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Immunological behavior of the "E" strain of Friedländer bacillus and its soluble specific substance.

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In the preceding communication the chemical similarity of the specific soluble substance of this strain to that of the Type II pneumococcus was pointed out. These two micro-organisms, widely different in biological characters, were compared immunologically and found to correspond closely. The "E" strain and other serologically related strains of Friedländer bacillus are agglutinated by Type II anti-pneumococcus serum, and not by Type I and Type III antisera; while the Type II pneumococcus is agglutinated by "E" Friedländer antiserum, but not by the antiserum of a strain of Friedländer bacillus serologically distinct from the "E" strain. Absorption of "E" Friedländer antiserum and Type II anti-pneumococcus serum with the homologous organism removes the agglutinins for both, while absorption with the heterologous organism removes only the agglutinins for it, leaving the homologous agglutinins scarcely diminished in titer. The specific soluble substances of the two organisms under comparison react at practically as high dilutions in the opposite antisera as in the antisera to the organisms from which they were derived. Precipitin absorption parallels the agglutinin absorption. Cross-protection was equally striking, Type II anti-pneumococcus serum protecting against many thousand lethal doses of highly virulent "E" Friedländer bacillus, and the "E" antiserum protecting against Type II pneumococcus at least as well as the Type II antiserum itself. Typical protection protocols follow.

Protective Action of Antipneumococcus Serum against B. Friedländer (K).

B. Friedländer Strain "K" (Type E)	Antipneumococcus Sera		Anti-Friedländer Serum	Virulence Controls
	Type I 0.2 cc.	Type II 0.2 cc.	Rabbit, "E" Type 0.2 cc.	
0.1		D 42	D 18	
0.01		D 18	S	
0.001	D 18	S	S	
0.0001	D 18	S	S	
0.00001	D 42	S	S	D 21
0.000001	D 18			D 42
0.0000001				D 19

Protective Action of Anti-Friedländer Serum against Pneumococcus Type II.

Culture Pneumococcus Type II cc.	Virulence Controls	Anti-Friedländer Serum. Rabbit immunized with Strain "E" 0.2 cc.	Antipneumococcus Serum Type II Horse 0.2 cc.
0.2		D 46	D 42
0.1		D 46	D 72
0.01		S	S
0.001		S	S
0.0001		S	S
0.00001	D 36		
0.000001	D 46		
0.0000001	D 46		

The phenomena described appear analogous to those of heterogenetic specificity among animal species.[1]

[1] Cf. Forsman, *Biochem, Zeitsch.*, 1911, xxxvii, 78.

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On variants of B. pestis caviae resistant to lysis by the bacteriophage.

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In preliminary experiments last year we found that bacteriophage therapy did not influence the course of experimental mouse typhoid, produced by the feeding of *B. pestis caviæ* to mice. We