RESEARCH NOTE

MYCOBACTERIUM TUBERCULOSIS uvrC ESSENTIALITY IN RESPONSE TO UV-INDUCED CELL DAMAGE

Therdsak Prammananan[1], Saranya Phunpruch[2], Sarinya Jaitrong[1] and Prasit Palittapongarnpim[1,3]

[1]TB Research Laboratory, Medical Molecular Biology Research Unit, National Center for Genetic Engineering and Biotechnology, Thailand Science Park, Pathum Thani; [2]Department of Biology, Faculty of Science, King Mongkut's Institute of Technology Ladkrabang, Bangkok; [3]Department of Microbiology, Faculty of Science, Mahidol University, Bangkok, Thailand

Abstract. Control of tuberculosis depends both on an effective, accurate, and rapid diagnosis and an effective treatment and management. Antituberculous drugs have been used for more than 50 years and are likely ineffective against multidrug-resistant strains, leading to an urgent need for new drugs. Comparative genome analysis has indicated that *Mycobacterium tuberculosis uvrC*, a component of nucleotide excision repair (NER) system, is an essential gene without any human homolog. This raises the possibility to use this gene as a new drug target. This study investigated the essential role of *uvrC* on growth of *M. tuberculosis* in the presence of DNA damaging agents, UV light and hydrogen peroxide (generator of reactive oxygen species). Results revealed that the *M. tuberculosis uvrC* mutant was more sensitive to UV than the control strain ($p<0.01$), but was not more sensitive to hydrogen peroxide. These results showed that *uvrC* is essential for *M. tuberculosis* DNA repair system, particularly in response to DNA damage caused by UV irradiation.

Keywords: *Mycobacterium, uvrC*, excision repair, UV, oxidative stress

Correspondence: Therdsak Prammananan, TB Research Laboratory, Medical Molecular Biology Research Unit, National Center for Genetic Engineering and Biotechnology, Thailand Science Park, Pathum Thani 12120, Thailand.
Tel: +66 (0) 2419 8256; Fax: +66 (0) 2418 2094
E-mail: therdsak@biotec.or.th