

Full Papers

单纯疱疹二型病毒和口蹄疫病毒感染过程能量代谢的微量热研究

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摘要 本论文采用LKB-2277生物活性检测器研究HeLa细胞在单纯疱疹II型病毒感染和BHK-21细胞在口蹄疫病毒感染下的能量代谢过程。以及热疗及抗病毒药物干扰素对这一过程的能量代谢的影响。结果表明病毒感染细胞的代谢热功率大于未被感染的细胞并且被不同类型病毒感染的细胞之间代谢产热功率存在显著的差别; 病毒感染是一个温度敏感的过程; 干扰素对病毒感染过程有抑制作用。通过对不同贮存时间口蹄疫病毒感染BHK-21细胞的能量代谢产热曲线的分析表明长时间保存对病毒的毒力和感染能力产生了较明显的影响。这些结果都表明微量热法是研究病毒感染过程的一种有效方法。

关键词 单纯疱疹II型病毒, 口蹄疫病毒, HeLa细胞, BHK-21细胞, 代谢, 微量热法

分类号

Microcalorimetric Study of Energy Metabolism of HSV-2 and FMDV Infection Processes

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Abstract The metabolic thermogenic power data of the HSV-2 infected HeLa cells and the FMDV infected BHK-21 cells were determined by LKB-2277 bioactivity monitor. The aim of the study was to investigate the difference of the cell metabolism under the action of two different viruses and the effects of hyperthermia and drugs on it. The results illustrated that the metabolic thermogenic power of infected cells was larger than the uninfected ones and there was a significant difference between the metabolism heat released by the two types of infected cells. From the maximal thermal power and total metabolism heat, the infection process was observed to be thermosensitive and could be inhibited by interferon. Our experiments also revealed that 6 month storage of FMDV could attenuate its virulence and infectivity. The study shows that microcalorimetry is a potent tool to investigate the metabolism of virus infection process.

Key words HSV-2, FMDV, HeLa cell line, BHK-21 cell line, metabolism, microcalorimetry.

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