703 DETECTION OF T AND B LYMPHOCYTE ANTIGENS ON TWO MAJOR NULL CELL SUBSETS. Joseph Kaplan, and Ward D. Peterson, Jr.* Dept. Pediatrics, Wayne State U. Med. Sch., Detroit, MI 48201.

Rabbit antisera to autologous T and B lymphoblast cell lines HSB-2 and SB, after reciprocal absorption, were found to detect human T and B lymphocyte antigens (HTLA and HBLA antigens). When tested by indirect immunofluorescence and C' dependent cytotoxicity, the anti-T cell line serum reacted with T cells but not B cells whereas the anti-B cell line serum reacted with B cells but not T cells. These two antisera also reacted with peripheral blood null cells prepared by nylon column filtration and E rosette depletion. The sum of the percentages of null cells reacting with each antiserum approximated 100%. Null cell suspensions depleted of cells reacting with one antiserum showed a reciprocal increase in cells reacting with the opposite antiserum.

These findings indicate that most, if not all, null cells express either HTLA or HBLA antigens. It appears therefore that some null cells are related to the T cell line of differentiation whereas others are related to the B cell line of differentiation. (Supported by USPHS NIH Grant CA 17534 and Contract 1-CP-33333. J. Kaplan is recipient of NIH Research Career Development Award CA 00188).

704 CELL MEDIATED IMMUNITY(CMI) TO CYTOMEGALOVIRUS(CMV) INFECTION IN MICE. Douglas K. Kelsey, James C. Overall,Jr. and Lowell A. Glasgow. Univ. of Utah College of Medicine. Department of Pediatrics. Salt Lake City.

The suppression of CMI during some acute viral infections, including CMV infections, has been postulated to account for the persistence of these viruses in humans and experimental animals. We have developed an experimental animal model in C3H mice to study CMI during this viral infection. The response of splenic lymphocytes from murine CMV(MCMV) infected mice to phytohemagglutinin(PHA) and lipopolysaccharide(LPS) was suppressed during the acute phase of the infection with maximal suppression on day 4 (25% of control for PHA and 28% of control for LPS) and returned to normal by day 15 The mixed lymphocyte reaction(MLR) of splenic lymphocytes from infected animals was suppressed to 38% of control on day 2, to 9% on day 4, and returned to normal by day 15 In contrast, lymphocytes responded to MCMV-infected syngeneic mouse fibroblasts(MEF) by day 2 incorporating 52,183± 9866 CPM of ^{3}H-thymidine compared to 23,587±3909 CPM with uninfected MEF. The response to infected MEF increased to 132,560± 22,739 CPM by day 10 These data show that lymphocytes responsive to MCMV antigen are generated at the same time that suppression of the response to mitogens and the MLR is observed. These data suggest that the use of non-specific lymphocyte reactions as an index of CMI may provide misleading information and that the suppressions of such reactions may be a result of the regulation of the specific immune response of the host to the viral infection rather than to direct immunosuppressive effects of the virus itself.

705 NEONATAL ANDROGEN LEVELS AND ANTIBODY PRODUCTION. Jean F. Kenny and Pamela C. Pangburn. Univ. of Pittsburgh Sch. of Med., Dept. of Ped., Pittsburgh, Pa.

While data suggest that the effects of sex hormones mainly estrogen(E), may be the basis for sex differences in immunity in later life,the reason for the differences in infancy are obscure. Though serum levels of E in male and female babies are low and not significant,recent data show marked sex differences in serum concentrations(C)of testosterone(T)with levels in males of 0-3months ranging from 350pg/ml to 2000pg/ml and those in females from 50-100pg/ml. To determine what effects these C of T might have on numbers of anti-bacterial antibody producing cells (APC)spleen cells from outbred male Swiss mice injected with 3x10^{6}heat-killed E.coli 3 days before were incubated in vitro with C of T of 5-5000pg/ml. After 24hours,numbers of anti-E.coli APC as determined in an agar-gel were compared in T-treated and untreated(U)portions of the same suspension. At 50pg/ml 21 of 27(77%)of T-treated suspensions had increased numbers of APC over U(p=.003). The mean number of APC/spleen of 1280 for T-treated was 45% greater than that of U. By contrast,at 500pg/ml and above,APC were reduced;at 500pg/ml 27 of 36 suspensions had fewer APC than U(p=.002). T-treated averaged 42% fewer. Similar studies show that at C of estradiol(E_2)of 500-5000pg/ml and of progesterone(P) of 500pg-50ng/ml increases in APC occur but at C of 50ng/ml and 500ng/ml respectively APC are reduced. T,E_2 and P enhance at lower and suppress numbers of APC at higher C. T is the most potent with its effects at the lowest C. Findings suggest that serum levels of T in male infants may suppress whereas those in female infants may enhance the proliferation and/or differentiation of APC.

