ABSTRACTS
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ERYTHROCYTES


The mechanism of mitochondrial extrusion from human reticulocytes in the spleen from patients with pyruvate kinase deficiency hereditary nonspherocytic hemolytic anemia was studied by electron microscopy. Accumulation of mitochondria at the periphery of maturing reticulocytes and appearance of many vesicles around the mitochondria represented the initial change. Clusters of mitochondria surrounded by a narrow rim of cytoplasm were finally extruded from the reticulocytes. After extrusion, they were phagocytosed by the cordal macrophages. The possible influence of the splenic pulp blood on the rate of PK-deficient reticulocyte maturation was discussed. K.F.

Biological Activities of Haptoglobin. T. Sasazuki. Department of Clinical Genetics, Institute of Medical Genetics, School of Medicine, Tokyo Medical and Dental University, Tokyo, Japan. Jap J Clin Hematol 14:488-494, 1973

The concept that haptoglobin is a specific antibody to hemoglobin is a prominent hypothesis in suggesting ways to investigate the true physiologic role of haptoglobin. Accepting the notion that organisms produce antibody directed against a foreign substance in order to remove it more efficiently, an attractive working hypothesis is that haptoglobin serves the same purpose with respect to hemoglobin. When comparing the immunochemical properties of haptoglobin with those of antihemoglobin antibody, however, there are many differences between them (precipitation reaction, complement fixation reaction, and binding site and binding mechanism with hemoglobin). Further comparison of physicochemical properties of hemoglobin associated with haptoglobin and that of hemoglobin associated with specific antibody also revealed many differences (oxygen affinity, peroxidase activity, resistance to acid denaturation, absorption spectra, susceptibility of heme to sodium hydrosulfite, and conformation around heme). K.F.

Stabilization of human erythrocytes under hypotonic conditions in the presence of 20 new amide derivatives of 3-methyl-isothiazole-4-carboxylic acid was studied. Three of the compounds, designated by the symbols T5, T13, and T15, exhibited the strongest activity, entirely preventing liberation of hemoglobin at concentrations of about \(10^{-5} \text{M} \) to \(10^{-4} \text{M}\). Compounds in which the benzol group in position 5 of the isothiazole ring was substituted by an aminooacetyl group showed stabilizing properties only at higher concentrations, i.e., \(10^{-4} \text{M} \) to \(10^{-3} \text{M}\), and stabilization was incomplete. Substitution of the benzol group by chloridc entirely deprived the compound of activity. On the basis of the results of the erythrocyte stabilization test, as well as other biological tests, compounds T5, T13, and T15 were selected for further investigation. M.A.

Hemolysis of Erythrocytes by Trichomonas Vaginalis. E. Grys and A. Hernik. Department of Gynecology and Obstetrics, School of Medicine, Poznań, Poland. Pol Tyg Lek 29:267-269, 1974

Twenty strains of Trichomonas vaginalis were tested in vitro for their ability to hemolyse human and rabbit erythrocytes. Human red blood cells were collected from patients with or without trichomomasis. It was found that 14 of the examined strains of T. vaginalis (density 200,000/ml) induced hemolysis of erythrocytes suspended in the medium in which Trichomonas had been cultured. Red blood cells suspended in saline were hemolyzed by all strains of T. vaginalis. The intensity of hemolysis varied, and this variability could be attributed to the properties of individual strains, possibly to their virulence. The filtrates from the 24 cultures of some strains of T. vaginalis exhibited also the hemolytic activity. M.A.

Kinetics of Radioactive Iron (\(^{59}\text{Fe}\)) and Survival of \(^{51}\text{Cr}-\text{Erythrocytes} in Patients Following Post-Traumatic Splenectomy. S. Pawelski, L. Konopka, M. Zaczekowska, K. Rechowicz, B. Klawe, and Z. Klawe. Department of Internal Medicine, Department of Surgery, Institute of Hematology and Department of Surgery, Hospital of Pediatric Thraumatic Surgery, Warsaw, Poland. Acta Haematol Pol 4:291-298, 1973

Survival of \(^{51}\text{Cr}\)-erythrocytes and \(^{59}\text{Fe} \) kinetics were investigated in ten patients subjected to splenectomy because of abdominal traumas 7 mo 31 yr before. \(T_{\frac{1}{2}} \) of \(^{51}\text{Cr}\)-erythrocytes was normal in all cases except one, in which slight (up to 20 days) shortening of red cell half-life was detected. Indices of ferrokinetic investigations were within normal limits in seven cases, while latent iron deficiency could be recognized in two patients and an overt one in one patient. Iron deficiency in these cases could be related to such causes as inadequate diet or gastrectomy. The authors conclude that posttraumatic splenectomy does not result in delayed changes in either erythrocyte survival or iron metabolism. M.A.


