●1039 **Lymphokine Dependent Macrophage (MØ) Activation in Newborns. Christopher B. Wilson and Judith Westall. (Spon. by A.L. Smith). Dept. of Pediatrics, Children's Orthopedic Hospital, Univ. of Washington, Seattle 98105.**

The newborn (NB) suffers from severe infection with Toxoplasma gondii, resistance to which is mediated by lymphokine (MAF) induced MØ activation. Killing of Toxoplasma by recombinant interferon γ (IFγ) treated compared to control adult blood derived MØ (82% vs 20%), adult peritoneal MØ (96% vs 1%), NB blood derived MØ (79% vs 26%) and NB placental MØ (80% vs 11%) was significantly ($p<0.05$) increased; recombinant IFα and IFβ were much less active. Supernatants of ConA stimulated adult blood mononuclear cells (MC) also increased anti Toxoplasma activity of these MØ and contained 841 ± 319 units/ml of IFγ. In contrast, supernatants of NB cord and peripheral blood MC did not activate these MØ and had 108 ± 36 and 112 ± 42 units/ml IF. Interleukins (IL) 1 and 2 trigger IFγ production by activated T cells. Adult and NB cord and peripheral MC produced 908 ± 157, 1501 ± 280 and 538 ± 170 units/ml IL2 and 822 ± 374, 1601 ± 521 and 1632 ± 785 units/ml of IL1 respectively. Purified IL1 increased IL2 production but not MAF production by NB peripheral MC; recombinant IL2 did not increase IF or MAF production by NB MC. IL2 receptors were detected by monoclonal antibody 2A3 on 67.3 ± 10.5%, 58.0 ± 9.9%, and 61.4 ± 70.0% of stimulated adult, NB cord and NB peripheral T cells. These data suggest that disassociation between IL2 and IFγ production results in the failure of NB MC supernatants to activate MØ; this may contribute to the NB's susceptibility to intracellular pathogens.

1040 ACUTE CHANGES IN CIRCULATING LYMPHOCYTE SUBSETS AND FUNCTION FOLLOWING SPLENECTOMY IN BETA THALASSEMIA MAJOR. Chester C. Wood, James G. McNamara, John M. Dwyer, Howard A. Pearson, Yale Univ. School of Medicine, Dept. of Pediatrics, New Haven.

In a prospective study of 23 children with Thalassemia Major we demonstrated a 3 fold increase in circulating B cells, and decreased lymphoproliferative responses to PHA and Candida albicans in nonsplenectomized patients of whom 92% were anergic. Splenectomized patients, however, had a 10 fold increase in B cells, as well as a 2 fold increase in T4 and T8 positive cells. This group was not anergic, and had higher in vitro responses to Candida albicans. We hypothesized that the difference between these two groups was related to splenectomy rather than the stage of the disease and/or its treatment. To test this, two patients have been followed prospectively. In comparison to their pre-splenectomy data, there was a 1½ and 5 fold increase in circulating number of B cells and a 2 and 3 fold increase in T cells and a marked increase in lymphocyte responses to Candida albicans and allogeneic lymphocytes. A 2 fold increase in circulating HLA-DR positive cells was noted. 92% were B cells, less than 1% T cells. The mononuclear spleen cells were not as suppressive as the patient's peripheral blood lymphocytes. Peripheral blood lymphocytes from patients were more suppressive than were control lymphocytes. These observations suggest (1) splenectomy is the cause of the increased number of circulating T and B lymphocytes, (2) the elevation in lymphocytes is secondary to redistribution rather than activation (3) increase lymphocyte response is due to a loss of suppressor cells at splenectomy.

1041 REDUCED PRODUCTION OF HISTAMINE RELEASE ENHANCING FACTOR (HREF) BY CORD BLOOD MONONUCLEAR CELLS. Robert E. Younger, Henry G. Herrod, Phillip L. Lieberman, Lloyd V. Crawford, University of Tennessee Center for the Health Sciences, Department of Pediatrics, Memphis, TN.

The liberation of histamine and other inflammatory mediators constitute a major component of host defense. HREF is a unique cytokine produced by PHA stim. mononuclear cells (MC) that may be an important mediator of inflammatory responses. Incubation of granulocytes with HREF enhanced subsequent basophil histamine release (BHR) induced by anti-IgE, f-Met peptide, and the Ca ionophore A23187 (124±43%, 139±40%, and 66±29% enhancement). HREF production was dependent on the number of cells cultured, PHA conc., and duration of culture. Conditioned media containing HREF was active after heat (70°C x 30 min), absorption by activated lymphocytes, and thyroglobulin removal of PHA. HREF produced by cord blood MC of 19 newborns produced significantly less enhancement of anti-IgE induced BHR than adult controls (39±30% vs 53±31% enhancement, $p<.05$). This was not related to impaired PHA responsiveness. Both stim. and unstim. cord MC incorporated greater ^3H thymidine than controls ($p<.001$). T cell enriched (TCE) populations produced greater HREF than unfrac. or T-depleted (TD) populations (TCE 73±32% enhancement; unfrac. 42±20%; TD 43±25%; N=13, $p<0.05$). Functional cellular immune deficiency in newborns and deficient lymphokine synthesis by cord lymphocytes have been previously reported. HREF is a potentially important determinant of histamine release and reduced capacity for its production may contribute to the relative immunodeficiency of newborns.

