938 COLOSTRAL CELL (CC) LYMPHOKINE STIMULATION OF NEONATAL MONONUCLEAR CELL (MC) NATURAL KILLER CYTOTOXICITY (NKC) TO HERPES SIMPLEX VIRUS (HSV) INFECTED CELLS. Steve Kohl, Larry K. Pickering and Lian S. Loo, University of Texas Medical School, Dept. Ped. & Prog. Infect. Dis., Houston, Tx

NKC is an important antiviral defense mechanism. Neonates have low NKC to HSV infected cells. Human blood MC cultured for 18 hr. with HSV infected cells produced a lymphokine which stimulated adult MC-NKC from 53.0 ± 10.5% to 79.8 ± 12.8%, ($p < .01$) in an 18 hr. ^{51}Cr release assay against HSV infected target cells. This resulted in a calculated lymphokine-dependent cellular-cytotoxicity (LDCC) of 65.8%. No active lymphokine was produced in the presence of uninfected cells. LDCC lymphokine production was independent of MC donor HSV serology. Cells from colostrum of most (8/10) women also produced an HSV stimulated lymphokine which mediated adult MC-LDCC (19.6 ± 4.2%) and was greater ($p < .05$) than matched MC lymphokine activity (6.7 ± 2.6%) from these women. CC lymphokine production was also independent of donor HSV serology. Similarly, most (10/13) CC lymphokine cultures could stimulate neonatal MC-LDCC (17.4 ± 11.1%) as well as adult MC-LDCC.

Colostral cell stimulation of neonatal NKC by LDCC may account for the increased non specific resistance of breast fed infants to viral infection.

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939 CHEMOTAXIS AND CHEMOKINESIS OF MONONUCLEAR PHAGOCYTES (MP) IN DOWN'S SYNDROME. Roberto R. Kretschmer, Octavio Barroeta, María L. Nungaray, Salvador S. Armendares and Fabio R. Salamanca. Divisions of Immunology and Genetics. Subjefatura de Investigación Científica, CMN-IMSS and Instituto de Investigaciones Antropológicas, UNAM. Mexico City. Mexico.

Chemotaxis and chemokinesis of MP under agarose were evaluated in 38 children with Down's syndrome and compared to that of 43 age-matched normal children and 21 healthy adults. Blood MP were obtained on Ficoll-Hypaque gradients, and migration towards a well containing zymosan-activated fresh normal human serum and a well filled with control serum was measured after staining and photographic magnification of the plates. Chemokinesis was evaluated in plates containing 8% zymosan-activated serum homogeneously dissolved in the agarose. The chemotactic index of MP from children with Down's syndrome was 1.2 ± 0.1 (mean ± S.D.) and was significantly ($p < 0.001$) smaller than that of normal children (1.5 ± 0.2), or normal adults (1.43 ± 0.2). Chemokinesis of MP from children with Down's syndrome (8.4 mm ± 0.8 mm) was not different from that of normal children (7.6 mm ± 0.4 mm), but both were significantly weaker ($p < 0.001$) than that of adult MP (13.0 mm ± 1.1 mm). These defects in MP movement may contribute to the deficient cell-mediated immunity found in children with Down's syndrome and thus to the increased susceptibility of these children to certain infections.

● **940** ASYNCHRONOUS ONSET OF μ AND LIGHT CHAIN SYNTHESIS BY HUMAN PRE-B CELLS H. Kubagawa, W. E. Gathings, D. Levitt and M. D. Cooper. Cellular Immunobiology Unit, University of Alabama in Birmingham, Birmingham, AL 35294

Pre-B cells, precursors of surface IgM bearing B cells, are defined as cells in hemopoietic tissues that lack surface immunoglobulins (sIg^-) but produce small amounts of cytoplasmic IgM components ($cμ^+$). To determine whether Ig light chains and other heavy chains are also produced by pre-B cells, we have used affinity purified goat antibodies to human Ig determinants (μ, δ, γ, α, κ, λ) in immunofluorescent and immunochemical assays of bone marrow samples. All sIg^+ B cells and cIg^+ plasma cells were co-stained with a mixture of anti-κ and anti-λ antibodies. None of the cIg^+ plasma cells were double stained with anti-κ and anti-λ. κ/λ ratios of $sμ^+$ B cells and cIg^+ plasma cells from 5 normal adult marrows were 1.4 ± 0.2 and 1.3 ± 0.3 (mean ± S.D.), respectively. Frequencies (%) of pre-B cells ($sIg^-cμ^+$), $κ^+$ pre-B cells ($sIg^-cκ^+$) and $λ^+$ pre-B cells ($sIg^-cμ^+$) among nucleated bone marrow cells were 0.69 ± 0.38, 0.017 ± 0.015 and <0.008, respectively. Pre-B cells expressing Ig heavy chains other than μ were not seen among 30,000 or more nucleated marrow cells. Analysis of bone marrow cells from two patients with X-linked agammaglobulinemia revealed μ chain synthesis only, as determined by SDS polyacrylamide gel electrophoresis. Our data indicate that (i) >90% of human pre-B cells express μ chains only, suggesting asynchronous onset of heavy and light chain synthesis, and (ii) heavy chain switching is a rare event at this stage in differentiation.

