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论著

双歧杆菌及其表面分子对MNNG致小鼠肠粘膜细胞DNA 损伤的抑制作用

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摘要 单细胞凝胶电泳是一种新近发展起来的快速、敏感地检测单个哺乳动物细胞DNA 断裂的技术。本文用单细胞凝胶电泳法检测了双歧杆菌及其表面分子———脂磷壁酸、细胞壁肽聚糖对N - 甲 基- N - 硝基 N′- 亚硝基胍(MNNG) 致小鼠肠粘膜细胞DNA 损伤的抑制作用。结果双歧杆菌活菌、死菌、脂磷壁酸、细胞壁肽聚糖、双歧杆菌培养乏液在小鼠胃肠反复作用一段时间后,均具有抑制DNA 损伤的作用,以活菌、死菌作用最强,活菌作用强于死菌,脂磷壁酸和肽聚糖作用次之,二者间无显著性差异,培养乏液也有轻微作用。双歧杆菌及其表面分子的这种抑制DNA 损伤作用机理,可能是通过结合MNNG,并提高免疫监视功能清除MNNG结合物及DNA 损伤的细胞。

关键词 双歧杆菌 脂磷壁酸 肽聚糖 抗突变性 亚硝基胍

INHIBITORY EFFECT OF BIFIDOBACTERIUM BFIFIDUM AND ITS SURFACE MOLECULES ON DNA DAMAGE IN MURINE COLON MUCOSA BY MNNG

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Abstract Single cell gel elect rophoresis assay (SCGE) has the advantage of being a quick sensitive screening technique to elucidate various aspect s of toxic , genotoxic , and antigenotoxic activities by foreign compounds and nut ritional component s. Inhibitory effect of Bifidobacterium bifidum (Bif1101) and it s lipoteichoic acid(L TA) , whole cell peptidoglycan (WPG) , Spent culture (SC)on the DNA damage in murine colon mucosa by MNN G was investigated with SCGE. The results indicate that all the tested Bif1101 related materials appeared significant inhibition on the DNA damage by MNN G. The viable and dead Bif1101 whole cells appeared more effective than that of L TA and WPG. SC had slight effect . The methanism of the inhibitory effect of Bif1101 related materials on the DNA damage is probablly mediated by binding the MINN G and potentiating the immune activity so as to eliminate the MNN G complex or damaged cells.

Keywords Bifidobacterium bifidum Lipoteichoic acid Whole Cell Peptidoglycan Antimutagenicity MNNG

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