Twenty patients with chronic anemia of considerable intensity (mean erythrocyte count 2.8 million per cu mm, mean hemoglobin level 7.1 g/100 ml) were examined, and normal pulmonary ventilation was observed with only a slight rise in minute ventilation causing a state of respiratory alkalosis. In seven patients the pressure of oxygen in arterialized capillar blood was low (79-70 mm Hg), but no correlation was found with the level of hemoglobin and hematocrit. M.A.

LEUKOCYTES

Morphologic Lesions in the Organs of Mice in the Course of Leukemogenesis under the Influence of Graffi Virus. I. Mice Infected With Cell-free Filtrate of the Organs of Mice with Myeloid Leukemia. A. Niezabitowski. Department of Anatomopathology, School of Medicine, Kraków, Poland. Patol Pol 24:485-504, 1973

Mice of the inbred XVII Bln strain, 1 3 days after birth, were infected subcutaneously with cell-free filtrate of the organs of mice with the sytomatic myeloid leukemia induced by the Graffi virus. Groups of mice were killed at day intervals and morphologic changes in viscera as well as leukocyte count and differential counts were investigated. Myeloid leukemia developed.
in the majority of the animals. The following four consecutive phases of changes in organs and blood could be distinguished: (1) a nonspecific phase with accumulation of leukocytes in the lymph nodes, accompanied by increase in the numbers of polymorphonuclear leukocytes in the peripheral blood; (2) preliminary phase with stimulation of the granulocytic system in the spleen and lymph nodes, focal atrophy of the thymic cortex, and accumulation of polymorphonuclear leukocytes in the thymus, usually accompanied by granulocytopenia in the peripheral blood; (3) a borderline phase with young cell forms of the granulocytic system in the spleen and lymph nodes, and their increase in the bone marrow. The number of granulocytes in the peripheral blood usually increased and a few pathologic forms appeared; (4) a leukemic phase, with leukemic infiltration of the organs and typical leukemic peripheral blood picture. — M. K.

Morphologic Lesions in the Organs of Mice in the Course of Leukemogenesis Under the Influence of Graffi Virus. II. Mice Infected with Cell-free Filtrate of the Organs of Mice With Lymphatic Leukemia, A. Niezabitowski. Department of Anatomopathology, School of Medicine, Kraków, Poland. Patol Pol 24:505–525, 1973

Mice of the inbred XVII Blm strain, 1 3 days after birth, were infected with filtrate of the organs of animals with lymphatic leukemia induced by the Graffi virus. Groups of mice were killed at 10 day intervals, and the peripheral blood picture and morphologic lesions in the internal organs were evaluated. Lymphatic or lymphoreticular leukemia developed in the investigated group of mice. The morphologic changes in the thymus were correlated with the changes in the spleen and lymph nodes. Four phases of leukemogenesis were distinguished: (1) a nonspecific phase with accumulation of leukocytes in the lymph nodes, accompanied by increased numbers of polymorphonuclears in the peripheral blood; (2) a preliminary phase, with atrophy of the thymic cortex and enlargement of splenic follicles and granulocytopenia in the peripheral blood; (3) a borderline phase, with proliferation of reticuloendothelial cells in the thymus and atrophy of lymphoid structure in the lymph nodes, leading to formation of granulomatous foci, accompanied by an increase in the numbers of granulocytes and a decrease in lymphoid cells in the peripheral blood; (4) pathologic forms of lymphoid cells in the peripheral blood were first observed in the leukemic phase, accompanied by leukemic hyperplasia in the thymus. — M. K.


Two hundred fifty-four nanometers UV-light and 200 kV x-ray dose-survival relationships have been determined for two strains of murine leukemic lymphoblasts L5178Y. Mean lethal doses were 54 erg nm⁻² and 100 rads for L5178Y-R cells and 85 erg nm⁻² and 54 rads for L5178Y-S cells. Split-dose experiments showed a dose fractionation products sparing effect for UV-exposed L5178Y-S cells and for x-irradiated L5178Y-R cells. Dose fractionation caused marked reduction of relative survival in the case of UV-exposed L5178Y-R cells and x-irradiated L5178Y-S cells. — M. K.

