as an alkylating agent[3]. Reduction in chromosome breaks is, however, due to a reduction in actual induction of NG-induced breaks rather than a higher proportion of restitution of broken ends, in view of the fact that frequency of chromatid exchanges and mitotic index did not show any increase with cysteine treatments and that only combined treatments were effective[10].

Zusammenfassung. Es wurden Gerstenkeimlinge und sekundäre Wurzeln von *Vicia faba* mit Nitrosoguanidin allein oder in Kombination mit L-Cystein behandelt. Im letztern Fall war der radiomimetische Effekt bis auf 50% reduziert. Es wird vermutet, dass diese Reduktion auf eine Änderung des Sauerstoffspiegels in der Zelle durch das L-Cystein zurückzuführen ist.

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[10] The author is thankful to Prof. Dr. J. STRAUB for the use of facilities and to Deutscher Akademischer Austauschdienst for financial support.

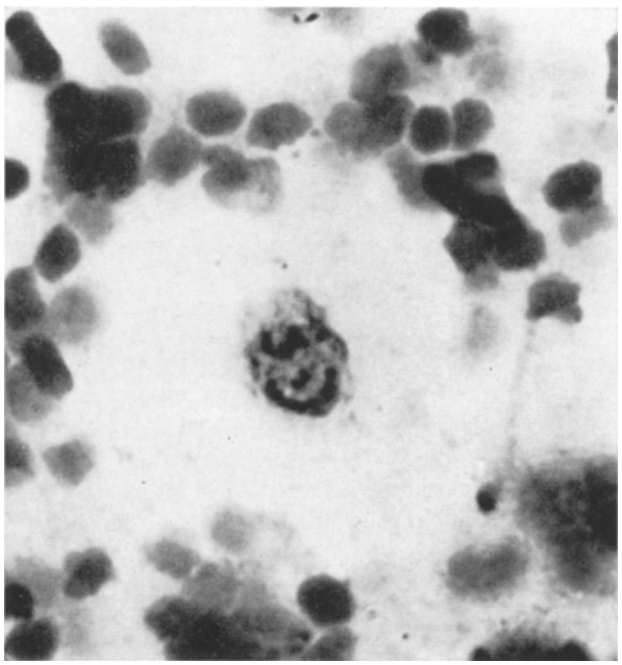
Evidence of Macrophages being 19 S-Antibody Producing Cells, as Shown by a Modification of the Plaque-Technique

The immunogenic function of macrophages is being investigated in many laboratories. The role of macrophages for antibody formation is supposed to consist of the following:

(1) The processing of the antigen after phagocytosis and the formation of a specific RNA in the macrophages. This RNA could be transferred to the antibody-forming cells and so induce the antibody synthesis[1,2].

(2) The uptake of the antigen by macrophages, synthesis of RNA and formation of an antigen-RNA-complex. This complex is highly immunogenic ('super-antigen') and is transferred to immunocompetent cells, inducing there the antibody synthesis[3,4].

(3) The differentiation of these macrophages into antibody-forming cells after uptake of the antigen.



A macrophage as a plaque-forming cell on the fifth day after immunization against SRBC. × 950.

We studied this differentiation by trying to find plaque-forming cells which have the morphological characteristics of macrophages. For this investigation we modified the plaque-technique of JERNE[5] by using a mixture of 0.2 ml of a 0.7% agarose-suspension, 0.05 ml of a 100% SRBC-suspension and 0.06 ml of a 20% mouse spleen cells sensitized in vivo against SRBC 5 days previously. A drop of this mixture was put on a glass slide and spread just as a blood smear. It resulted in a very thin layer, mostly a cell monolayer which was incubated and treated with complement as usual. We obtained very small plaques, visible at a low magnification. Each plaque-forming cell could be recognized and after staining with Giemsa cytologically identified.

4000 plaques have been observed microscopically. We clearly identified a few plaque-forming cells as macrophages (Figure). To be certain the that observed plaques were not artefactual, 2 control measures were used continuously: (1) incubation of the mixture without complement; (2) substitution of non-sensitized spleen cells for the sensitized cells. Our observations have shown that macrophages are able to carry antibodies. The experiment strongly indicates that macrophages can assume an antibody producing ability while still preserving their morphological characteristics.

Zusammenfassung. Milzzellen, die Antikörper gegen Schaferythrozyten bilden, wurden in einer modifizierten Plaque-Technik zytologisch untersucht. Dabei konnten etwa 3% der Antikörper bildenden Zellen als Makrophagen identifiziert werden.

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