941 PLASMA INHIBITION OF LYMPHOCYTE BLASTOGENESIS IN NEPHROTIC SYNDROME: CORRELATION WITH HYPERLIPIDEMIA. Carl Lenarsky, Stanley Jordan, and Stephan Ladisch. (Spon. by Stephen A. Feig). UCLA School of Medicine, Department of Pediatrics, Divisions of Hematology/Oncology and Nephrology. Los Angeles.

The plasma of patients with Nephrotic Syndrome suppresses *in vitro* lymphocyte blastogenesis, but the mechanism of this effect has not been defined. The frequent association of Nephrotic Syndrome with hypertriglyceridemia, and previous studies which demonstrate an immunoregulatory effect of lipids and lipoproteins, suggested the hypothesis that the immunosuppressive effect of Nephrotic Syndrome plasma was correlated with the hypertriglyceridemia. Plasma was obtained from 8 patients with Nephrotic Syndrome and tested for its effects on lymphocyte blastogenenic responses of normal peripheral blood lymphocytes. Triglyceride and cholesterol levels were also determined. The plasma of 5 Nephrotic Syndrome patients caused >90% suppression of normal lymphocyte blastogenesis to concanavalin A and SKSD. Furthermore, the degree of inhibition of lymphocyte blastogenesis was correlated with the severity of hypertriglyceridemia in all 8 patients (for concanavalin A, $r=.905$, $p<.01$; for SKSD, $r=.775$, $p<.05$).

These results suggest that the *in vitro* plasma mediated immunosuppression in Nephrotic Syndrome may be due to the associated hypertriglyceridemia. Studies to further characterize the nature of plasma mediated *in vitro* immunosuppression in Nephrotic Syndrome are in progress.

● **942** IMMUNOLOGY OF BREAST MILK: ORIGIN OF ANTIBODIES TO RESPIRATORY SYNCYTIAL VIRUS (RSV) AND BOVINE SERUM ALBUMIN (BSA) IN THE LACTATING BREAST. Genevieve A. Losonsky, Christine M. Theodore, Barbara Peri, Mark Fishaut, Richard M. Rothberg, Pearay L. Ogra, Schools of Medicine, State University of N.Y. at Buffalo and University of Chicago.

Employing the techniques of immunofluorescence, radioimmunoprecipitation, and radioimmunodiffusion, the development of antibody responses to RSV and BSA and the localization of immunoglobulin containing cells in the mammary glands, was studied in groups of pregnant rabbits after intravenous (IV), per oral (PO) or transtracheal (IT) immunization with RSV and BSA during late gestation. A predictable IgM and IgG and no IgA antibody response to RSV was observed in the serum. The secretory response to RSV was characterized by the regular appearance of IgA antibody in the colostrum and milk after IT and PO immunization but not after IV immunization. The proportion of IgA staining cells in the mammary tissues was found to be 50% higher in the animals immunized by IT or PO routes than by the IV route. No infectious virus or RSV antigen was detected in the breast. Most animals elicited IgG anti-BSA response in the serum, colostrum and milk, and a few evidenced IgA in serum. However, IgA response to BSA was notably absent in colostrum and milk. These observations suggest independent contributions of bronchus associated and gut associated lymphoid tissue to the development of mammary immunity. More importantly, significant differences exist between soluble dietary proteins and particulate viral antigens in their ability to induce breast milk antibodies.

943 T CELL EFFECTOR DEFICIENCY IN INFANTS AND YOUNG CHILDREN. Renata G. Lubens, Sherrie E. Gard, and E. Richard Stiehm. UCLA School of Medicine, Dept. of Pediatrics, Los Angeles, CA.

Cellular (T-cell) immunity in infants and young children is suspect because of diminished delayed skin tests and increased susceptibility to infection, engraftment, and malignancy. However, T cell numbers and proliferative responses are normal, and lymphokine production is variably reduced. We therefore studied two cytotoxic functions of T cells, natural killer (NK) and lectin-dependent (LD) cytotoxicity in newborns, young children less than 24 months, and adults. In the PHA-enhanced LD cytotoxicity assay, whole mononuclear (MN), T enriched (>95% T cells) and T depleted (<1% T cells) fractions were tested against ^{51}Cr-labeled EL-4 target cells in a 4 hour incubation at an effector target ratio of 40:1. In the NK assay, MN cells were used against ^{51}Cr labeled Molt-4f tumor cells with and without the addition of exogenous interferon (100 units) at effector:target ratios of 50:1, 25:1, and 10:1. Cyclic AMP levels were also assessed in the cell fractions. In the LD assay, the MN cord blood cells had equivalent specific cytotoxicity (34 vs 32%, N=14) to adult cells but the T-enriched fractions had a strikingly decreased cytotoxicity (22 vs 51%) compared to adults. This normalizes after age 2. By contrast NK activity and interferon enhancement was equivalent in newborn and adult cells (53 vs 55%, N=10). Cyclic AMP levels of newborn cells were markedly reduced. These results indicate that NK maturation occurs very early, that an important T-effector function is immature in newborns, and that their T cells resemble those of some patients with T cell immunodeficiency.