

Author: Keyword:

Search

[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1880-313X

PRINT ISSN : 0388-6107

Biomedical Research

Vol. 27 (2006) , No. 3 June pp.131-137

[\[PDF \(1105K\)\]](#) [\[References\]](#)**Induction of cell cycle arrest and apoptosis in JAR trophoblast by antimalarial drugs**Athip NILKAE¹⁾, Suthinee BHUVANATH¹⁾, Sakonwun PRAPUTBUT²⁾ and Seuptrakool WISESSOMBAT¹⁾

1) Department of Microbiology, Faculty of Science, Prince of Songkla University

2) Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Naresuan University

(Received March 22, 2006)

(Accepted April 25, 2006)

ABSTRACT

Chloroquine, quinine, artemisinin, and pyrimethamine are generally considered safe drugs for treatment of malaria during pregnancy; however, high doses of these drugs are detrimental with adverse outcome of pregnancy. Since antimalarial drugs interaction with placental cells has not been addressed, in this study, we employed a non-radioactive proliferation assay and lactate dehydrogenase (LDH) release assays to investigate the effect of these drugs on JAR trophoblastic cell survival. All drug treatment resulted in inhibition of cell proliferation in a dose-dependent fashion ($p < 0.05$) with IC₅₀ at 6.96, 6.49, 6.69, and 6.89 $\mu\text{g/mL}$ for chloroquine, quinine, artemisinin and pyrimethamine, respectively. In addition, the inhibition of cell proliferation was accompanied by increased cytotoxicity. Analysis of the progression of the cell cycle showed that these drugs triggered G₀/G₁ and S phase arrest. Furthermore, these antimalarial drugs induced apoptotic cell death as visualized by DNA fragmentation analysis techniques. Findings in this study revealed that cytotoxicity of these drugs on human placental trophoblast is mediated by both cell cycle arrest and induction of cell death and this could have important implications for the use of antimalarial drugs for treating malaria during pregnancy.

[\[PDF \(1105K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)

To cite this article:

Athip NILKAE0, Suthinee BHUVANATH, Sakonwun PRAPUTBUT and Seuptrakool WISESSOMBAT; "Induction of cell cycle arrest and apoptosis in JAR trophoblast by antimalarial drugs", *Biomedical Research*, Vol. **27**, pp.131-137 (2006) .

doi:10.2220/biomedres.27.131

JOI JST.JSTAGE/biomedres/27.131

Copyright (c) 2006 Biomedical Research Press



[Japan Science and Technology Information Aggregator, Electronic](#)

