

→ Virulent bacteria, which possess the polysaccharide capsules are not easily engulfed. Hence they are able to multiply and cause pneumonia.

→ Encapsulated bacteria form smooth colonies (S) when grown on cm agar culture plate whereas non-encapsulated strains produce rough colonies (R).

→ Each strain of diplococcus may be of different serotype (different strains).

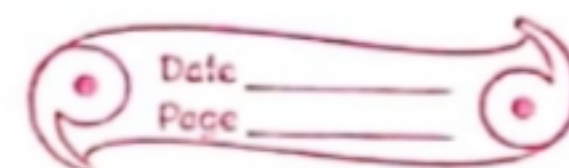
→ Serotypes are identified by immunological technique.

→ Griffith performed experiments with two different strains IIR and IIIS.

Serotype	Morphology	Capsule	Virulence
IIR	Rough	Non-capsulated (absent)	Avirulent
IIIS	Smooth	Capsulated (Present)	Virulent

→ Griffith injected the different strains of bacteria into mice.

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I. Live IIR } when injected into mice →
<Non-virulent, mice survived
non-capsulated>

II. Live IIIS strain } Inject into mice →
<virulent, capsulated> mice dies.

III. Heat-killed IIIS strain } when injected into mice
<Non-virulent> → mice survived.

IV. Heat-killed IIIS strain } when injected into mice
and live IIR strain } → mice dies.

→ Griffith concluded that the heat-killed IIIS bacteria