

## 豬鏈球菌之血清型、抗藥性及親緣性分析

生物組

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### 摘要

豬鏈球菌 (*Streptococcus suis*, *S. suis*) 是一種重要的人畜共通傳染病病原體，可引起動物腦膜炎、關節炎、心內膜炎、敗血症、肺炎和突然死亡，同時也會造成人類腦膜炎及敗血症。由於臨床分離菌株的生化鑑定結果常不如預期，本研究旨在建立更精確的鑑定技術。自從 314 株來自生病動物的鏈球菌中，確認了 149 株 *S. suis*。其中 *S. suis* 的血清型別多達 21 種，以血清 3 型最為常見，其次是 2 型、8 型和 4 型。部分菌株的血清型無法分辨。在基因親緣性分析中，136 株 *S. suis* 的序列型別 (Sequence type, ST) 包括了已知人類感染病例中常見的 ST1 和 ST28，以及多種豬隻常見的型別如 ST27、ST94、ST1831、ST1832 和 ST1844。結合基因型和血清型分析，識別出四個主要的克隆複合體 (CC)：CC27 (主要為血清 3 型)、CC28 (主要為血清 2 型)、CC94 (主要為血清 4 型) 和 CC1831 (主要為血清 8 型)。藥物敏感性試驗顯示，幾乎所有 *S. suis* 菌株對 clindamycin 和 oxytetracycline 產生抗藥性，但對 ceftiofur 保持敏感，故在治療時需謹慎選擇抗菌劑。

## **Serotype, Antimicrobial Resistance, and Phylogenetic**

### **Analysis of *Streptococcus suis***

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#### **Abstract**

*Streptococcus suis* (*S. suis*) is a significant zoonotic pathogen that can cause various illnesses in animals such as meningitis, arthritis, endocarditis, sepsis, pneumonia, and sudden death. It can also lead to meningitis and sepsis in humans. This study aims to enhance the accuracy of identifying *S. suis* strains from diseased animals, as current biochemical identification techniques are unreliable. Out of 314 strains of streptococci from diseased animals, 149 were confirmed as *S. suis*. There are up to 21 serotypes of *S. suis*, with serotype 3 being the most commonly seen, followed by serotypes 2, 8, and 4. Serotypes of some isolates could not be distinguished. In the phylogenetic analysis, the sequence types (ST) of 136 *S. suis* strains included ST1 and ST28, commonly found in human infection cases, as well as various common types in pigs such as ST27, ST94, ST1831, ST1832 and ST1844. Combining genotype and serotype analysis, four main clonal complexes (CC) were identified: CC27 (mainly serotype 3), CC28 (mainly serotype 2), CC94 (mainly serotype 4), and CC1831 (mainly serotype 8). Antimicrobial susceptibility tests showed that almost all *S. suis* strains were resistant to clindamycin and oxytetracycline but remained sensitive to ceftiofur. Therefore, careful selection of antimicrobial agents is required during treatment.