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[Continued on nextpage]

(54) Title: METHOD FOR INHIBITION OF NF-KB GENE EXPRESSION

(57) Abstract: The present invention discloses a method of inhibition of synthesis of NF- κ B by inhibiting its gene expression using isoflavones Daidzein and Daidzin. Daidzein, a non toxic dietary supplement isoflavone of the structure (1) and 7-O-e-glucopyranosyl daidzein of the structure (2) are novel inhibitors of NF- κ B which blocks the synthesis of NF- κ B by inhibiting its gene expression and have no toxic effect. Both daidzein of the structure (1) and daidzin of the structure (2) ameliorate palmitate induced overexpression of NF- κ B in skeletal muscle cells by eliminating the inhibition of NF- κ B on insulin stimulated glucose uptake. Daidzein inhibits NF- κ B expression in prostate and breast cancer cells that increased mortality of these cancer cells. Daidzin of the structure (2) has very good bioavailability over daidzein of structure (1). Daidzein of the structure (1) is not absorbed when orally fed to mice as it is eliminated from the gut through glucuronidation process catalyzed by UGT1. Daidzin of the structure (2) is glucosylated daidzein and is protected from UGT1 mediated degradation and is hydrolysed to daidzein which is absorbed and remains for more than 4 hours in blood and is expected to be distributed to different tissues and organs. Daidzein of the structure (1) and daidzin of the structure (2) reduce palmitate stimulated increased synthesis of NF- κ B significantly. Daidzein inhibits formation of NF- κ B-DNA complex stimulated by palmitate and both daidzein and daidzin inhibited NF- κ B expression which leads to reduction of its DNA binding. Daidzein of the structure (1) was obtained from soy leaves through chromatography and both natural and synthetic daidzein and daidzin have same biological activities.

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