†1129 HAEMOPHILUS INFLUENZAE TYPE B (HIB) INFECTION IN CHILDHOOD: NATURAL HISTORY OF BACTEREMIA AND ANTIGENEMIA. Leonard J. La Scolea, Jr., Santiago V. Rosales, Pearay L. Ogra, SUNY at Buffalo, Children's Hospital of Buffalo, Department of Pediatrics, Buffalo, New York.

Groups of children, up to 7½ years of age, with meningitis, epiglottitis or septic arthritis due to HIB were tested for the presence and levels of bacteremia, capsular polyribophosphate (PRP) antigenemia and development of HIB specific antibody in serum following onset of acute illness. The quantitative direct plating method and indirect ELISA were used to determine the number of organisms, PRP, and immunoglobulin class of HIB specific antibody. Bacteremia and antigenemia were detected in all patients immediately after onset of illness. Although bacteremia cleared promptly after antibiotic therapy, PRP could be detected in serum up to 96 days after onset of illness. The presence of a low magnitude bacteremia (<300 organisms/ml) correlated to a maximum concentration of 10 ng/ml of PRP. On the other hand, bacterial counts of $1x10^4$/ml correlated to >1000 ng/ml of PRP. Despite this correlation, persistence of PRP antigenemia appeared to be independent of a) magnitude of antigenemia observed during the acute phase, b) development of antibody, or c) patient's age at time of illness. However, serum antibody response was observed in convalescent samples only in subjects who exhibited peak PRP concentrations <10 ng/ml (p=0.006). These findings suggest a direct correlation between the magnitudes of bacteremia and antigenemia and that antigen may persist for long periods even in the presence of antibody and the level of antigenemia significantly influences the convalescent antibody response.

1130 REGULATION OF INTERFERON RECEPTOR EXPRESSION ON HUMAN LYMPHOCYTES. Allan S. Lau, Greg E. Hannigan, Melvin H. Freedman and Bryan R.G. Williams. Spon. by R. Gold). Research Institute, Hospital for Sick Children, Toronto, Ontario.

Interferons (IFN) elicit antiviral and antineoplastic activities by binding to specific receptors on the cell surface. The binding of IFN to human lymphocytes was studied using IFNα2 (Schering-Plough) labelled to high specific activity with ^{125}I. Peripheral Blood Lymphocytes (PBL) from 8 adult volunteers and tonsillar B cells from 4 children, who underwent elective tonsillectomy, were studied. Specific ^{125}I-IFNα2 binding isotherms were generated on these cells. When cells were pre-incubated in vitro with low concentrations of unlabelled IFNα2 for 20h, subsequent reduced binding of ^{125}I-IFNα2 was observed. This suggests that IFN receptors on freshly isolated PBL are down-regulated in response to IFN treatment. The binding of IFN to down-regulated cells gradually returned to normal, when cells were allowed to recover in IFN-free medium. In vivo studies were done on PBL of two patients being treated with $5x10^6$ units of IFNα2 subcutaneously, daily for disseminated condyloma acuminata. Binding of ^{125}I-IFNα2 was monitored prior to and after 5, 9 and 19 days of IFN therapy. Down regulation of binding was observed 24h after each dose. Similar studies on patients receiving IFN therapy for acute lymphoblastic leukemia or laryngeal papilloma are in progress. These results should have important implications for directing the clinical use of IFN.

●1131 The Effect of *Pseudomonas aeruginosa* Mucopolysaccharide on Neutrophil Function. DA Lee, GM Johnson, CC Clawson, PK Peterson, PG Quie.

Pseudomonas aeruginosa is a bacterial species frequently isolated from the lungs of cystic fibrosis (CF) patients. We used a recently described phagocytosis assay to examine the interaction between *P. aerug* and human neutrophils (PMN). *Staphylococcus aureus*, also frequently isolated from the CF lung, was used as a control. A variety of assays were used to examine the effect on PMN of a mucopolysaccharide (slime) produced by *P. aerug*.

A "surface phagocytosis" assay was used to determine the uptake of ^{3}H-labeled *S. aureus* and *P. aerug* by PMN. The bacteria were washed vigorously or left untreated after 18 hr. growth so that the effect of slime could be determined when PMN were added. The overall phagocytosis of *P. aerug* was significantly less than *S. aureus*. Opsonization (10% pooled human sera) effected a 25% increase in the uptake of *S. aureus* at 15 and 60 min. The uptake of opsonized *P. aerug* was increased by 150% at 15 min. but was reduced to the level of increase seen in *S. aureus* at 60 min.

Only a moderate decrease in chemotaxis was observed when PMN were treated with crude or purified slime. No difference was seen in chemiluminescence, degranulation, O_2^- production, or LDH release when treated PMN were compared to untreated PMN.

These data together with electron and light microscopy suggest that slime and the absence of opsonin in the aveoli may be detrimental to PMN interaction with *P. aerug*. The effect of slime on PMN function appears to be minor.