●1042 INTERFERONOPATHY IN THE BARE LYMPHOCYTE SYNDROME. Ben Zion Krieger, Theresa Calvelli, Anna Kadish, and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Microbiology and Immunology, Bronx, New York.

The Bare Lymphocyte Syndrome (BLS) is a rare immunodeficiency in which surface expression of HLA-DR antigens is absent. In the absence of expression of Major Histocompatibility Complex (MHC) there is an abnormal interaction between immunocytes with a resultant combined immunodeficiency. We report here of a 4 year old female with the BLS. This child is agammaglobulinemic and has poor cell mediated immunity with recurrent bacterial and viral infections. The child persistently excretes the polio vaccine virus type II in the stool. In vitro lymphocyte studies revealed normal responses to phytohemagglutinin and in the one-way mixed lymphocyte culture. Mitomycin C treated patient's cells were, however, unable to stimulate allogeneic lymphocytes, and the patient's lymphocytes did not respond to antigenic stimuli. In vitro treatment of patient's lymphocytes with α or γ interferon restored the expression of the MHC and improved antigenic and allogeneic responses. The patient's lymphocytes did not, however, secrete α or γ interferon. It is postulated that in this instance the BLS may be due to a primary interferonopathy.

INFECTIOUS DISEASES

1043 A SIMPLE, RAPID, AND SENSITIVE METHOD FOR THE RESTRICTION ENDONUCLEASE ANALYSIS OF THE DNA OF CYTOMEGALOVIRUS (CMV). Stuart P. Adler. (Spon. by H. Maurer), Children's Medical Center, Medical College of Virginia, Richmond.

Restriction enzyme analysis of CMV DNA is essential for investigating viral transmission. Previous methods for purifying DNA used either prolonged viral passage to obtain cell free virus and/or equilibrium centrifugation in CsCl and/or in vivo ^{32}P labelling and/or DNA transfer to nitrocellulose. Because these methods preclude the rapid inexpensive processing of multiple samples, the following method was used. Following isolation, CMV infected cells were passed to 2-75cm^2 petri dishes containing detached MRC-5 cells. When CPE involved >50% of the cells they were lysed using 0.6% SDS. Cellular DNA but not CMV DNA precipitated at 4° using NaCl (Hirt proceedure). After phenol extraction and ethanol precipitation, EcoRI digested CMV DNA was electrophoresised through agarose. DNA bands were detected either with ethidium bromide or by a 2 hour in situ hybridization directly on the agarose gels using as probes 6 ^{32}P labelled cloned fragments of the Towne strain. This procedure allows analysis of up to 100 CMV isolates within 3 weeks and purification, digestion, electrophoresis, and/or in situ hybridization requires only 1 or 2 days. This method will be a valuable adjunct to currently used methods.

1044 DISTRIBUTION OF ANTIBODY AGAINST CYTOMEGALOVIRUS (CMV) IN THE FAMILIES OF TWINS. Stuart P. Adler, Joann Bodurtha, and Walter E. Nance. (Spon. by H. Maurer) Departments of Pediatrics and Genetics, Medical College of Virginia, Richmond.

IgG against CMV was measured by enzyme immunoassay in 306 members of 71 monozygotic twin families including 135 children. 19% of children were seropositive (SP) compared to 46% of adults. 56% of mothers were SP compared to 35% of fathers ($X^2=5.5$,1df, $p<0.05$). In 7 families with only a SP father, only one of 17 children was SP, while 12 of 43 children were SP in 22 families where of the parents only the mother was SP. 28% (20/72) of children in 40 families with a SP mother were SP compared to only 9% SP children (6/63) in 31 families without a SP mother. ($X^2=6$,1df, $p<0.02$). Among nontwin sibs and adult co-twins there was no correlation in antibody status. Antibody status was however highly correlated among 28 sets of adolescent twins ($X^2=19$, 1df $p<0.001$). Among couples the frequency of a SP spouse was independent of whether his or her mate was SP. In contrast there was a high correlation for the presence of antibody against herpes simplex in a subset of 19 couples ($X^2=11.3$, 1 df $p<0.001$). These data are consistent with the maternal-child transmission of CMV but provide no evidence for transmission between marital partners or nontwin sibs.