tests. Both PCH(5) and TPI(11) antibodies have been shown to be distinct from the Wassermann reagin. Although both are globulins, the PCH antibody is a *gamma*-globulin(10) while the spirocheticidal TPI antibody appears to be associated with the *beta*-globulins (12). The present study has demonstrated that reduction or removal of PCH antibodies by absorption fails to alter the qualitative TPI reaction. Quantitative TPI titrations were not feasible(14), and it is possible that TPI antibody might have been removed without changing the outcome of a qualitative test. This is considered to be unlikely. The absorption results support the serum fractionation studies in indicating that the 2 types of antibody are not related, although final proof must await the development of a method for reciprocal absorption of the TPI antibodies. TPI antibodies appear as a specific response to infection with *Treponema pallidum*(11). The mechanism of development and the low occurrence of the PCH hemolysin in patients with syphilis remain unexplained.

Summary. A more sensitive Donath-Landsteiner test did not detect the hemolysin of paroxysmal cold hemoglobinuria in sera of patients with syphilis more often than tests used in other surveys. Although related to syphilitic infection, PCH antibody was shown to differ from treponemal immobilizing antibody, the specific antibody of this infection. The mechanism of production of PCH antibody remains unexplained.

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Inhibitory Effect of Antibiotics on Virus of Rous Sarcoma. (19622)

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Rous(1) described a sarcoma of chickens which was apparently caused by a filterable virus. This tumor is a spindle-shaped growth which is both infiltrative and destructive. The tumor can be transmitted by cell-free filtrates, by desiccated tumor tissue and by glycerine extracts. The tumor can also be transmitted by the blood, ascitic fluid and tumor-free organs of the tumor bearing animal providing the tumor is of considerable size. The more recent work of Porter and Thompson(2) and others on electron microscope examination of the tissue of the Rous sarcoma shows the presence of virus-like particles which are believed to be the etiological agent of this tumor.

This report deals with the effect of certain antibiotics on the virus of the Rous sarcoma of chickens. Penicillin, streptomycin, bacitracin, terramycin, chloramphenicol, aureomycin, neomycin and antibiotic PA96(Pfizer) were tested. Various concentrations of each

TABLE I. Effect of Antibiotics on Virus of Chicken Sarcoma *In vitro* at 10°C for 24 Hr.

Antibiotic	Min effective conc. for inhibition of virus: Tumor-cell suspension, mg/ml	Cell-free extract, mg/ml
Terramycin	166	40
Aureomycin	50	15
Neomycin	60	30
PA96	75	40
Penicillin	No effect up to	10000 μ/ml
Chloramphenicol		300 mg/ml
Bacitracin		10000 μ/ml
Streptomycin or dihydrostreptomycin		300 mg/ml

antibiotic were mixed with suspensions of the tumor cells and cell-free extracts of the tumor tissue and allowed to remain at ice box temperature (10°C) for 18 to 24 hours. The mixtures were then inoculated into susceptible, 3-week-old chickens. Control animals were inoculated with tumor tissue or tissue extract kept at ice box temperature but not treated with any antibiotic.

Terramycin, in a concentration of 166 mg per ml of tumor cell suspension inhibited whole tumor cells *in vitro* with complete loss of tumor producing activity. At a concentration of 40 mg per ml of cell-free extract the activity of the virus was destroyed by terramycin.

Aureomycin, in a concentration of 50 mg per ml of tumor cell suspension inhibited the tumor producing activity of whole tumor cells. At a concentration of 15 mg per ml of cell-free extract the activity of the virus was lost. Antibiotic PA96 was similar to aureomycin in its effect on the sarcoma virus. Experiments with neomycin indicate that this antibiotic also inhibits the activity of Rous sarcoma virus. Penicillin, streptomycin, bacitracin and chloramphenicol had no inhibitory effect on the virus in the concentrations tested. All animals inoculated with mixtures of each of these antibiotics and the virus developed tumors as rapidly and extensively as did the control animals.

For each antibiotic a total of 200 chickens were used in each experiment and repeat tests confirmed the original findings. The attached table summarizes the results of the effect of the antibiotics tested on the tumor-cell suspension and the cell free extract.

In another series of tests, animals were first infected with whole tumor cells or cell-free extract and then treated with terramycin and aureomycin. There was no apparent effect on the formation and development of tumors or the course of the disease in the chickens.

It was observed that with low concentrations of aureomycin, terramycin and bacitracin there was a stimulating effect on the development of tumors and the resulting growths were larger in size. The possible reasons for the ineffectiveness of treatment with the antibiotics which inhibit the virus *in vitro* may be due to the inability of the drugs to penetrate the intact cell where the virus is concentrated or that, once a tumor has developed, continued growth of the tumor depends upon proliferation of abnormal cells without virus stimulation.

Summary. 1. These experiments describe a method of testing the activity of chemotherapeutic drugs against whole tumor cells and against the cell-free agent of Rous chicken sarcoma. 2. Terramycin, aureomycin, neomycin and antibiotic PA96 (Pfizer) in certain concentrations were capable of preventing the formation of tumors of Rous sarcoma when the virus was first exposed to these antibiotics prior to inoculation into susceptible young chickens.

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