706 CORD AND MATERNAL BLOOD MONOCYTE-MACROPHAGE MEDIATED ANTIBODY-DEPENDENT CYTOTOXICITY TO HERPES SIMPLEX INFECTED CELLS. Steve Kohl, Sedat S. Shaban, Stuart E. Starr, Phyllis A. Wood and André J. Nahmias. The University of Texas Medical School at Houston, Program in Infectious Diseases, Houston and Emory University School of Medicine, Department of Pediatrics, Atlanta.

We recently reported that antibody-dependent cell-mediated cytotoxicity (ADCC) to Herpes simplex virus (HSV) infected cells could be mediated, not only by K lymphocytes, but by adherent mononuclear cells (MA) isolated from adult human peripheral blood. The MA differ from K lymphocytes in antibody requirement, killing kinetics, and selective inhibition by latex or silica in the Cr^{51} release assay and are predominantly monocyte-macrophages. Because of the known role of such cells in immunity to several viruses, and since HSV can cause severe neonatal disease, it was of interest to evaluate the function of cord blood MA in ADCC to HSV.

Cord blood (CB) from 11 healthy term neonates and maternal blood (MB) from 7 of their postpartum mothers were analyzed for MA activity in an 18 hr. Cr^{51} ADCC assay against HSV infected Chang liver cells. The magnitude of ADCC produced by MA from CB and MB was not significantly different from that obtained with MA from 8 non-pregnant adult females. Together with our earlier report of cord blood lymphocytes functioning with HSV antibody in ADCC, these data suggest that the use of HSV antibodies for prevention or therapy of neonatal HSV infection requires further consideration.

707 QUANTITATIVE NITROBLUETETRAZOLIUM REDUCTION BY CORD BLOOD MONOCYTES. Roberto R. Kretschmer, Cynthia Papierniak, Prudence Stewardson-Krieger, Ameeta Bamzai and Samuel P. Gotoff. Pritzker School of Medicine, University of Chicago, Michael Reese Hospital and Medical Center, Division of Immunology, Department of Pediatrics, Chicago.

The phagocytic-biochemical capacity of normal cord blood monocytes was measured and compared to that of normal adult monocytes. Mononuclear cells were obtained by Ficoll-Hypaque gradient separation and the percent of monocytes established by latex particle ingestion with Nowarski optics. The functional capacity of monocytes was evaluated by quantitative spectrophotometrical measurement of the reduction of NBT dye stimulated by latex particle ingestion.

No difference was found in percent monocytes ingesting latex and number of particles ingested per monocyte in cord and adult monocytes. Reduction of NBT by cord and adult monocytes was comparable both in the resting and phagocytizing stages. There was no correlation between NBT reduction and contaminating numbers of platelets or polymorphonuclears (PMN) in the samples.

Our results reveal that cord monocytes do not differ from adult monocytes in ability to ingest latex particles and reduce NBT, which is consistent with their normal bactericidal capacity. However, when compared to PMN, monocytes are weaker NBT reducers, and cord monocytes do not reveal the increased resting NBT reduction observed in cord PMN.

708 CELLULAR IMMUNE RESPONSE TO HERPESVIRUS ANTIGENS DURING PREGNANCY. Ashir Kumar, Earla J. Biekert and George A. Nankervis (Spon. by Donald N. Medearis), Case Western Reserve Univ. School of Med. at Cleveland Metro. Genl. Hosp., Department of Pediatrics, Cleveland, Ohio.

The cellular immune response of lymphocytes was studied in 27 pregnant females and 25 nonpregnant females of child bearing age by the technique of lymphocyte stimulation (LS) as measured by ^{3}H Thymidine uptake (^{3}HThU) in vitro. LS indices (^{3}HThU in stimulated cells/^{3}HThU in unstimulated cells) were measured using phytohemagglutinin (PHA) and different concentrations (undilute, 1/10, 1/100) of Herpes simplex (HS) type I, HS type II and cytomegalovirus (CMV) antigens (agns) as stimulants. Complement fixing (CF) titers >1:4 to CMV, HSI, HSII were present in 22, 22 and 20 pregnant and in 13, 17 and 15 nonpregnant patients (pts) respectively. In antibody positive pts, LS indices of >3 to agns were found in 12/22 (CMV), 22/22 (HSI), and 19/20 (HSII) pregnant; and 12/13 (CMV), 14/17 (HSI) and 13/15 (HSII) nonpregnant pts. When the stimulating agn was diluted, the means of LS indices to HSI and CMV were lower in pregnant as compared to nonpregnant pts., eg. means of LS indices to 1/100 dil CMV agn in 12 nonpregnant pts were 3.28 and 9.75 (p=.02); means of LS indices to 1/100 dil of HSI agn in 22 pregnant and 14 nonpregnant pts were 7.66 and 24.88 (p=.004). No differences were found in means of LS indices to HSII agn or PHA regardless of the dilution. These data indicate that there is depression of cellular immune response to certain Herpesvirus agns during pregnancy.