[1]刘平,邬亭亭,彭丽,等.噬菌体Legendre的生物学特性及抗耐药结核潜力的初步研究[J].第三军医大学学报,2012,34(09):821-826.

Liu Ping,Wu Tingting,Peng Li,et al.Biological characteristics of mycobacteriophage Legendre and its potentials in drug-resistant tuberculosis control[J].Journal of Third Military Medical University,2012,34(09):821-826.

点击 复制

噬菌体Legendre的生物学特性及抗耐药结核潜力的初步研究(PDF)

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 34 期数: 2012年第09期 页码: 821-826 栏目: 论著 出版日期: 2012-05-15

Title: Biological characteristics of mycobacteriophage Legendre and its potentials in drug-resistant tuberculosis control

作者: 刘平; 邬亭亭; 彭丽; 郭述良; 罗永艾
重庆医科大学附属第一医院呼吸科

Author(s): Liu Ping; Wu Tingting; Peng Li; Guo Shuliang; Luo Yongai
Department of Respiratory Diseases, First Affiliated Hospital, Chongqing Medical University, Chongqing, 400016, China

关键词: Legendre; 耻垢分枝杆菌; 结核分枝杆菌; 生物学特性; 耐药结核病

Keywords: Legendre; *Mycobacterium smegmatis*; *Mycobacterium tuberculosis*; biological characteristics; Drug-resistant Tuberculosis

分类号: R372; R373.9; R520.5

DOI: -

文献标识码: A

摘要: 目的 研究噬菌体Legendre的生物学特性并初步探索其用于抗耐药结核的潜力。 方法 双层平板法制备Legendre的噬菌斑，观察其特点，纯化噬菌体，电镜观察Legendre形态；提取Legendre基因组，限制性内切酶酶切分析确定其核酸类型；以不同感染复数扩增Legendre，找出最佳MOI和最小MOI；通过一步生长实验找出Legendre潜伏期、裂解期和裂解量；纯化Legendre颗粒，免疫家兔，获得抗血清，通过中和反应实验测定Legendre以及其他8种噬菌体和Legendre抗血清之间的吸附反应常数K值；采用单斑法测定Legendre的宿主谱；检测Legendre对紫外线、温度、氯仿、酒精、酸碱度的耐受性。 结果 Legendre的噬菌斑圆形透明，边界清楚，Legendre头部呈多面体立体对称，直径平均为65 nm，尾长平均为215 nm；基因组核酸能被双链DNA内切酶*Eco*RⅠ，*Hin*d Ⅲ及*Bam*HⅠ切开，大小约65 kb；Legendre最佳MOI为10^{-4}，最小MOI为10^{-3}，Legendre对耻垢分枝杆菌极度易感；Legendre感染宿主菌的潜伏期为180 min，裂解期为120 min，裂解量为13；Legendre K值为 697，Legendre抗血清对非对应噬菌体的中和活性有差异，对DNAⅢ、Bo4、Clark、Sedge、Leo高，对TM4、D29中和活性较低；Legendre能裂解耻垢分枝杆菌、结核分枝杆菌标准株、多数临床耐药株；Legendre对紫外线、温度、氯仿、酒精、酸碱度均敏感。 结论 Legendre属于长尾噬菌体科，双链DNA噬菌体，抗原性低，宿主谱广，具有抗耐药结核潜力。

Abstract: Objective To investigate the biological characteristics of mycobacteriophage Legendre and explore its anti-drug-resistant tuberculosis potentials. Methods Plaque morphological properties of Legendre were observed by double-layer plating, and the ultrastructure of Legendre was observed by electron microscopy. The genome of Legendre was extracted and the type of nucleic acid was identified with restriction enzyme analysis. Legendre was amplified by double-layer agar plate method in different multiplicity of infection (MOI) to find the optimal

导航/NAVIGATE
本期目录/Table of Contents
下一篇/Next Article
上一篇/Previous Article

工具/TOOLS
引用本文的文章/References
下载 PDF/Download PDF(698KB)
立即打印本文/Print Now
推荐给朋友/Recommend
查看/发表评论/Comments

MOI and the lowest MOI. One step growth experiment was carried out to find the latent period, burst period and burst size of Legendre. The rabbits were immunized with purified Legendre particles to prepare anti-Legendre serum and cross neutralization test was performed to examine the reaction constant K values of Legendre and other 8 phages. The host range of Legendre was examined by single-spot examination. The effect of UV ray, temperature, chloroform, alcohol, pH values on Legendre survival was surveyed. Results The plaques of Legendre were transparent and their sizes were about 1 mm in the diameter. There was an isometric head with an average diameter of about 65 nm and a long tail with an average length of about 215 nm in Legendre. Legendre was digested by restriction endonuclease *Eco*RⅠ, *Hin*d Ⅲ and *Bam*HⅠ and the size of genome was about 65 kb. The optimal and lowest MOI of Legendre are 10^{-4} and 10^{-3}, respectively. Legendre was extremely susceptible to *Mycobacterium smegmatis*. The latent period was 180 min, the burst period was 120 min, and the burst size was 13. The K value of Legendre was 697. Legendre, TM4 and D29 were affinity low. Legendre lyzed *Mycobacterium smegmatis*, *Mycobaterium tuberculosis* H_{37}Rv and the majority of clinical drug-resistant strains. Legendre was unstable to UV ray, temperature, chloroform, alcohol and pH values. Conclusion Legendre is a suitable broad host range and low antigenicity siphoviridae phage which could be used in phage therapy to treat drug-resistant tuberculosis.

参考文献/REFERENCES

刘平, 邬亭亭, 彭丽, 等. 噬菌体Legendre的生物学特性及抗耐药结核潜力的初步研究[J].第三军医大学学报,2012,34(9):821-826.

备注/Memo: -

更新日期/Last Update: 2012-05-07