

the pH 6 antigen under the same conditions as *P. pestis*. The electrophoretic mobility of the original cells, devoid of the pH 6 antigen, was remarkably slow; thus, it was not possible to check correlation between the formation of this antigen and change in electrophoretic mobility.

The pH 6 antigen could be isolated from crude extracts of strain 27/C by the same method used for *P. pestis* (Bichowsky-Slomnicki and Ben-Efraim, *J. Bacteriol.* **85**:101, 1963). The purified fraction possessed the three biological activities described for *P. pestis*. As in the case of *P. pestis*, fractions of the pH 6 antigen devoid of agglutinating activity against red blood cells, but possessing the other biological activities, could also be iso-

lated. The minimal effective dose of the purified fraction was 30 μg of protein for cytotoxic and agglutinating activity and 100 μg of protein for skin reactivity.

It may be concluded that only part of the *P. pseudotuberculosis* strains can synthesize the pH 6 antigen, whereas this property seems to be shared by all the strains of *P. pestis*. As in the case of *P. pestis*, three kinds of biological activities were related to the presence of the pH 6 antigen isolated from a strain of *P. pseudotuberculosis*.

Technical assistance by Mrs. E. Ben-Efraim and J. Koren is acknowledged.

ELIMINATION OF PLEUROPNEUMONIA-LIKE ORGANISMS FROM EMBRYONIC HUMAN LUNG TISSUE CULTURE WITH TETRACYCLINE

LAWRENCE E. HOOSER, ELDON V. DAVIS, MARIAN L. MOORE,
AND ROBERT A. SIEM

Technology Branch, Communicable Disease Center, U.S. Department of Health, Education and Welfare, Phoenix, Arizona

Received for publication 28 August 1963

An attempt to eradicate pleuropneumonia-like organisms (PPLO) from an embryonic human lung tissue culture (Davis and Bolin, *Federation Proc.* **19**:386, 1960) by constant exposure to 2.5 $\mu\text{g}/\text{ml}$ of tetracycline as suggested by Carski and Shepard (*J. Bacteriol.* **81**:626, 1961) was unsuccessful through 11 weekly passages.

Minimal doses of antibiotics having toxic effects on these cells, as evidenced by altered morphological appearance and reduced proliferation within 7 days, were determined to be 20 $\mu\text{g}/\text{ml}$ for tetracycline, 1,500 $\mu\text{g}/\text{ml}$ for kanamycin, and 30 $\mu\text{g}/\text{ml}$ for oxytetracycline.

Routine passages at 7-day intervals showed an apparent cumulative toxicity in cells exposed to these concentrations of kanamycin or oxytetracycline, with resultant loss of cultures in 2 to 3 weeks. Minimal doses of kanamycin and oxytetracycline that would permit successful serial passage were 375 and 7.5 $\mu\text{g}/\text{ml}$, respectively, but at these concentrations they were ineffective in eliminating PPLO. Tetracycline at 20 $\mu\text{g}/\text{ml}$ showed no cumulative toxicity through 11 serial passages of tissue culture. The cultures were positive for PPLO after the first two passages but negative thereafter.

ISOLATION OF *BACILLUS ANTHRACIS* FROM SOIL STORED 60 YEARS

J. B. WILSON AND KAY E. RUSSELL

Department of Bacteriology, University of Wisconsin, Madison, Wisconsin

Received for publication 17 September 1963

Recently we found a small, rubber-stoppered bottle that had been in storage in this Depart-

ment for many years. The bottle contained a small amount of dry, tan, powder-like soil with