International Workshop
Summaries of Lectures
Presented at the 2004 General Meeting
of the BioBran Study Conference

Regulation of the Defense Mechanism with Food

- Relationship between Tumor Dormant Therapy and Food Function -

Date: March 14, 2004 (Sunday)

Place: Kokuyo Hall

Ingredients Involved in the Inhibition of Atypical Cell Proliferation

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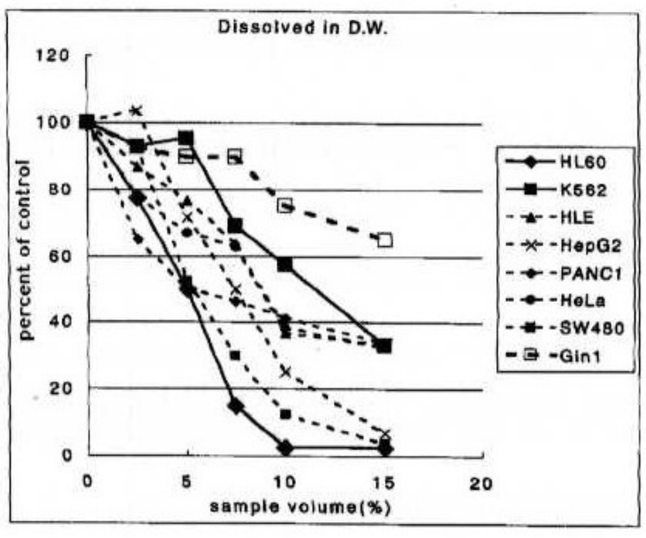
BioBran has been reported to have physiological effects in improving many symptoms. The physiological function of BioBran is assumed to be activation of immunocytes, especially natural killer cells, which potentiate the immune function and improve symptoms. However, the improvement of symptoms not explained by the activation of natural killer cells alone strongly suggests the possible presence of different substances as active ingredients. This indicates the possible presence of unknown physiological actions of BioBran.

I would like to report here the results of the study of ingredients inhibiting the proliferation of atypical cells, especially cancer cells. Experimental methods included the use of cultured cancer cell lines, addition to the culture system, and counting the cells after 3 days. Analysis of the effects of the sample solution in terms of the quantity added to the culture solution before the experiment revealed that there were no effects on the proliferation of cancer cells even when the quantity corresponding to 40% of the culture solution was added. The effects of the BioBran solution on normal cells were then examined. The normal cells used were lymphocytes isolated from human blood, and it was confirmed that the BioBran solution does not accelerate the death process of these cells. Repeated measurement at multiple concentrations showed no abnormality in the survival of lymphocyte even at the final BioBran concentration of 20 mg/ml in the culture solution. The BioBran solution was divided into three fractions of different molecular size by Sephadex G-25 column chromatography. The effects of each fraction on the proliferation of multiple cancer cell lines were examined. The cancer cell lines used were free cell and adhesion cell lines. Inhibitory effects on proliferation when 5 and 10% of the culture solution were added were noted in low molecular weight fractions for both lines, indicating that the inhibitory effects tend to depend on the quantity added. The results in the cancer cell lines are shown in the figure. The count of survival cells is expressed as a relative value when the cell count after three days of unadded culture is 100. The horizontal axis represents the proportion (%) of the sample containing 50 mg/ml of the low molecular weight fraction obtained from BioBran to the amount of the culture solution. Treatment with an ultrafilter membrane having a molecular weight of 1,000 revealed that the target compound exists in the fraction that passes through the membrane. The solution obtained showed no characteristic ultraviolet and visible absorption or fluorescence. The inhibitory effects on the proliferation of cancer cells depended on the quantity added. With a smaller quantity, the rate of proliferation decreased but the cell count became the same as that in controls after a certain specific time. Increased quantity inhibited the proliferation and there was no increase in the cell count. Higher concentrations seemed to produce the death of cells. Removal of BioBran from the culture solution in which the addition of BioBran inhibited the proliferation did not result in further proliferation of cancer cells. The nature of this compound is now being examined.



Effects of Bio Bran on the proliferation of HLE,HepG2, PANC1,HeLa,SW480 and Gin1.

【Fig.1】