ABSTRACT

Sexually transmitted disease or STD is one of the most common diseases in the world. It can be caused by pathogens such as bacteria, viruses, and parasites. One of the STDs that is caused by bacteria is Chlamydia. This bacteria can cause reproductive tract infection and blindness that can infect both humans and animals. In females, this bacteria can cause infertility, pelvic inflammatory disease, and salpingitis, among others. While in males, it can cause DNA fragmentation of the sperm, epididymitis, prostatitis, etc. Chlamydia trachomatis is an obligate intracellular bacteria that usually infect the mucosal area. It contains cryptic plasmid, which contains eight conserved open reading frames (ORFs) that can express eight different proteins; one of them is Pgp3 protein. Pgp3 is the only protein secreted by this bacteria into the cytosol. Until now, the effect of Pgp3 protein on human cells is still limited. This study aims to obtain more information regarding the effect of Pgp3 protein from Chlamydia trachomatis towards human cells. The study was performed by treating HeLa cells with Pgp3 protein from Chlamydia trachomatis. Then, analyzing the gene expression in order to determine the upregulation and downregulation of certain genes. The results show that Pgp3 protein from Chlamydia trachomatis affects the HeLa cells' gene expression by upregulating and downregulating certain genes contributing to the host cell functions. Thus, allowing the bacteria to promote their life cycle and pathogenesis by several mechanisms such as inhibiting apoptosis to perform replication inside host cells and infecting neighboring cells. The findings will provide information about the impact of Pgp3 protein during Chlamydia infection towards the host cell genes expression, hence increasing this protein potential as a drug target candidate for future research to fight the infection and prevent further spreading.