

properties of our second compound of casein with a non-antigenic protein, globin caseinate. We find that globin is non-antigenic and highly toxic, producing in guinea-pigs the typical symptoms and lesions of anaphylaxis. When compounded with casein, it still remains slightly toxic. An anti-serum derived by repeated injections of rabbits with globin caseinate contains fixation bodies for casein, globin caseinate, and, curiously enough, for globin, although globin alone does not produce such antibodies. By absorption experiments it may be shown that the antibodies in anti-globin caseinate serum are two in number, one for casein and one for globin. Thus it appears that the change in globin brought about by this combination with casein renders it antigenic.

A further study of similar and of more complex compounded proteins should give further insight as to the nature of specificity.

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On the nature of oöcytin; the fertilizing and cytolyzing substance in mammalian blood-sera. (Preliminary communication.)

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I have elsewhere shown¹ that the agent in ox-serum which brings about the formation of fertilization-membranes in sea-urchin eggs² can be isolated in an impure condition by a process consisting, essentially, in precipitating the substance by barium chloride, re-solution of this precipitate in dilute acid, removal of the excess of barium by excess of sodium sulphate, and re-precipitation by acetone.

The preparations thus obtained were found to be contaminated by a considerable proportion of sodium sulphate, precipitated together with the fertilizing agent by the acetone. They also

¹ T. Brailsford Robertson, *Journal of Biol. Chem.*, XI, 1912, p. 339; XII, 1912, p. 163; *Arch. f. Entwicklungsmech.*, XXXV, 1912, p. 64.

² J. Loeb, *Arch. f. d. ges. Physiol.*, 118 (1907), p. 36; 122 (1908), p. 96; 124 (1908), p. 37; "Die chemische Entwicklungserregung des tierischen Eies," Berlin, 1909, p. 185.

contained appreciable traces of phosphates. I have obtained a much purer preparation by a process consisting, essentially, in precipitation from the serum by acetone, extraction of the precipitate with hot N/10 HCl, exactly neutralizing the extract with Ba(OH)₂, re-dissolving the precipitate in N/10 H₂SO₄ and re-precipitating it with acetone. The yield from a liter of ox-serum lies between 10 and 40 milligrams.

The substance which is thus obtained is soluble in dilute acids, alkalis and salt-solutions. It is much more rapidly dissolved when these solvents are hot. Its solutions are not coagulated by boiling. It is thrown out of solution by chlorides of the alkaline earths. It yields the Millon, Acree-Rosenheim and xanthoproteic tests for protein. One part of the substance rubbed up in 512,000 parts of sea-water caused membrane-formation in 80 per cent. of *Strongylocentrotus purpuratus* eggs which had previously been sensitized by 4 minute's immersion in 3/8 m SrCl₂.

The active substance, therefore, is either a protein or a peptone, or else, by the above methods of preparation, is precipitated together with a protein or peptone.

I find that Witte's "peptone" contains the membrane-forming substance, since one part of Witte's "peptone" dissolved in 16,000 parts of sea-water caused membrane-formation in 32 per cent. of sensitized *purpuratus* eggs. Hence the membrane-forming agent is digested either with difficulty or not at all by pepsin.

I find that the addition of 0.08 per cent. of lecithin or cholesterolin to rabbit serum does not affect, either qualitatively or quantitatively, the membrane-forming and cytolyzing action of the serum. It would appear very unlikely, therefore, that the active substance is a lipid.

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On the influence of lecithin upon the development of sea-urchin embryos. (Preliminary communication.)

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When the eggs of *Strongylocentrotus purpuratus* are fertilized by sperm in a mixture of 50 c.c. of sea-water and 5 c.c. of a 1.7