NBT Test for Evaluation of Leukocytes in Acute Poisoning, D. Gdyra and J. M. Szajewski. Third Department of Internal Medicine, Praga’s Hospital, Warsaw, Poland. Pol Arch Med Wewn 51:155–158, 1974

The NBT test was done in 30 patients with hyperleukocytosis including 15 cases of acute exogenous poisoning (by various agents) and 15 cases of bacterial infections. The leukocyte counts were comparable in both groups. The percentage of leukocytes containing reduced NBT in the group with poisoning was 11.8%, ± 2.4%, and 33.8%, ± 6.6%, of the other group. The difference was statistically significant. The test may be used for differentiation of leukocytosis due to poisoning from that caused by infection. — M. A.


The NBT (nitroblue tetrazolium) test was evaluated and compared with five routine hematologic procedures in diagnosis of bacterial infection. The routine parameters used were: total white blood cell count, differential count, presence of toxic granulation, Dohle bodies,
and cytoplasmic vacuolization. Two hundred and eighty-nine patients were prospectively evaluated by blood culture and the hematologic parameters. Twenty-eight blood cultures were positive in 50%. Other hematologic results in this group showed the following: white blood cell count greater than 10,000 in 57%, shift to the left in 68%, toxic granulation in 75%, Dohle bodies in 29%, and vacuolization in 29%. One or more abnormalities in conventional hematologic tests was demonstrated in 93% of these cases, and 57% showed abnormalities in three or more. The only significant correlation between NBT test positivity and an abnormal hematologic parameter was found with the presence of neutrophil vacuolization. The authors conclude that conventional hematologic parameters offer a more sensitive indication of the presence of bacterial infection than the nitroblue tetrazolium test. 

P.F.


In this study, the following points were clarified: (1) The contractile protein from leukocytes exhibited contraction and relaxation regulated by concentrations of free Ca2+ in the presence of ATP and Mg2+. (2) The compound was a protein complex mainly consisting of myosin and actin. The contraction relaxation process was based on the association dissociation between myosin and actin, which was coupled with the acceleration inhibition of hydrolysis of ATP. (3) The contractile protein was functionally similar to the actomyosin from smooth muscle rather than that from striated muscle. This situation seemed to be due to differences in the myosin rather than the actin, although the myosin seemed to be immunologically different from that of smooth muscle. (4) The thin filaments being located just inside the cell membrane were electronmicroscopically ascertained to be filament-containing actin by the formation of HMM filament complex showing the characteristic "arrowhead structure" in the glycerinated leukocytes. Finally, the mechanism of the movement of leukocytes is discussed on the basis of the findings described. K.F.


A prospective study of the yield of various routinely performed radiographic examinations in the initial evaluation of 93 patients with previously untreated non-Hodgkin's lymphoma was undertaken. Of these, 69 patients underwent staging laparotomy and, where pathologic correlation was possible, the lymphogram showed a 92% accuracy. Chest radiography, lymphography, and excretory urography are valuable routine procedures. Barium gastrointestinal studies should be employed if specific symptoms are present. Skeletal surveys had a very low yield. The staging laparotomy provides reliable information regarding involvement of spleen, liver, and mesenteric lymph nodes.

J.E.C.


Studies used for evaluating the liver status of patients with Hodgkin's disease have been retrospectively examined for 137 consecutive patients with previously untreated stage I II involvement. The minimum observation for all cases since initial treatment is 4 yr, with a median risk interval of 6 yr. Extension of Hodgkin's disease to the liver has seldom been noted in patients who presented with abnormal baseline liver studies. Instead, reversion of abnormal tests toward normal usually occurred after local lymphatic irradiation, suggesting an indirect effect of active Hodgkin's disease on hepatocellular function. This correlation of the laboratory tests with the clinical course emphasizes that diagnostic studies other than definitive biopsy should be interpreted conservatively especially in terms of treatment decision making. J.E.C.


