

8405 P

Preparation of the Specific Polysaccharide of Type I Pneumococcus.

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It was shown¹ that preparation of the specific polysaccharides of Types II and III pneumococcus in the cold and without the use of strong acid or alkali gave products forming much more viscous solutions than did the polysaccharides isolated by the older methods,² but apparently differing otherwise from the older preparations only in their ability to precipitate more antibody from homologous rabbit antisera. These differences were attributed to the greater chain length of the molecules of the new preparations.

The acetyl polysaccharide from Type I pneumococcus has now been similarly prepared. This product had the chemical and physical properties of the acetyl polysaccharide reported by Avery and Goebel³ but gave solutions of much higher viscosity than did samples prepared according to Reference 3, and precipitated twice as much antibody nitrogen from a Type I antipneumococcus rabbit serum. Thus a solution of the new preparation, S 120, containing 1 mg. per ml. in 0.9% saline had a relative viscosity, η_r , of 1.69. After 8 hours in a sealed tube at 100° this solution showed $\eta_r = 1.05$. After treating with N/2 NaOH for 40 hours at 37° C. η_r was 1.20. A preparation, S91a, isolated from culture filtrate concentrated on the steam bath gave $\eta_r = 1.10$.

Table I shows the amount of antibody nitrogen precipitated from rabbit and horse Type I antipneumococcus sera by an excess of the different preparations of Type I pneumococcus specific polysaccharide (SI).

As was found with S II and S III the use of heat as in the initial concentration of S I lowers its power to precipitate rabbit antisera without greatly affecting its reaction with horse antisera. Contrary to the S II and S III, treatment with alkali reduces the ability of S I

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¹ Heidelberg, M., Kendall, F. E., and Scherp, H. W., *Proc. Soc. Exp. Biol. and Med.*, 1935, **33**, 188.

² Heidelberg, M., Goebel, W. F., and Avery, O. T., *J. Exp. Med.*, 1925, **42**, 727.

³ Avery, O. T., and Goebel, W. F., *J. Exp. Med.*, 1933, **58**, 731. Enders, J. F., and Pappenheimer, A. M., Jr., *Proc. Soc. Exp. Biol. and Med.*, 1933, **31**, 37.

TABLE I.
Antibody Nitrogen Precipitated by 0.20 mg. SI.

| Antiserum | SI preparation used— | | | | Deacetylated S12 |
|----------------------|----------------------|----------------|---------------------------|-------------------|---------------------|
| | S120 | S120 heated | S120 alkali treated | S91a ³ | |
| Horse antibody B 77* | mg. .76 | mg. .72 | mg. .66 | mg. .71 | mg. .63 |
| Rabbit serum 3.70* | .47 | .26 | .14 | .21 | .08† |

*Previously absorbed with "C" polysaccharide and Pneumococcus protein "R". N determinations by Dr. D. L. Shrivastava.

† N pptd. by 0.05 and 0.10 mg. S I.

to precipitate antisera from both species. Avery and Goebel³ have shown this to be due to the removal of a labile acetyl group. The effect of heating appears to be related to the length of the chainlike molecules of the polysaccharide and is being studied further.

8406 C

Evidence from Dwarf Mice Against the Individuality of Growth Hormone.

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Evans and Long¹ were the first to obtain body growth from anterior pituitary extracts. Later investigators have uniformly considered the growth hormone a single entity, with the exception that recently Riddle and Bates—partly on the basis of data presented here—have sharply questioned this view.²⁻⁵ On a wholly general view it seems to us that since hormones of the anterior lobe act upon or through other endocrine glands (thyroid, suprarenal, pancreas, parathyroid, gonads), most of which (gonads excepted) produce hormones highly important in healthy body maintenance, these latter glands probably take part also in normal body growth. If this is true the repair of the several disabilities caused by hypophysectomy

¹ Evans, H. M., and Long, J. A., *Anat. Rec.*, 1921, **21**, 61.

² Riddle, O., *Endocrinology*, 1935, **19**, 1.

³ Bates, R. W., and Riddle, O., *J. Pharm. and Exp. Therap.*, 1935, **55**, 365.

⁴ Riddle, O., and Bates, R. W., *Carnegie Year Book*, Dec., 1935.

⁵ Riddle, O., Smith, G. C., Bates, R. W., Moran, C. S., and Lahr, E. L., *Endocrinology*, 1936, **20**, 1.