Furthermore, the chronically infected patients failed to demonstrate delayed hypersensitivity to 2,4-DNFB, Candida, OT, SKSD, mumps and Trichophyton, whereas controls reacted to at least two of the antigens. Since IgA is the predominant salivary immunoglobulin, these patients may present another example of IgA deficiency in association with abnormalities of cellular immunity. Similar observations have been reported in ataxia-telangiectasia and thymectomized rodents. (SPR)

69 *Modification of Graft-Versus-Host Reaction with Anti-Lymphocyte Serum.* VINAI SUVATTE* and JOHN H. GITHENS. Univ. Colo. Med. Ctr., Denver, Colo.

The serious mortality and morbidity of the graft-versus-host reaction (GVHR) is a deterrent to the clinical use of bone marrow transplantation. In the present study, the GVHR has been significantly modified in mice by using anti-lymphocyte serum. A model of GVHR was produced in Balb/c newborn mice by injection of 6×10^6 viable adult C57Bl spleen cells intraperitoneally within the first 24 hours. Antilymphocyte serum was prepared by giving 3 intraperitoneal injections of 300×10^6 washed lymphocytes from adult C75Bl (mouse) lymph nodes and thymus into rabbits at weekly intervals. The antiserum was inactivated and absorbed with washed mouse red cells until free from hemagglutinins. The effectiveness of rabbit antimouse lymphocyte serum (RAMLS) was tested in vitro by cytotoxic and indirect fluorescent antibody tests, and in vivo by production of persistent lymphopenia. Thirty-one newborn Balb/c mice were treated with 0.1 ml. RAMLS intraperitoneally after the injection of 6×10^6 adult C57Bl spleen cells by 2 schdules: group I was started on day 3 and group II on day 1. The same dose was then administered every other day through the first 21 days. The incidence of runting and the mortality rate were compared with a spleen cell injected group of 26 newborn mice which received normal rab-incidence of runting and the mortality rate at 21 days bit serum by the same dose schedule. In group I the were reduced from 88 % in the controls to 35 % in the anti-lymphocyte serum treated group. In group II the incidence of runting and the mortality rate at 21 days were reduced from 90 % in the controls to 0 % in the treated group. The results in both groups were statistically significant and indicate that the GVHR can be completely blocked by the early administration of anti-lymphocyte serum in mice. (SPR)

70 *Macrophage Formation from Isolated Lymphocytes in Tissue Culture.* HAROLD W. LISCHNER*, Temple Univ. Sch. of Med. and St. Christopher's Hosp. for Children, Philadelphia, Pa. (introduced by Victor C. Vaughan, III).

Circumstantial evidence for the conversion of lymphocytes into macrophages has accumulated for half a century, but attempts to demonstrate this change in tissue cultures of isolated lymphocytes have met with failure. In these latter studies lymphocytes were exposed in columns to glass, silicon, cotton or nylon surfaces during their separation from granulocytes and monocytes. Other data suggest that either contact with a foreign surface is injurious to lymphocytes or an important minor population of lymphoid cells sticks to such surfaces. For example, column-separated lymphocytes are not agglutinated by isoantisera to leukocytes, and they transform poorly into blastoid cells upon specific stimulation in tissue culture.

Lymphocytes were therefore purified, without significant surface contact, by magnetic removal of iron-laden phagocytes after incubation of whole defibrinated blood with micro-filings of iron. Erythrocytes were sedimented with the aid of gelatin. The resulting lymphocytes were agglutinated well by isoleukoagglutinins, and they underwent blastogenesis as readily as unseparated lymphocytes. One to 3 % macrophages regularly appeared in suspension cultures of these lymphocytes even though the preparations initially contained less than 0.2 % nonlymphoid nucleated cells. In monolayer cultures varying proportions of the lymphocytes attached to the surface and began to enlarge soon after culture. Other lymphocytes never did adhere to the glass. After one week most of the *adherent* cells had the typical morphologic features of macrophages and were phagocytic. It is apparent that at least one class of lymphocytes is capable of conversion into macrophages in the absence of nucleated cells. (Supported by NIH Grants AM-9112, AM-6469 and T1 HD-66) (SPR)

71 *Experimental Fetal Growth Retardation.* WILLIAM A. BLANC, Columbia Univ., Babies Hosp., Col. of Physicians and Surgeons, New York, N.Y.

Reduction of uteroplacental blood flow in one uterine horn of pregnant rats was achieved by Wigglesworth's technique (ligation of uterine vessels at lower end of one horn on the 17th day of pregnancy). Cesarian section was performed on the 21st day. Fetal death or stunting occurred in fetuses located near the ligation. The most stunted fetus was compared with the corresponding fetus in the normal horn and a statistical analysis of 35 such pairs was carried for fetal weight and organ/fetal weight ratio of all organs. Stunted newborns had a mean weight of 2.77 g vs. 4.76 for controls. The liver, lungs, and kidneys, were the most stunted, and were affected more than the fetus as a whole, whereas the brain, placenta, and heart were least affected. The ratios for thymus, spleen, pancreas, and submaxillary gland were not statistically different from those of controls. These observations are, in part, comparable with those made in human newborns in maternal hypertension and 'placental insufficiency'. Histologically the organs differed little from those of control fetuses, except for lack of glycogen in livers of stunted fetuses. Even very stunted organs appeared to have matured normally. These experiments extend and confirm Wigglesworth's data on the weight of liver, brain, and placenta. They support the suggested relationship between uterine blood flow and fetal growth. They show an interesting discrepancy in the effect on growth and on maturation. (SPR)

72 *Phenylalanine Hydroxylase Activity in Hyperphenylalanemia.* MARGARET E. O'FLYNN*, PARVIN JUSTICE* and DAVID Y.Y. HSIA*, Children's Memorial Hospital and Northwestern, Chicago, Ill. (introduced by Robert B. Lawson).

The recent widespread screening for phenylketonuria among newborn infants has lead to the recognition that not all instances of hyperphenylalanemia is caused by phenylketonuria (PKU). Thi spaper describes enzyme studies in four patients with hyperphenylalanemia.

Case 1 is a patient with 'classical' PKU. Case 2 is an infant who was found to have a plasma phenylalanine (PPA) of 17 mg % at three weeks who showed 'mild' PKU. Case 3 is a 35y-ear-old retarded female with