The pathologic findings in 84 untreated patients subjected to laparotomy and open iliac crest bone marrow biopsy for the staging of
malignant lymphomas other than Hodgkin’s disease are presented. Fifty-one (61%) of these 84 patients had lymphomatous involvement of one or more sites below the diaphragm. The applicability of the histopathologic classification of Rappaport, Winter, and Hicks was confirmed by virtue of the constancy of the histologic features in multiple lesions in 43 patients (84%). Six patients, however, showed two different histologic patterns in two or more sites, and in two additional patients with a composite lymphoma, the initial composite pattern was not reproduced in other sites. Three patients had the remarkable association of a non-Hodgkin’s lymphoma with Hodgkin’s disease either within the same lymph node (composite lymphoma) or in a separate site. In the remaining 75 patients (excluding the nine patients with multiple histologies), 43 had nodular lymphomas and 32 diffuse lymphomas. The nodular lymphomas showed a tendency for widespread dissemination by virtue of their involvement of the abdomen in 31 patients (72%) and bone marrow in two (11%) of 18 patients. This clearly indicates that evaluation of stage of the disease alone does not suffice in assessing response to therapy and long-term survival, in view of the poor prognosis of diffuse histiocytic lymphomas despite their initial localized involvement. It also emphasizes the importance of differentiating lymphomas according to cytotopic type and architectural pattern. Occult abdominal disease was followed by scintigraphy as well as by autographic and cytochemical examination of biopsed lymph nodes. Detailed data on the dynamics of histologic changes in the lymph nodes are included. Radiologic controls demonstrated a pronounced decrease of the size of lymph nodes in 44 patients. Disappearance of general symptoms such as fever, pruritus, and nocturnal sweating, was observed in eight patients several days after radiolymphography. In three patients with Hodgkin’s disease regression of peripheral lymphadenopathy was noticed. Minor side effects lasting several days consisted of moderate fever in 27 cases, allergic skin reactions in three, joint edema in one, and pains in inguinal regions in two. In one case hemophthisis due to microthrombin in the lungs occurred. Neither changes in leukocyte counts nor any gastrointestinal symptoms were observed. M.A.


The hypothalamo-hypophyseo-adrenocortical system was examined in chronic myeloid and lymphoid leukemias before and after treatment with cytostatic agents. A normal function of this system was found in all patients as evidenced by determinations of 17-OHCS, free corticoids, 17-KS, circadian rhythm of corticoid excretion, adrenal reserve and hypophyseal reserve. No effect of cytostatic agents on the endocrine function of this system was demonstrated. M.A.


A comprehensive article which reviews the functions of leukocytes in relation to infection and of the various tests available to study patients suspected of having defective leukocyte function. J.M.B.

HEMOSTASIS


Therapeutic radiolymphography (28 40 mCi of 131I-Lipiodol Ultrafluid) was performed in 50 patients, 34 with Hodgkin’s disease, stage I or II, and 16 with various other types of malignant lymphoma. Distribution of 131I-Lipiodol was followed by scintigraphy as well as by autographic and cytochemical examination of biopsed lymph nodes. Detailed data on the dynamics of histologic changes in the lymph nodes are included. Radiologic controls demonstrated a pronounced decrease of the size of lymph nodes in 44 patients. Disappearance of general symptoms such as fever, pruritus, and nocturnal sweating, was observed in eight patients several days after radiolymphography. In three patients with Hodgkin’s disease regression of peripheral lymphadenopathy was noticed. Minor side effects lasting several days consisted of moderate fever in 27 cases, allergic skin reactions in three, joint edema in one, and pains in inguinal regions in two. In one case hemophthisis due to microthrombin in the lungs occurred. Neither changes in leukocyte counts nor any gastrointestinal symptoms were observed. M.A.
ABSTRACTS

K. Konishi. Biological Institute, Tohoku University and Japan. Biochem Biophys Res Commun 54:1393-1402, 1973

A peptide, which was released accompanying the activation of bovine plasma fibrin stabilizing factor (FSF) by thrombin, was isolated and characterized. The peptide consisted of Asp4, Thr3, Ser4, Glu4, Pro5, Gly4, Ala4, Val2, Ile1, Leu2, Phe1, and Arg3. The content of proline was highest among all of these amino acids. The carboxyl-terminal residue of the peptide was identified as arginine. However, no N-terminal amino acid reactive with phenylisothiocyanate and dansyl chloride could be determined. Edman's degradation on the inactive FSF showed glutamic acid or glutamine as one N-terminal residue. After the activation of FSF by thrombin, glycine was identified as a second N-terminal residue, in addition to glutamic acid (glutamine). These results indicate that the transformation of FSF to the active enzyme by thrombin involves proteolysis of an arginylglycyl bond located in the N-terminal region of one of the subunits of the proenzyme. — K.F.


