SEROLOGICAL RELATIONSHIPS BETWEEN DIPLOCOCCUS PNEUMONIAE AND HEMOPHILUS INFLUENZAE

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Received for publication, October 20, 1942

The knowledge of the serological relationships of various pneumococcal types to other species is continuing to increase. Reported observations of such relationships are listed in table 1.

In April 1942 an *Hemophilus influenzae* type a was isolated from the cerebrospinal fluid and nasal secretion collected from a child hospitalized because of a fractured skull. This organism exhibited a definite "Quellung" reaction when mixed with rabbit antipneumococcus type 6 serum. This finding was confirmed by Margaret Pittman who obtained positive results with two out of eight lots of rabbit antipneumococcus type 6 sera. Further studies have demonstrated that the inability of certain lots of serum to produce the reaction is due to the

TABLE 1

OBSERVERS	YEAR	PNEUMOCOCCUS TYPE	SEROLOGICALLY RELATED ORGANISM
Avery, Heidelberger and Goebel	1925	2	Friedländer's bacillus type B.
Sugg and Neill	1929	2	*Saccharomyces cerevisiae*
Dingle	1934	2	*Bacterium leptisepticum*
Barnes and Wight	1935	1	*Escherichia coli* (mucoid)
Sugg and Hehre	1942	2, 20 and 12	Leuconostoc mesenteroides
Kauffmann and Langvad-Nielson	1942	35, 35A and 35B	Salmonella, type kirkee

absence of immune substance for pneumococcus type 6b. It has been demonstrated that the cross reaction is reciprocal between pneumococcus type 6b and *H. influenzae* type a. The present evidence is that pneumococcus type 6b contains at least two carbohydrate components one in common with pneumococcus type 6a and the other with *H. influenzae* type a. It has been impossible to obtain a cross reaction in either direction between pneumococcus type 6a and *H. influenzae* type a.

In July 1942 an *H. influenzae* type c was isolated from the sputum of a patient hospitalized because of a respiratory infection. This organism when mixed with rabbit antipneumococcus type 21 serum exhibited a definite "Quellung" reaction. This reaction was obtained with two different lots of serum. This finding was confirmed by Pittman using two additional lots of serum. The present evidence does not warrant a statement concerning the reciprocity of the reaction between *H. influenzae* type c and pneumococcus type 21.

Conclusion:

An interesting serological relationship between certain pneumococci and *H. influenzae* has been demonstrated. The present evidence is that there is a

common carbohydrate component shared by pneumococcus type 6b and *H. influenzae* type a. The serological relationship between *H. influenzae* type c and pneumococcus type 21 has not, as yet, been proven to be reciprocal. These findings gain added significance when it is realized that in routine pneumococcal typing procedures as performed in diagnostic laboratories the morphological similarity of pneumococci and *H. influenzae* may be confusing. Investigations involving reciprocal absorption tests with the respective systems are in progress and the results obtained will be published in more detail.