

The effects of violacein and LPS on the survivability of immortalized eukaryotic cells

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Violacein (3-(1,2-dihydro-5-(5-hydroxy-1H-indol-3-yl)-2-oxo-3H-pyrrol-3ylidene)-1,3-dihydro-2H-indol-2-one), a quorum-sensing regulated metabolite extracted from the bacterium *Chromobacterium violaceum*, has been reported to exhibit antifungal, antioxidant, antitumor, bactericidal, and antiviral properties. Moreover, violacein has been indicated to reduce the inflammatory response prompted by lipopolysaccharide (LPS) exposure in common Gram negative bacterial infections. This study investigated the effects of administering violacein with LPS endotoxin on cell death to an immortalized Chinese hamster ovary (CHO) cell line. The degree of cell death was assessed via the trypan blue exclusion method, to determine whether eukaryotic CHO cells exhibit pro- or antiapoptotic behaviour when inoculated concomitantly with LPS and violacein, as opposed to individual exposure to each compound. Results indicated that CHO cells, when inoculated with both LPS and violacein, experienced a greater degree of cell death than those that were subjected to isolated exposure of either bacterial molecule. It was also determined that CHO cells, when exposed to both LPS and violacein, did not significantly differ from the violacein-only treatment group in the rate of total cell replication over 72 hours. Altogether, these results indicate that both LPS and violacein contribute to cell death in a defined non-transformed immortalized cell line. However, the addition of LPS did not appear to decrease the rate of cell replication beyond what was observed for the violacein-only treatment. Thus, treatment with violacein was found to have the largest effect on replicative behaviour in non-transformed immortalized (CHO) cells.