

遗传工程微生物细胞间发生的自然遗传转化 Intercellular Natural Genetic Transformation of Genetically Engineered Microorganisms

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 将两株具有不同遗传标记的枯草芽孢杆菌在基本培养基中分别培养至对数生长期后进行短时间混合静置培养, 经选择平板筛选、DNaseI敏感性试验、质粒检测和产蛋白酶活性检测, 发现两菌株之间可通过自然遗传转化进行染色体DNA和质粒DNA的交换。研究表明, 自然遗传转化可在细胞间进行, 这对揭示微生物群居的自然环境中可能存在的细胞间的DNA转移, 以及正确评估遗传工程微生物(GEMs)的安全使用具有重要意义。

Abstract: The culture fluids of two genetically distinct *Bacillus subtilis* strains were mixed and coincubated for a short time after they reached post-exponentially growth phase in minimal media. The steadily bidirectional gene transfer involving chromosomal DNA and plasmid DNA by natural genetic transformation between these two strains has been demonstrated by the methods of selective medium screening, DNaseI sensitivity test, plasmid detection and the detection of the capability of producing protease. This result indicates that natural genetic transformation occurs not only between "naked" DNA and cells but also between cells. This conclusion is significant in the assessment of both the possibility of intercellular DNA transfer in natural habitats of microorganisms and the risk of the application of genetically engineered microorganisms (GEMs).

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