

advantage that it is necessary to keep on hand a number of tuberculous guinea-pigs; in addition the test was found non-reliable, as in case of sputum, for instance, the injection of a tuberculous or even normal sputum under the skin of a normal guinea-pig caused the appearance of a local reaction very similar to one appearing in a tuberculous guinea-pig. By the method described by me,¹ not only the serum of a patient, but also all kinds of pathological material can be examined by previously injecting it in a normal guinea-pig and subsequently examining the blood of this guinea-pig by the serum skin method described.

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A preliminary communication on complement fixation test in tuberculoses with Besredka's antigen.

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At the suggestion of Professor M. Besredka and through his kindness in sending the tuberculin prepared by him as described in his communication before the Academy of Sciences,² I started a series of blood tests in tuberculosis. As the antigen contained egg yolk it was decided to carry in each case a control with a pure lipoid antigen (Noguchi).³ In the first hundred cases I found a surprising number giving positive tuberculosis as well as positive Wassermann reaction. A special study of the possible coëxistence of the two diseases was made, and a solution of the problem was attempted by the following several ways. (1) Seven patients giving both W. R. and T. R. positive were subjected to a rigorous anti-syphilitic treatment, and at present five of them have lost the W. R., tuberculosis reaction persisting. (2) The presence of the two antibodies was proven by independent titration of each with five units of corresponding antigens. (3) It was found that the inactivation of serum containing both antibodies did not affect

¹ At the meeting of American Society of Bacteriologists, Montreal, January, 1914.

² *Comptes Rendus de l'Acad. des Sciences*, t. 156, p. 1633.

³ Noguchi and Bronfenbrenner, *J. of Exper. Med.*, Vol. XIII, No. 1, 1911, p. 43.

the two similarly. (4) Finally one antibody was exhausted from the serum by repeated incubation with antigen and complement and subsequently the other antibody was proven to be still present.

The experiments described above carried various controls which are very complicated and will be fully described elsewhere.

In the course of experiments through the kindness of Dr. W. H. Park and Dr. A. A. McNeil, of New York, and Dr. Schildecker, Dr. Boyce and other members of the staff of this hospital, three hundred and twenty cases in all were examined up to date, comprising different conditions: typhoid, specific meningitis, tuberculosis, pernicious anemia, cancer, pneumonia, scarlet fever, lupus, diphtheria, syphilis, gonorrhoea, trichinosis and various surgical conditions, with following results.

	W. + TB. +	W. + TB. -	W. - TB. +	W - TB. -	Total.
Serum	31	22	31	213	297
Spinal Fluid	4	6	0	13	23

The complete records of my cases will be published elsewhere. Here only the conclusions will be given:

1. That the serum reaction with Besredka's antigen seems specific.
2. That this reaction appears early in tuberculosis, yet disappears in the later stages of the disease.
3. That, as far as the material on hand was concerned, it seems that either syphilis as such or anti-syphilitic treatment markedly lowers the resistance of the patients against tuberculous infection.
4. As to other diseases their coexistence with tuberculosis as indicated by this reaction does not seem to be frequent in any one condition.
5. In order to avoid any possible non-specific lipotropic reaction I propose to delipolyze the antigen which contains egg yolk. As regards the cases studied which gave both reactions, I invariably found the two reactions to exist independently.

In concluding this paper, I take special pleasure in expressing my indebtedness to Professor M. Besredka, whose kindness in placing the antigen in my hands, made the studies possible.