

scab dropped off spontaneously. The papule has been converted into a nodular infiltration the size of a grain of corn, which we are continuing to observe closely.

Comments: Patient L. M. undoubtedly had pinta, mal del pinto or carate, as shown by the inoculation of volunteer A. A., in whom the initial lesions of pinta, mal del pinto or carate were produced at each one of two points of inoculation. In the present state of our knowledge the only laboratory method that will allow with certainty to differentiate syphilis from pinta, mal del pinto or carate is the experimental inoculation of man, with the production of an initial pinta lesion different from that of syphilis and pian.

The ulcerative papular lesion produced in one of four rabbits inoculated with serous fluid obtained from the initial pinta lesion of volunteer A. A. resulted from the inoculation of *Treponema carateum* and not from some other species of treponema, since subpassage to volunteer D. D., utilizing serous fluid expressed from the ulcerated papule of the rabbits, resulted in the development of an initial pinta lesion that contained abundant treponemata.

Summary: In this preliminary note we describe the results obtained by inoculation of the skin of the scrotum of four black rabbits with serous fluid expressed from an initial pinta lesion. The inoculation was made intradermally, as superficially as possible, with serous fluid rich in treponemata and diluted with normal salt solution. A papule appeared at the point of inoculation in one of the four rabbits on the 105th day. One hundred and fifteen days after inoculation the papule presented a circular erosion on an indurated base. The serous fluid expressed from this lesion contained numerous treponemata on dark-field examination, and these were easily impregnated by the Fontana-Tribondeau method. A volunteer inoculated with serous fluid expressed from the rabbit's lesion developed a typical initial pinta lesion at the point of inoculation, thus proving that the scrotal lesion of the rabbit was produced by *Treponema carateum* or *Treponema herrejoni*, the causal agent of pinta, mal del pinto or carate.

Four rabbits inoculated with serous fluid from the scrotal lesion of the rabbit have not yet developed visible lesions.

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THE PROTECTION OF PANCREATIC LIPASE BY ACACIA GUM

DURING a series of experiments on the enzymatic activity of pancreatic lipase, it was found that the presence of the acacia gum had a pronounced effect in preventing the destruction of the enzyme. An emulsion consisting of 1 ml tributyrin plus 1 gm of acacia

gum plus 100 ml of water buffered to a pH of 8.8 was the substrate used in these experiments. The substrate was added to 80 mg of fat-free pancreatic lipase. The reaction was allowed to proceed at constant temperature in a water bath. The mixture was agitated constantly by means of an electric stirrer. To measure the pH a glass and a calomel electrode were placed in the mixture and connected to an electronic null indicator and potentiometer. The mixture was maintained at constant pH by adding sodium hydroxide at short

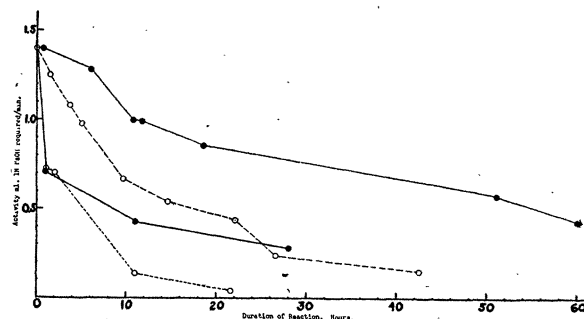


FIG. 1. Residual lipase activity after pancreatic lipase was in solution with various substrates for different periods of time. Upper Curves: Enzyme with tributyrin with gum ———. Enzyme with tributyrin without gum ----- . Lower Curves: Enzyme with gum without tributyrin ———. Enzyme in buffer without gum and without tributyrin ----- .

intervals of time. The reactions were allowed to proceed for varying durations from forty minutes to sixty hours. To determine the amount of enzyme activity remaining after each period an emulsion containing 10 ml of tributyrin was added and the rate of the reaction followed for at least fifteen minutes. The velocity of this hydrolysis was taken as a measure of the residual enzyme activity.

The following controls were also run: substrates of tributyrin with no acacia gum, gum plus enzyme with no tributyrin, and enzyme without gum and without tributyrin. Fig. 1 shows the results of these experiments. It may be seen that the enzyme deteriorates most rapidly in the absence of gum and tributyrin and that the presence of gum without tributyrin protects the enzyme to a large extent. In the emulsions containing tributyrin the presence of gum further protects the enzyme from destruction. One experiment in which 40 gms of gum were used instead of 1 gm a rate of 1.3 ml of 1N NaOH per minute after 615 minutes of enzyme action was obtained. This represents only a slight enzyme deterioration.

The mechanism by which the gum protects the enzyme is at present unknown, but Mendel and Rudney¹ have recently discovered that acacia gum and

¹ B. Mendel and H. Rudney, SCIENCE, 100: 499, 1943.

