AN INSTANCE OF THE ISOLATION OF PSEUDOTUBERCULOSIS BACTERIOPHAGE FROM E. COLI

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Following is the translation of an article by M. A. Shashayev and L. M. Osadchaya, Alma-Ata, published in the Russian-language periodical Materialy Nauchnoy Konferentsii po Prirodnoy Ochagovosti i Profilaktike Chumy (Materials from the Scientific Conference on the Natural Focalness and Prophylaxis of Plague), Alma-Ata, Feb., 1963, pages 258--259. Translation performed by Sp/7 Charles T. Ostertag, Jr.

In 1949 in a seeding from the spleen of great gerbil 1436, captured in Yuzhnyy Pribalkhash (vicinity of the I Aulsovet), the growth on an agar plate was obtained of weakly pigmented colonies with a granular arched center, a rough surface, and a transparent delicate peripheral zone.

Several colonies were shriveled, but their surface was striated. Upon seeding on solid agar the culture grew in the R-, OR-, and OS-forms. Then it was stabilized in the R-form. This is a mobile gram negative bacillus, decomposing the Hiss medium up to an acid and a gas, forming hydrogen sulfide and indole and not liquefying gelatin. It turned out to be nonpathogenic for white mice and guinea pigs. The culture was lyzed by pseudotuberculosis and dysenteric bacteriophages; from what has been stated, in 1951 it was identified as E. coli.

From the shriveled colonies of this culture bacteriophage was isolated. In addition to a culture of the same kind, it lyzed all the strains of E. coli which are found in the R-form and strains of pseudotuberculosis and the plague microbe. Based on Appelman the titer of bacteriophage 1436 with the plague culture equaled 10^{-5} and with pseudotuberculosis -- 10^{-10}.

Phage 1436 was passaged five times on a virulent strain of the plague microbe 319, and five times on strain 62 of the pseudotuberculosis microbe. As the nutrient medium we used Hottinger broth with a pH of 7.5 and residual amine nitrogen of 58--69 mg/%.

Rabbits were immunized for obtaining antiphage serum. Two rabbits were used, each of which received subcutaneously 5 ml of phage 1436 twice a week for a period of five weeks. The antiphage serum was obtained in 14 days following completion of the injections.

In studying the serological properties of phage ~~1436 we took~~ for a comparison the pseudotuberculosis phages of D'Erell and Kotlyarovaya with the corresponding antiphage sera; the cross neutralization reaction was also set up with the homo- and heterological antiphage sera according to Adams, with a calculation of the constant of the rate of neutralization of the phages. The values of the constant of the three phages studied equaled from 1.7 up to 18.9 minutes. On the basis of this fact, phage ~~1436~~ based on its serological properties ~~has been~~ identified ~~by us~~ as belonging to the pseudotuberculosis phage.