



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

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| Name(s) Alia Ghoneum | Project Number 23756 |
| Project Title The Effect of Modified Rice Bran (MGN-3/Biobran) on the Growth of Breast Cancer Cells in vitro | |
| Abstract Objectives/Goals This study addressed the problem of how the human breast cancer cells responded to a natural product made from rice bran (MGN-3/Biobran). The human breast cancer cells (MCF-7) were selected as the model. The purpose of this study investigated whether MGN-3/Biobran suppresses the growth of MCF-7 cells in vitro. Methods/Materials The primary materials used were modified rice bran (MGN-3/Biobran) and human breast cancer cells (MCF-7). The methods used included counting the number of cancer cells using a hemocytometer and light microscope. Briefly, four identical groups of cancer cells were subjected to different dosages of MGN-3. The control group was not given MGN-3, while the other three groups were given MGN-3 at different concentrations: 100 µg/ml (micro-gram per ml) (0.1 gram), 500µg/ml (0.5 gram), and 1000µg/ml (1 gram). The number of cancer cells was examined at 3, 4, and 5 days after treatment with MGN-3. The experiment was repeated four times. Results The significant finding of this study was that MGN-3, at a concentration of 1000µg/ml, decreased the number of cancer cells. After 3 days, the number of cancer cells decreased by 25% and continued to decline to 66% at 5 days, in comparison to the control group. Decline in the number of cancer cells was also noted at lower concentration, but to a lesser extent. The data represents the mean of four experiments. Conclusions/Discussion The findings of these experiments support the hypothesis. The results of this study contribute to the understanding of the benefits of natural products in the treatment of diseases such as cancer. Further studies must be carried out. | |
| Summary Statement This project examines the action of modified rice bran (MGN-3/Biobran) on the growth of breast cancer cells (MCF-7) in vitro. | |
| Help Received Mom helped cut and paste for board. Used lab equipment at Drew University of Medicine and Science under the supervision of Dr. James Tsao. Research Associate ordered, maintained, and photographed cancer cells. | |