The effect of 1-butyl-biguanidine (Silubin-retard) was studied in the process of blood clotting in 30 patients with adult-type diabetes. After 14 days of treatment with this drug, in most patients a decrease in blood clotting was observed, with prolonged plasma thromboplastin time by the test of Biggs-Douglas, lower values of prothrombin and fibrinogen, and shorter euglobulin fibrinolysis time. The favorable effect of Silubin-retard on the blood clotting system suggests its usefulness in prevention of thrombotic complications in adult-type diabetes. — M.K.

Familial Deficiency of Proaccelerin (Factor V). W. Klionska, Z. Morawsko, and K. Krzymien. Department of Nutritional Disturbances in Infants and Department of Physiopathology, School of Medicine, Wroclaw, Poland. Pol Tyg Lek 28:1919-1922, 1973

Congenital efficiency of factor V is reported in a 12-yr-old girl. Familial studies indicated that the proposita is a homozygote with bleeding episodes since the second year of life. Four members of her family (grandmother, both parents, and one sister) are heterozygotes without clinical signs of hemorrhagic diathesis and with factor V values of 53", 65", while one sister is a healthy homozygote with normal factor V activity (95"). — M.K.

Soluble Complexes of Fibrin Monomers (SFMC) in Arterial Hypertension. E. Zola-Ślęczek and M. Szczepaniec. Department of General Cardiology, School of Medicine, Kraków, Poland. Pol Tyg Lek 29:213-216, 1974

In 93 patients with arterial hypertension the values of soluble fibrin monomer complexes (SFMC) were determined in the blood, plasma, and serum using the protamine test. A rise in the level of SFMC was observed in the blood in 34% of patients. A parallelism was demonstrated between the rise in the SFMC level in the blood and plasma, on the other hand, and the stage of arterial hypertension and the value of systolic pressure on the other hand. In view of the lack of parallelism between the rise in SFMC in the blood and plasma and this rise in the serum, it is suggested that the rise in SFMC is due mainly to accumulation of coagulable complexes of fibrin monomers with fibrinogen in arterial hypertension. It is concluded that, in parallel with the stage of arterial hypertension and the value of systolic blood pressure, there is a rise in the intravascular coagulability of blood and the risk of thrombotic complications. — M.K.


In a group of 83 patients with hemophilia and other congenital deficiencies of blood clotting factors, antigen HB was found in 16 cases and anti-HB antibodies in 24 cases. The incidence of this antigen was unrelated to the type of hemophilia, but the antibodies were found more often in severe forms of this disease. In over half the patients, the presence of HB antigen or anti-HB antibodies in serum was associated with hepatocellular damage. — M.K.

Clotting and Fibrinolysis in People Exposed to Lead Compounds. Z. Skrzydlowski, J. Kordecka,
Previous studies have shown that prostaglandin E1 (PGE1) when added to platelet-rich plasma before cooling to 4°C markedly inhibited cold-induced platelet aggregation. As little as 20 ng PGE1/ml were effective. At these small concentrations platelet functions were not adversely affected. The addition of PGI2 in quantities as small as 3 ng/ml of fresh whole blood at time of collection allowed recovery of 75% of the platelets after three days of storage at 4°C. After 6 days refrigerated storage, still 50% of the total platelets could be recovered. Without PGE1 addition virtually no platelets are recovered after 6 hr of cold storage due to spontaneous clumping. The platelets harvested from blood stored with PGE1 aggregate normally in vitro, circulate for 2-3 days after transfusion and are capable of shortening the bleeding time when transfused into normal subjects who have ingested aspirin. Prostaglandin E1 does not affect the disc sphere transformation that platelets undergo when exposed to chilling temperatures. These studies suggest that addition of PGE1 to whole blood at the time of collection could increase the availability of platelets for transfusion purposes and prolong the permissible storage time.

M.S.

Effect of Thrombin on the Platelet Membrane.
M. Steiner, Division of Hematologic Research, The Memorial Hospital, Pawtucket and Brown University, Providence, R.I. Biochim Biophys Acta 323:653, 1973

Intact platelets and isolated platelet plasma membranes were iodinated by the lactoperoxidase method, which labels exposed tyrosine residues. The iodinated plasma membranes either from intact platelets or isolated plasma membranes were solubilized with sodium decylsulfate and subjected to polyacrylamide gel electrophoresis. In platelets exposed to thrombin a polypeptide of molecular weight 121,000 was found missing. This polypeptide is sensitive to the action of thrombin.

