

عنوان مقاله:

Modulation of Toxin-Antitoxin System Rnl AB Type II in Phage-Resistant Gammaproteobacteria Surviving Photodynamic Treatment

محل انتشار:

مجله لیزر در علوم پزشکی، دوره 10، شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Nava Hosseini

Maryam Pourhajibagher

Nasim Chiniforush

Nazanin Hosseinkhan

Parizad Rezaie

Abbas Bahador

خلاصه مقاله:

Abstract Type II toxin-antitoxin (TA) systems are the particular type of TA modules which take part in different kinds of cellular actions, such as biofilm formation, persistence, stress endurance, defense of the bacterial cell against multiple phage attacks, plasmid maintenance, and programmed cell death in favor of bacterial population. Although several bioinformatics and Pet lab studies have already been conducted to understand the functionality of already discovered TA systems, still, more work in this area is required. Rnl AB type II TA module, which is composed of RnlA toxin and RnlB antitoxin, is a newly discovered type II TA module which takes part in the defense mechanism against T ϕ bacteriophage attack in Escherichia coli K-12 strain MH λ that has not been widely studied in other bacteria. Because of the significant role of class Gammaproteobacteriacea in a diverse range of health problems, we chose here to focus on this class to survey the presence of the Rnl AB TA module. For better categorization and description of the distribution of this module in this class of bacteria, the corresponding phylogenetic trees are illustrated here. Neighbor-joining and the maximum parsimony methods were used in this study to take a look at the distribution of domains present in RnlA and RnlB proteins, among members of Gammaproteobacteria. Also, the possible roles of photodynamic therapy (PDT) in providing a substrate for better phage therapy are herein discussed. Keywords: Toxin/antitoxin Modules type II TA module Rnl AB system Gammaproteobacteria Phylogenetic tree Phage therapy Antimicrobial photodynamic therapy

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2052075>

