATION Mel Berger, Erica Wetzler, John O'Shea (Spon: R.U. Sorensen) Dept. of Pediatrics, Case Western Reserve University, Cleveland, Ohio and National Institutes of Health, Bethesda, Md.

We have recently shown that human neutrophils increase expression of C3bi as well as C3b receptors (R) in response to f-met-leu-phe or other stimuli (J Clin Invest 74; 1566, '84). Using monoclonal antibodies and flow cytometry, we found that ionophore A23187 and 1.2 mM Ca^{2+} increased C3bR 330% and C3biR 650%. We therefore examined the role of Ca^{2+} in response to chemoattractants. Addition of Ca^{2+} or EDTA to divalent cation-free media had no effect on C3bR expression while 1.2 mM Ca^{2+} slightly enhanced and 5 mM EDTA markedly inhibited C3biR expression, suggesting that the two receptors increase by different mechanisms. Mg^{2+} EGTA effects were identical to EDTA. TMB-8, which inhibits release of Ca^{2+} from intracellular stores, completely blocked increased expression of both receptors at 200-250 uM. The calmodulin inhibitors chlorpromazine (50 uM) and trifluoperazine (10 uM) also blocked increased expression of both receptors while the inactive metabolite chlorpromazine sulfoxide had no effect. These results suggest that release of intracellular Ca^{2+} is necessary and sufficient for maximal C3bR expression but that optimal expression of C3biR also requires an influx of extracellular Ca^{2+}. Regardless of the source of the Ca^{2+}, formation of an active Ca^{2+}-calmodulin complex appears to be necessary for increased complement receptor expression during neutrophil activation.

957 BACTERIAL INFECTION IN THE ACQUIRED IMMUNODEFICIENCY SYNDROME. Larry J. Bernstein, Brian Novick, Ben Zion Krieger, Marc J. Sicklick, Andrew Wiznia, and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.

We have reviewed the incidence of bacterial infections in 46 children with Acquired Immunodeficiency Syndrome (AIDS). Twenty-five episodes of culture proven sepsis were documented in 20 patients. Twenty patients had at least one episode of serious bacterial infection. Meningitis occurred in 5 instances. Other infections included lobar pneumonia, cellulitis,purulent lymphadenitis, and skin abcesses. Two children had chronically draining otitis media. Urinary tract infection in the absence of sepsis occurred on 9 occasions. Organisms most commonly isolated in outpatients or recently hospitalized patients included pneumococcus, H. Influenza group B, staphylococcus ameus and salmonella. Staph sepsis frequently accompanied skin infection. All episodes of enteric or nosocomial gram negative sepsis occurred in either hospitalized children or in outpatients on extensive antibiotic therapy. E. Coli was the predominant urinary pathogen. Bacterial infection is a major cause of morbidity in pediatric AIDS.

958 ABNORMALITIES OF HUMORAL RESPONSES IN PEDIATRIC AIDS. Larry J. Bernstein, Hans D. Ochs, Ralph J.Wedgwood, and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.

5 children with the Acquired Immunodeficiency Syndrome (AIDS) and 1 with AIDS related complex (ARC) were assessed with regard to specific antibody function. All patients were immunized with bacteriophage ØX174, a T cell dependent antigen. 5 children were immunized with tetanus toxoid, and 4 with pneumococcal vaccine. Serum immunoglobulins and mitogenic responses were measured in all children. Responses to bacteriophage ØX174 showed blunted primary responses and markedly decreased secondary responses, with absent class switch (IgM-IgG) in 5 of 6 patients. Antibody responses to tetanus toxoid and pneumococcal vaccine were diminished as well. 5 children had elevation of at least one immunoglobulin class. In vitro lymphocyte mitogenic responses, especially to staphylococcal cowan A and pokeweed, were diminished. Pediatric AIDS patients have significant abnormalities in humoral immunity. Both T and B cell dysfunction play a role.

959 EFFICACY OF BOVINE LEUKOCYTE DIALYSATES CONTAINING TRANSFER FACTOR (TF) IN THE THERAPY OF THE ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) - William Borkowsky, Phillip Klesius, Shelley Gordon, Phillip LaRussa, H. Sherwood Lawrence, NYU Medical Center, Depts. of Pediatrics and Medicine, New York, N.Y., USDA Regional Parasite Research Lab, Auburn, AL.

Three patients with AIDS and chronic diarrhea due to cryptosporidia were treated with weekly oral doses of bovine TF (10^{7} leukocyte equivalents/kg) prepared from lymph nodes of calves immunized with cryptosporidia oocysts. All the patients demonstrated a resolution of their diarrhea and a cessation of oocyst excretion within 6 weeks of therapy. One patient relapsed upon cessation of TF therapy, while the other two remained cryptosporidia free for the duration of their observation. One of these individuals was subsequently started on weekly bovine TF therapy derived from calves immunized with pooled AIDS lymphoid cells and marker proteins diphtheria and tetanus toxoids (DT & TT) in complete Freund's adjuvant. Although there have been no qualitative changes in his T-cell phenotypes after 4 months of therapy, the patient has acquired in vitro proliferative responses to DT, TT and tuberculin. In addition, he has acquired delayed type skin responses to DT, TT and streptokinase - streptodornase. Concommitant with his immunologic reactivity, the patient has remained infection free during TF therapy.

Our experience with bovine TF immunotherapy suggests that (1) some degree of immunologic reconstitution is possible in patients with AIDS, and (2) cryptosporidiosis may respond to bovine TF administration.

● 960 DEVELOPMENT OF IMMUNITY IN SEVERE PRIMARY T CELL DEFICIENCY FOLLOWING HAPLOIDENTICAL STEM CELL TRANSPLANTATION. Rebecca H. Buckley, Sherrie E. Schiff, Hugh A. Sampson, Richard I. Schiff, Bonnie E. Ammerman, Ruby R. Johnson and Frances E. Ward. Duke University School of Medicine, Department of Pediatrics, Durham, NC 27710.

Haploidentical bone marrow depleted of post-thymic T cells by soy lectin and sheep RBC can correct lethal genetic defects of the immune system without graft-versus-host (GVH) disease. Remaining cells are immature, contain no detectable T or B lymphocytes and must, therefore, mature in the host microenvironment. We have monitored the developing immune function of 13 infants with severe T cell deficiency following such haploidentical transplants: 6 with severe combined immunodeficiency (SCID) and normal adenosine deaminase (ADA); 3 SCID's with ADA deficiency; and 4 with Nezelof's syndrome (one with purine nucleoside phosphorylase deficiency). All but one are alive at up to 2 1/2 years post-grafting; 6 have normal immune function, 4 are too recent for detection of engraftment, and 2 have failed to develop immune function (1 an ADA deficient SCID, the other a Nezelof). No patient experienced GVH. The time to appearance of mature functioning T cells in the haploidentical marrow recipients ranged from 75 to 300 days post-transplantation, with a majority appearing at 90-110 days. Increased T6+ cells were not seen, and natural killer cell phenotype appeared before T and B cells. Both T and B cell chimerism and antibody formation have been demonstrated. Thus, most infants with lethal primary immunodeficiency have the capacity to mature haploidentical stem cells to functioning T and B lymphocytes, and this process takes approximately 3 to 4 months.