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Alterations in mitochondrial apoptosis regulating gene expression in human cervical cancer cell line using a new compound isolated from the bark of *Symplocos cochinchinensis* (Lour) S Moore

Raman Rajeshkumar and **S P Dhanabal**
JSS University, India

Mitochondria have been reported that cancer cells exhibited aerobic-glycolysis. Although this was originally construed as suggesting that the function of mitochondria was defective, we instantly realize that cancer cells are in an altered metabolic state. Little care has been compensated to the potential mutations that can affect mitochondrial function in cancer, outside of specific variations in genes. We were reporting that the new compound isolated from *Symplocos cochinchinensis* (Lour) S Moore had stimulated the expression of a few genes in mitochondria in human cervical cancer cell line. The Hela cells were treated with EA1 with their IC50 concentrations obtained from cytotoxicity. Various incubation durations, such as 0, 24, 48 and 72 hours were selected for the study. To elucidate the apoptotic pathways activated by EA1, mitochondrial transmembrane potential loss, semi-quantitative RT PCR and Western Blot analyses were carried out to measure the expression of death receptor as well as their apoptotic genes and bcl-2 family genes. Analysis of these genes revealed a substantial reduction in the expression of bcl-2 and cox-2 and increase in the expression of Bax and p53 was observed. Cells treated with EA1 were compared with untreated control cells. The ß-actin gene was used as an internal house keeping control for the study. In the present study, we noticed that the EA1 time dependently regulated the expression of Cox-2. Our works also demonstrate that the initiation of apoptosis was closely connected with reduction in mitochondrial trans-membrane potential.

Biography

Raman Rajeshkumar has completed his MPharm from JSS College of Pharmacy, Ooty and he is pursuing his PhD at JSS University, Mysore. Presently, he is working as a Lecturer, Department of Pharmaceutical Biotechnology at JSS College of Pharmacy, Ooty since last 8 years. His field of research is mainly in Free Radical Biology and Cancer Biology.

bathmic@jsscpooty.org

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