6514

Development of Lymphocytes and Plasma Cells in Rats Experimentally Infected with Trypanosomiasis.

C. H. HU AND K. Y. CH'IN. (Introduced by S. H. Liu.)

From the Department of Pathology, Peiping Union Medical College.

In a previous histological study of the spleen and the mesenteric and mediastinal lymph nodes of white rats experimentally infected with *Trypanosoma brucei*[1] (intraperitoneal injection of about 10,000 parasites), it was found that there was a marked increase of large and medium-sized cells with big irregular nuclear chromatin masses and abundant basophilic cytoplasm. These cells, owing to the large numbers of mitotic figures they contained, were considered as lymphoblasts.

In the sections of these organs of the infected animals killed at different stages of infection the histological pictures were found to vary according to the duration of the infection. There was no change at the end of first day of infection; at the end of second day many large lymphoblasts appeared, apparently as a result of hypertrophy of some of the small lymphoid cells. There were at this stage many transitional cells between the lymphoblasts and the small lymphoid cells. During the next 2 or 3 days, there was a progressive increase in number of both the large and the medium-sized lymphoblasts, while the number of the small lymphoid cells was on the decrease. Mitotic figures among the lymphoblasts became very numerous. The plasma cells and the transitional cells between the lymphoblasts and plasma cells also began to appear in the lymph follicles in large numbers. During the entire course of infection the plasma cells normally present in the medulla of the mesenteric and other lymph nodes did not show any morphological change, even though the cortex of the same nodes presented a picture of marked lymphoblastic hyperplasia.

To gain a better understanding of the findings in the histological study and to explain why only a certain number of the small lymphoid cells in the lymphoid organs can form large lymphoblasts by hypertrophy while others remain unchanged, supravital studies were made on the lymphoid organs and blood of a large number of normal and infected animals.

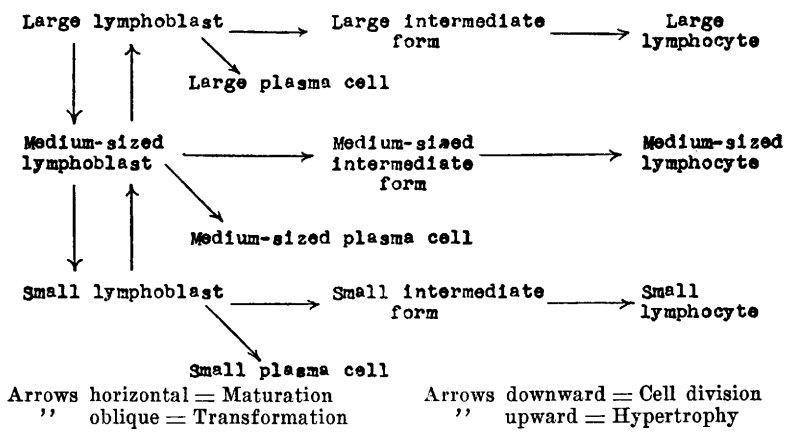
The results indicate (1) that the small lymphoid cells which can

[1] Hu, C. H., "The Lymphatic Reaction in Experimental Trypanosomiasis." *The Nat. Med. J. of China*, 1931, **17**, 435.

hypertrophy are really the small lymphoblasts, and those which cannot hypertrophy are the intermediate forms and the small lymphocytes, (2) that in the lymphoid organs of the infected animals there is an increase of lymphoblasts having the supravital staining characteristics mentioned in the previous communication,[2] (3) that mitotic figures are present only in the large and medium-sized cells having the characteristics of lymphoblasts, (4) that plasma cells which are greatly increased in the latter part of infection are derived from lymphoblasts, and (5) that in the blood of the animals at certain stages of infection there was also an increase of the lymphoblasts and occasional presence of plasma cells.

From the results thus far obtained, one may represent the developmental relationship among the different types of lymphoid cells and plasma cells by the following schema:

SCHEMA



[2] Hu, C. H., and Ch'in, K. Y., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 433.