Genistein Combined Polysaccharide

(GCP™)

INGREDIENT PROFILE

From soybeans rich in genistein

Contains rich levels of isoflavone aglycones, especially genistein, as well as polysaccharides from Basidiomycetes mushrooms.

Sourced from Japan

All natural

Clinically researched

Peer-reviewed published papers

Special fermentation process for bioavailability

GMO-free

Certified organic

Anti-angiogenesis*

Apoptosis promoting*

Immune system support*

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*"GCP has been shown to interfere with cell growth in prostate cancer tumor models, and is an anti-angiogenesis substance both in vivo and in vitro. Lab experiments have shown GCP to have greater activity than genistein alone."**

DR. AARON KATZ,
Director, Center for Holistic Urology, Columbia Presbyterian Medical Center NYC

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

GCP Research Association

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Inhibition of Human Breast Cancer Growth By Genistein Combined Polysaccharide (GCP™) in Xenogenic Athymic Mice: Involvement of Genistein Biotransformation by B-glucuronidase From Tumor Tissues.

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ABSTRACT:

The role of beta-glucuronidase in genistein biotransformation was investigated in a human breast cancer MDA-MB-231 xenogenic athymic mouse model. Genistein Combined Polysaccharide (GCP), a genistein aglycone rich functional food supplement was used in these experiments. Tumor bearing mice were subject to oral administration of GCP for 28 days. GCP treatment significantly inhibited tumor growth. Induction of apoptosis by CCP treatment was related to activation of cleavage of poly ADP-ribose polymerase (PARP), induction of the p21 protein expression and reduction of cyclin B1 expression in the tumor tissues. Genistein exists as a glucuronide conjugate in normal organ tissues and the conjugated genistein lacks the physical activity of the aglycone. Tumor tissue contain high amounts of beta-glucuronidase, the enzyme that converts the genistein beta-glucuronide conjugate into genistein aglycone in tumor tissues. The resulting genistein aglycone exerts its physiological activities, including the induction of apoptosis in tumor tissues, and finally, leads to tumor growth inhibition.

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Isoflavone Aglycone Produced by Culture of Soybean Extracts with Basidiomycetes and Its Anti-angiogenic Activity

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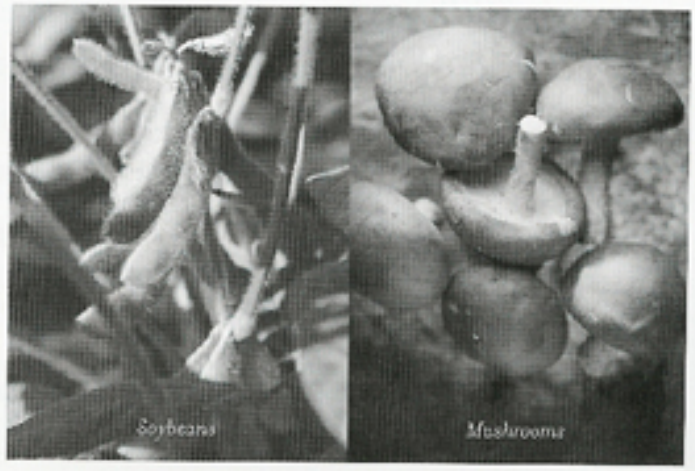
ABSTRACT:

Soybean extracts (SBE) containing isoflavone glycosides were cultured with Ganoderma lucidum mycelia producing beta-glucosidase. The anti-angiogenic effects of the cultured product, containing rich in genistein, named GCP (Genistein Combined Polysaccharide), were assessed with chick chorioallantoic membranes (CAM) and a mouse dorsal air-sac model. Beta-Glucosidase produced by the mycelia converted the isoflavone glycoside into aglycons. A test of volunteers showed that serum concentrations of genistein in the subjects treated with GCP (n=4) at 3 h after administration were significantly higher than those in the subjects treated with SBE (n=4).

GCP inhibited angiogenesis in CAM, and the activity of GCP was greater than that of SBE. CCP inhibited the formation of new vessels induced by colon carcinoma cells in vivo.



Regression of Prostate Cancer Following Administration of Genistein Combined Polysaccharide (GCP™), a Nutritional Supplement: A Case Report.

