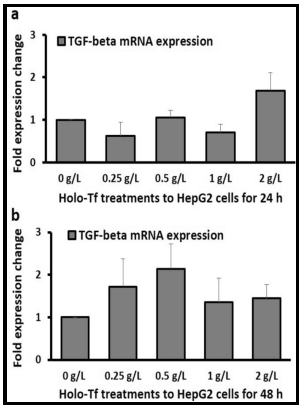
Characterisation of altered gene expression in response to Oxidative stree in HepG2 cells

University of Birmingham - Altered expression of base excision repair genes in response to high glucose



Description: -
-Characterisation of altered gene expression in response to Oxidative stree in HepG2 cells
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Introduction Research on the role of nutrients on general well-being and disease prevention has gained momentum in recent years. From the log plot, the concentration of the methanol leaf extract that reduced cell viability by 50% IC 50 was found to be 93.

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It was concluded that the different relationship between endogenous ROS levels and apoptosis of two cancer cells presumably resulted from complicated expression patterns of many oxidative stress and antioxidant genes, rather than the individual role of some classical antioxidant enzymes such as SOD and catalase.

Chronic alcohol exposure alters gene expression in HepG2 cells

RNA isolation and quantitative real- time PCR amplification qRT-PCR 1 × 10 6 cells were treated with different concentrations of aqueous extract of Livotrit ® for 16 h.

Investigation into the effects of antioxidant

The highest concentration used 5% exhibited maximum DPPH, superoxide and hydroxyl radical scavenging activity with a value of 0. Name of genes with their corresponding abbreviations are as follows: ADH6, Alcohol dehydrogenase 6; ALDH6A1, Aldehyde dehydrogenase 6 family, member A1; ALDH9A1, Aldehyde dehydrogenase 9 family, member A1; ANXA3, Annexin A3; CYP24A1, Cytochrome P450, family 24, subfamily A, polypeptide 1; DHCR24, 24-dehydrocholesterol reductase; EPHX1, Epoxide hydrolase 1; FGA, Fibrinogen alpha chain; FGG, Fibrinogen gamma chain; GSTM4, Glutathione S-transferase mu 4; IFNGR1, Interferon gamma receptor 1; KNG1, Kininogen 1; LEAP2, Liver-expressed antimicrobial peptide; LSS, Lanosterol synthase; MVK, Mevalonate kinase; MX1, Myxovirus resistance 1; SERPINC1, Serpin peptidase inhibitor, clade C antithrombin , member 1; SERPIND1, Serpin peptidase inhibitor, clade D heparin cofactor , member 1, SERPINE1,

Serpin peptidase inhibitor, clade E Nexin, Plasminogen activator inhibitor, type 1 , member 1; TM7SF2, Transmembrane 7 superfamily member 2.

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Methods The culture medium of untreated and palmitate-treated G6PD-scramble Sc and G6PD-knockdown Gi HepG2 cells were subjected to cytokine array analysis, followed by validation with ELISA and qRT-PCR of the target cytokine. The down-regulated genes selected were CYP24A1, ANXA3 and AREG, while the up-regulated genes were LEAP2, FGA, FGG, SERPINE1, IFNGR1, MVK, DHCR24, ALDH6A1 and ADH6.

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Oxidative stress leads to the production of ROS which can attack lipid membrane constituents such as unsaturated phospholipids, glycolipids, and cholesterol, resulting in cellular dysfunction and cell death. GPx activities in the cells were initially calculated by determining the changes in absorbance per minute obtained from the standard curve.

Chronic alcohol exposure alters gene expression in HepG2 cells

RK and GPK were authors who received the grant. In this study, the effects of the antioxidant-rich leaf extract of the T.

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Hydrogen peroxide was obtained from Merck Darmstadt, Germany. Lanosterol synthase LSS catalyzes the cyclization of S -2,3-oxidosqualene to form lanosterol during sterol biosynthesis. Lipid peroxidation is known to be an important factor in the pathology of many diseases associated with oxidative stress.

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