sons, all three suffering from recurrent upper respiratory tract infection. Salivary IgA reacted with anti alpha-chain serum and anti T-chain serum but not with anti light-chain serum. Serum IgG reacted with both anti gamma-chain serum and anti light-chain serum, whereas isolated IgA reacted only with anti alpha-chain serum. The urine contained free light chains.

Immunoglobulin synthesis and secretion were examined in tonsillar cell culture using C^{14}-amino acids. The cells excreted into the medium 7 S IgG and two fast moving proteins, one at the location of a heavy chain marker, and a second at the location of a light chain marker. By using specific antisera the cells were shown to synthetize IgG and non-assembled α-chains and light chains. A defect in light-heavy chain assembly of the IgA molecule is assumed. The abnormality appears to reside in the alpha-chain.

In vitro differentiation of a mouse plasmocytoma: its phenothypically stabilized states

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The mouse myeloma MOPC 173 grown in Balb/c mice has been established in tissue culture for more than 200 passages. During the first few weeks non attached cells synthesize a large amount of immunoglobulins, whereas attached cells synthesize much less. After 2–4 months, the attached cells differentiate to two stabilized states: one fibroblastic, not showing contact inhibition, with a high content of viral particles (A type) of the mouse leukemia group and its transplantable back to mice; the other, epithelial, showing contact inhibition, with a very low content of viral particles, is not transplantable to mice. The fibroblastic cells cultivated in 10 per cent serum Earle's medium + lactalbumine + yeast extract are transferred every 3 days after EDTA dissociation by plating 50,000 cells in a 30 ml falcon plastic bottle. The epithelial cells grown in 2 per cent serum medium are transferred every 10 days after trypsin dissociation by plating 500,000 cells per bottle. The epithelial cells can be reverted to fibroblast-like cells under conditions favourable for the fibroblastic state.

Tumors produced in mice by both the fibroblastic cells and by such reverted epithelial cells precipitate with the anti-idiotype serum prepared against the MOPC 173 immunoglobulin.

On the antigenic determinants of glutamic-aspartic transaminase*

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Tryptic hydrolysates of denatured glutamic-aspartic transaminase fractionated on a Sephadex G-25 column gave an elution diagram containing six main fractions. Thirty seven spots were detected when peptide maps were developed from the transaminase digest. The transaminase fractions and some of the individual peptides possessed immunological activity as shown by their capacity to interact with rabbit pig-heart antienzyme and rabbit antiserum against the pig-heart whole tryptic transaminase hydrolysate.

Higher immunological reactivity was found among peptides moving faster in electrophoresis and chromatography. Most of the peptides reacting immunologically contained simultaneously the amino acids arginine, tyrosine and histidine. The polar amino acids aspartic acid and tyrosine inhibited highly the interaction between transaminase and antitransaminase.

The rabbit anti pig-heart transaminase inhibits the catalytic activity of rabbit heart,

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skeletal muscles and liver transaminases but it gives a negative precipitin reaction with them. A comparative study of transaminases and antitransaminases from different sources is presented.

Genetic control of immune response mice. Cross reaction differences against Salmonella lipopolysaccharides

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Salmonella lipopolysaccharides (LPS) with known 0-specific side-chain structure were used as antigens to study differences in the immune response between inbred strains of mice. BALB/cAnNIcr, CBA/J, C3H/HeNIcr, C57B1/6JNIcr and DBA/2 AnIcr were injected with LPS from S.anatum. Their response to this LPS and the cross reaction to the LPS from *S.senftenberg* and *S.strassbourg*, whose structure is similar, was tested in the modified Jerne plaque test using spleen cells. All strains tested respond to the LPS type injected with cells forming direct plaques only. All spleen cells from BALB and DBA mice injected with *S.anatum*-LPS produced plaques with the homologous antigen but also crossreacting antibodies to *S.senftenberg*-LPS. When the cells from the same mice were tested against *S.strassbourg*-LPS, however, BALB and DBA responded differently. Among BALB mice, one finds individuals whose spleen cells produce crossreacting antibodies, and others which produce noncrossreacting ones. In none of the DBA mice tested were crossreacting cells observed. Inhibition experiments showed that cross reaction is due to antibodies produced by single cells and not to two cell populations. The genetic control of the ability to make crossreacting antibodies is under study. This ability is present in some but not all of the (BALBxDBA)F so far tested. All the other strains tested are similar to BALB.

Cryoglobulins from milk and a mechanism for the cold agglutination of milk-fat globules

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The compositions of the immunoglobulin fractions isolated from whey by ammonium sulphate precipitation and by gel filtration, are compared. Milk and colostrum contain both 7 S- and macroglobulins, the latter possessing cryoactivity.

The aggregation of the macroglobulins in the cold was studied by sedimentation and turbidity measurements at different temperatures. Adding various SH-affecting agents does not appear to inhibit the cryoaggregation. The aggregation is slow and only partially reversible; it is strongly enhanced by decreasing the ionic strength of the solution.

The cold agglutination of milk-fat globules was investigated by visual inspection of a 0·35 mm thick layer of milk-fat dispersion. It was found that only fractions rich in macroglobulin are capable to bring about the cold agglutination of milk-fat globules.

Previous adsorption measurements[1] have shown that increased adsorption of the immunoglobulins at the fat globule surface is accompanied by an increase in cold agglutination. The experiments suggest that the functional groups responsible for cryoaggregation and cold agglutination are identical.

REFERENCE

1. Payens T. A. J., Koops J. and Kerkhof Mogot M. F., *Biochim. Biophys. Acta* **94**, 576 (1965).

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