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TWO COMPONENT SIGNAL TRANSDUCTION AND DNA TRANSFER IN ANTIBIOTIC RESISTANCE

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ABSTRACT

The molecular basis for penicillin binding protein (PBP_s,1a,1b,2a, 2b, 2x) alterations differs between Gram-positive Pnemococcus and Gram negative E.coli K-12. Alteration of PBP proteins even by a series of point mutations renders the S.pneumoniae resistant to penicillin (magic bullet) and its newer derivatives. Based on all available information we conclude that the alterations of pbp genes in Pneumococcus are genetically controlled by their adverse environmental conditions. In the recent years, it has been accepted that these bacteria live silently in the human nasopharynx by completely shutting off their metabolism. Two component signal transduction plays a central role by the excretion of pheromone to activate these bacteria which are otherwise in a latent phase. In a separate article in this issue we have described the role of bacterial cleavage which is transiently formed at the mid cell position. This cleavage is an index of new growth phase. In E.coli K-12, far from the disease causing bacterial strains, the DNA transfer (double stranded DNA joined to E.coli K-12 vectors), occurs by three different methods: Transformation, Transduction and Conjugation but such transformation has not been observed with a 'competent' S.pneumoniae. All efforts made to recover donor DNA, double or single strands from the recipient have been an exercise in futility. Then our knowledge ends in an eclipse phase!

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