units per milligram as determined by the turbidimetric assay procedure of Kass and Seastone (*3*). A turbidity value of 40 scale divisions on the Klett Summerson photoelectric colorimeter (red filter No. 66) was produced by the interaction of 0.5 mg of polysaccharide and acidified horse serum. The depolymerization of polysaccharide by hyaluronidase was determined by a turbidimetric assay method described in a previous publication (*8*).

The effect of several dilutions of purified testicular hyaluronidase on the depolymerization of the polysaccharide is shown in Fig. 1. This curve is typical of those obtained with the polysaccharide and is readily reproducible with every batch of material. The heat-inactivated enzyme (60° C for 30 min) does not attack the substrate.

In summary, a polysaccharide has been isolated from a mucoid, capsulated strain of *A. aerogenes* which is attacked by bovine testicular hyaluronidase. The polysaccharide lends itself to purification procedures employed for the preparation of streptococcal hyaluronic acid, but requires much larger amounts of hyaluronidase to accomplish the degree of depolymerization comparable with hyaluronic acid.

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On the Mechanism of Action of Aureomycin[1]

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During a series of experiments on the specific inhibition of phosphorylation by dinitrophenol (*6*), it was observed that low concentrations of aureomycin[3] consistently demonstrated similar inhibitory activity. Thus, in six experiments it was found without exception that aureomycin specifically depressed phosphorylation without inhibiting respiration (Fig. 1). In this action, aureomycin resembles dinitrophenol and other substituted phenols (*1*, *5*), as well as Atabrine (*6*), gramicidin (*1*), azide, and methylene blue (*7*). Penicillin, chloromycetin, and sulfadiazine were inactive when tested in a similar fashion.

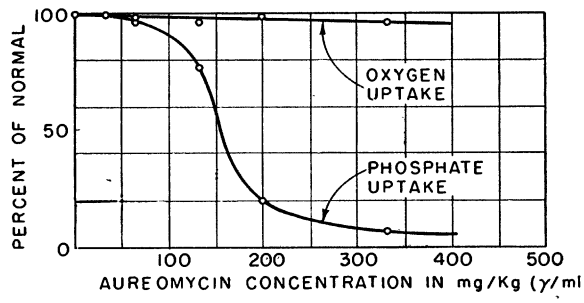

FIG. 1. Specific inhibition of phosphorylation with aureomycin.

Since the test system employed for these studies[4] is based on the enzymatic activity of normal mitochondria (*2*, *4*, *8*), these results suggested that aureomycin in similar concentrations should be toxic to animals. Harned *et al.* (*3*) studied the acute toxicity of this antibiotic when injected intravenously in mice, and found that concentrations of 130 mg/kg resulted in a mortality rate of 50%, while levels of 170 mg/kg resulted in a mortality rate of 90%.

These results suggest, therefore, that the toxicity of aureomycin is derived from its ability to inhibit aerobic phosphorylation. Whether or not the specific therapeutic activity of this antibiotic is related to these findings cannot of course be determined at present. It is not inconceivable that actively multiplying, invading microorganisms might be differentially susceptible to any lowering of the level of phosphate bond energy beyond that of the mature and undividing host cells.

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[3] I wish to thank the Lederle Laboratories, Pearl River, New York, for a generous supply of pure aureomycin.

[4] Details of this method will be described shortly in another journal.

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