M.S.
A glass-adherent human lymphoma cell line was found to produce an inhibitor of human in vitro lymphocyte blastogenic responses. The responses to mitogens, antigens, and allogeneic leukocytes were inhibited over 90%, as assayed by DNA synthesis or morphology. The effect was not associated with cytotoxicity and was reversible by washing the inhibited cells. The material was a nondialyzable, heat-stable protein. Its activity was not affected by its deoxyribonuclease and ribonuclease but was destroyed by pronase. Most important, the inhibitor was species and tissue specific; it did not inhibit mouse lymphocytes or a variety of human tissue culture cell lines. The relationship of this material to regulation of lymphoid function and to the etiology and pathogenesis of cancer is discussed. J.E.E.


Blood leukocytes from patients with cancer, when mixed in vitro with antigenic extracts of tumors of the same type, had their normal adherence to glass diminished. This decreased adherence was reversed by the addition of the patient’s own serum. The phenomena of diminished adherence and its reversal were tumor-type specific but were cross-reactive for each type of tumor. Relatively small numbers of patients have been tested, and it would seem that the significance of these findings will await reports on larger series. J.M.B.


The cell-lytic capability of effector lymphocytes from newborn infants was compared to that of cells from normal subjects up to 100 yr of age. Antibody-mediated cytosis of HL-A antibody coated 51Cr-labeled human lymphocytes was measured. Lymphocytes from newborn infants were ineffective; the cytolytic function is acquired between 3 and 12 mo of age. Responses of lymphocytes from adults were variable, and were often reduced in the popul-
tion over 60 yr of age. Responses were maximal between 1 and 6 yr of age.—P.F.


A new antigen-antibody system associated with but distinct from the HB Ag-Ab system is described. The new system is perhaps very similar (or identical) with the e-system reported by Magnus. The antigen is found more frequently in patients' sera than in donors' sera, but as for the antibody the reverse is true. It is interesting that in Japan the antigen is also found in some donor sera.—K.F.

Serum Haptoglobin Levels in Rh-negative Women Receiving Prophylactically Anti-Rh (D) Immunoglobulin after Labor. I. Katnik and E. Gajewski. Department of Clinical Analysis, Institute of Biology and Pharmacy and Department of Gynecology and Obstetrics, School of Medicine, Wrocław, Poland. Pol Tyg Lek 29:261-262, 1974

The serum haptoglobin levels in 52 Rh-negative women were determined after injection of 250 mg of anti-Rh (D) immunoglobulin within 72 hr after labor. It was found that up to the 7th day after administration of anti-Rh immunoglobulin the haptoglobin level increased considerably reaching a mean value of 372 ± 102 mg/100 ml. At the same time the haptoglobin level in women after labor without prophylactic doses of immunoglobulin D rose only to 276 ± 44 mg/100 ml. In determinations repeated after 6 mo the haptoglobin level was normal. —M.A.


A group of 26 patients with Addison-Biermer's disease (P.A.) was investigated. Anti-intrinsic factor antibodies, of the blocking type were detected in 73% of cases. The cell-mediated immunologic response to concentrated gastric juice was found to be positive in 54.7% of patients when delayed skin hyper-sensitivity to this antigen had been examined, while blastic transformation of lymphocytes from the peripheral blood was significantly stimulated by the gastric juice concentrates in 88.4% of the cases. The inverse correlation could be recognized between the titers of antibodies against the intrinsic factor and the grades of lymphocyte blastic transformation under the influence of gastric juice containing this factor.—M.K.

MISCELLANEOUS


The degree of structure of the cytoplasmic matrix (SCM) can be measured by a technique of fluorescence polarisation based on the excitation of fluorescent molecules produced by enzymatic hydrolysis of nonfluorescing fluorescein indacetate in the cytoplasm with polarized light. Changes in the SCM are probably closely related to the proliferative state of the cells. Saline extracts were prepared from lymphocytes, granulocytes, and erythrocytes and tested against proliferative populations of lymphocytes, granulocytes, and erythrocytes. In all cases specificity of effect of the extracts in causing changes in the SCM was found; thus lymphocyte extracts affected only lymphoid cell proliferation, and granulocyte and erythrocyte extracts affected proliferation of granulocytic and erythroid cells, respectively. —J.M.B.


The response of bovine peripheral blood lymphocytes to stimulation by phytohemagglutinin was found to vary during lactation. The incorporation of radioactive precursors into DNA, RNA, and protein investigated on 46-hr lymphocyte cultures demonstrated changes closely related to the time course of lactation. —M.A.