

IMMUNOLOGICAL SPECIFICITY OF STAPHYLOCOCCAL PENICILLINASES (1)

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ABSTRACT

Rabbits were immunized with *B. cereus* penicillinase (Neutropen, Riker laboratory) and with an extracellular penicillinase of a coagulase positive staphylococcus (strain Q443) prepared in this laboratory. Sera from immunized rabbits were examined for neutralizing antibody against penicillinases from various sources by a microbiological method (an adaptation of the Gots test based on inhibition of growth of *Sarcina lutea*). With the homologous enzyme, titers of 1:8192 and 1:1024 were obtained with the *B. cereus* and staphylococcal antisera, respectively, whereas no neutralization was observed in either system with heterologous antisera, even with undiluted sera. Extracellular penicillinase from three additional staphylococcal strains (Q426, Q447, and H232) was neutralized by the antibody to the staphylococcal enzyme in the same titer (1:1024) as with Q443 penicillinase. Intracellular penicillinase from these four staphylococcal strains was neutralized only by low dilutions of this antiserum (1:8). Moreover, neither extracellular nor intracellular penicillinase from another strain (Q303) was neutralized by the Q443 penicillinase antibody, even by the undiluted serum. Extracellular penicillinase from two other strains (Q483 and Q461) was neutralized only by low dilutions of this antiserum (1:8 and 1:16). These findings suggest that, in addition to immunological differences between staphylococcal and *B. cereus* penicillinases, immunological differences between extracellular penicillinases from different strains of staphylococci and between extracellular and intracellular penicillinases of the same strain of staphylococcus can also be demonstrated.

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