1132 INTERACTIONS OF PROPIONIBACTERIUM ACNES WITH NEUTROPHILS. W. Lee, K. Suntharalingam, S. Fikrig, A. Shalita. Depts. of Dermatology and Pediatrics, Downstate Medical Center (SUNY), Brooklyn, New York.

The immunological adjuvant, Propionibacterium acnes (formerly classified as Corynebacterium parvum) is believed to be the major factor in the etiology of inflammatory acne (IA). We have previously reported defective phagocytosis of P. acnes by neutrophils in some patients with IA. In attempting to elucidate this phenomenon we undertook the present investigation to assess the reliability of measuring chemiluminescence (CL) by phagocytizing neutrophils as a tool in defining the opsonic requirement of P. acnes.

Neutrophils (PMN), purified through Methocel-isopaque, were mixed with P. acnes or P. granulosum in the presence of pooled human serum; Mg-EGTA chelated serum; and heat inactivated serum.

The results demonstrate that CL intensity is proportionally related to serum concentration, number of PMNs, and bacteria and PMN ratios. Complement was required for efficient opsonization. Additional data reveal that there are qualitative and quantitative differences in the requirements for optimal ingestion of P. acnes and P. granulosum. Our data suggest that whereas both the classical and alternative pathways are operative for opsonization of P. acnes, the alternative pathway provides opsonic activity equal to that of the total complement pathway for P. granulosum.

We conclude that CL is an useful screening method for detecting impaired opsonization in patients with IA and for monitoring immune response to acne therapy in a very precise manner.

1133 ACYCLOVIR SENSITIVITY OF HERPESVIRUS SHED BY INFANTS WITH COMPLICATED NEONATAL DISEASE S. Nusinoff Lehrman, M.N. Ellis, D.W. Barry. (sponsored by Catherine M. Wilfert)Burroughs Wellcome Co. and Duke Medical Center, Depts. of Virology and Pediatrics, Durham, NC.

Clinical isolates from five infants who experienced recurrent herpes simplex virus (HSV) disease following acyclovir therapy for neonatal infection were examined to determine if subsequent disease was caused by virus resistant to acyclovir in vitro. All infants received at least two courses of antiviral therapy and were felt to improve clinically during drug administration. Following discontinuation of antiviral therapy however, signs and symptoms of recurrent herpesvirus illness were present peripherally, and in some cases were associated with systemic clinical deterioration. The in vitro sensitivity of virus isolated from these infants was determined using a microtiter dye uptake technique in Vero cells. Sensitivity values are expressed as the concentration of acyclovir required to inhibit virus-induced cytopathic effects by 50% (ID_{50} value). All virus isolated from these infants was sensitive to acyclovir. The mean pre therapy ID_{50} was 1.37 mcg/ml. Following a first course of acyclovir, recurrent lesions were culture positive in only three of five babies. The mean ID_{50} of these isolates was 0.96. The ID_{50} of virus isolated from recurrences in all five infants following additional intravenous drug therapy was 1.39. Recurrent and progressive disease in this group of infants could not be attributed to selection of resistant virus.

†1134 STUDIES OF SAFETY AND IMMUNOGENICITY OF HAEMOPHILUS INFLUENZAE TYPE B POLYSACCHARIDE DIPHTHERIA TOXOID CONJUGATE VACCINE (PRP-D) IN CHILDREN 7-14 MONTHS OF AGE. Martha Lepow, Roger Barkin, Kathleen Meier, John Zahradnik, Carol Berkowitz, David James, Philip Brunell, Joel Samuelson, and Lance Gordon. Albany Medical College, Albany, NY; U. of Colorado, Health Services Center, Denver; Baylor College of Medicine, Houston; Harbor-UCLA Medical Center, CA; University of Tennessee, Memphis; University of Texas, San Antonio; Departments of Pediatrics; and Connaught Laboratories, Swiftwater, PA and Toronto, Canada.

In a multicenter study, 502 normal infants ages 7-14 months were randomized to receive either 2 doses of PRP-D intramuscularly containing 20 ug PRP (80%) or placebo (20%) 6-10 weeks apart. Serum samples were obtained from 25% prior to each injection and 1 month post second dose and tested by Farr-type radioimmunoassay for anti-PRP antibody. Reaction data are available from 400 subjects. The incidence of local erythema at the injection site was 2.4% and irritability 3% in both groups. Two PRP-D recipients had temperatures greater than 102^2(R). Among 120 children tested for antibody, 99% of PRP-D recipients demonstrated a two fold or greater rise in anti-PRP compared with 5% of placebo recipients. Median anti-PRP levels in the two groups were 7.0 and 0.012 ug/ml respectively. After 2 doses of PRP-D, 95% had $\geq$ 0.15 ug/ml antibody protein/ml and 90% had $>$ 1 ug/ml. This study confirms prior observations in 9-14 month olds that PRP-D can induce primary and booster antibody responses in infants over 7 months compatible with protection against H. influenzae b disease.