"IMMUNOLOGICAL PURIFICATION" OF CELLS CULTURED FROM THE SERUM COMPONENT OF THE NUTRITIVE MEDIUM

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To study the immunogenesis and genesis of human and animal somatic cells it is of greatest importance to analyse the antigenic structure of cells cultured outside the organism [4]. However a considerable obstacle to such an analysis is the adsorbtion on these cells of the serum component of the nutritive medium [1, 3].

In recent years considerable attention has been paid to growing culture cells on media containing no serum or serum fractions, but no practical success has been achieved [2, 5]. On this account another approach has been attempted in an effort to eliminate the influence of the serum component on the results obtained in a study of the antigenic constitution of cells of single-layer cultures; the method has been called "immunological purification".

The presence of a serum component in the form of ox serum usually added to synthetic media has the effect that in the serum obtained as a result of immunization in addition to the specific antibodies against the cells nonspecific antibodies (antibodies to the foreign and iso-antigen components of the serum) are also present. As a rule attempts to remove the nonspecific antibodies from the immune serum by means of adsorbtion lead to a considerable reduction in the titer of the specific antibodies.

The essential feature of the method of "immunological purification" is that the human and animal cells are first grown on synthetic media (medium 119 and others) to which is added 10% of the serum of the animal which will subsequently be immunized by the cells grown. The antisera obtained are completely free from antibodies to the serum component of the medium, and free to form antibodies to the iso-antigenic factors of the serum.

In our laboratory we have applied this method of "immunological purification" in order to obtain antisera from rabbits and horses effective against cells which have long been cultured in vitro (strains HcLa, CaVe, and epithelium 580). These antisera contained no antibodies to the serum component of the medium. In carrying out complement-fixation, agglutination, and precipitation in agar it was found that these lines of human cells lost the original antigens characteristic of cancer of the cervix and cancer of the stomach and normal human gastric tissue. In these cells the species-specific human antigen present in human serum was preserved.

The method of "immunological purification" of culture cells from the serum component of the medium is of great importance not only as a practical experimental measure but also as affording a new approach to the problem of the nature of the antigens of human and animal cells and of sera, and of the specific tumor antigens.

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