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INTRODUCTION AND OBJECTIVES:

Isoflavones such as genistein, are thought to have anti-cancer activity. Natural isoflavones are glycosylated and are poorly absorbed. GCP is a nutritional supplement prepared by fermenting soy extract with mushroom (basidomycetes) mycillae. This fermentation deglycosylates soy isoflavones and metabolizes them to produce novel isoflavone forms. We evaluated this nutritional substance to evaluate whether it might have potential activity as a prostate cancer chemo-preventative agent.

METHODS:

GCP was obtained from the manufacturer, Amino Up Chemical Co, Japan. Increasing amounts of GCP extract were added to the medium of cultured LNCaP or PC-3 cells, the effects on cell growth and apoptosis were measured by MTT and TUNEL assays, and were compared to control cultures treated with equivalent concentrations of purified genistein. GCP-treated LNCaP cells were assessed by Western blot for expression of p27, p53 and phospho- (p-) AKT proteins. LNCaP cells were subcutaneously xenografted in immunodeficient mice and tumor growth was monitored in mice fed control diet or 2% GCPTM-supplemented diets. GCP (1.5 g/day) was administered to 17 prostate cancer patients for 7 weeks prior to radical prostatectomy and their serum PSAs were monitored. Prostate tumors in the tumor biopsy and specimens were quantified for apoptotic cells and were compared to control patients.

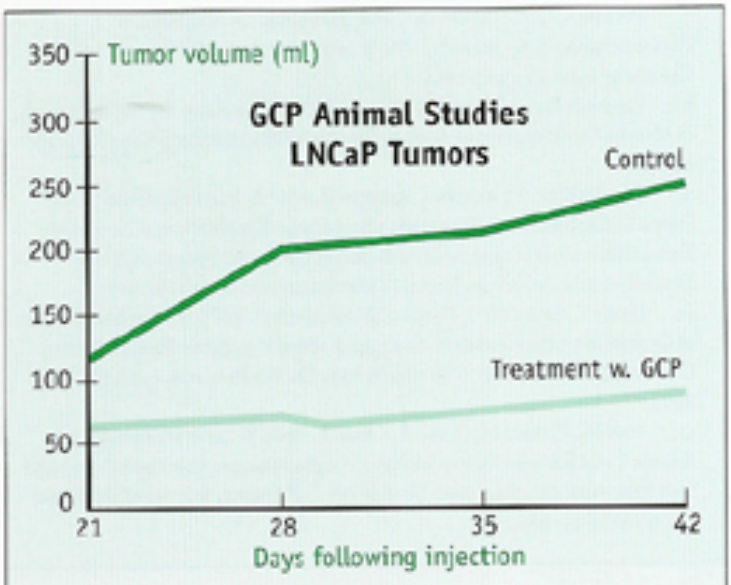
RESULTS:

Both GCP and genistein significantly suppressed in vitro growth of LNCAP or PC-3 cells. GCP extracts were significantly more inhibitory when compared to equivalent concentrations of genistein. The reduction of cell growth was associated with induced apoptosis of the cultured prostate cancer cells. Molecular studies of GCP effects on cancer cell lines showed that this agent rapidly induces p27 and p53 protein expression while suppressing the expression of p-Akt. Subcutaneous LNCAP xenografts were remarkably growth-inhibited in nude mice receiving supplemental GCP in their diet. Tumors typically weighted 10% or less compared to tumors growing in untreated mice. Patients who received GCP prior to surgery showed decrease in their mean PSA from 8.4_6.6 to 7.5_5.3 (ng/ml) and increase in their mean tumor apoptotic index in their prostate tissue specimens from 0.9+ 0.6 to 2.9+ 2.1 (p-value 0.005).

CONCLUSIONS:

Our results suggest that GCP has potent inhibitory effects against prostate cancer cells, in vitro and in vivo. In our in vitro analysis, this effect was superior to that seen with genistein alone.

- GCP markedly diminishes the proliferative potential of both androgen sensitive (LNCaP) and androgen insensitive (PC-3) prostate cancer cells.
- GCP markedly induced P53, p27 and significantly decreased pAkt and Akt expression in prostate cancer cell lines.
- GCP markedly increased apoptosis in prostate cancer specimens; no side effects were reported.



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Supportive Published Papers

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