Study in *Cancer Research*[1] Finds Extract of Beta Glucan Derived from Baker's Yeast Significantly Enhances Effectiveness of Monoclonal Antibodies in Treatment of Cancer

Promising initial study results demonstrate that a soluble beta glucan compound significantly increased the effectiveness of monoclonal antibodies specific for the treatment of breast, liver and lung cancer, according to a recent article published in *Cancer Research*, a journal of the American Association for Cancer Research.

In a series of preclinical studies, a therapeutic combination of a patented, soluble yeast beta glucan called NSG and monoclonal antibodies significantly enhanced both tumor regression and long-term survival as compared with monoclonal antibody therapy alone. In the breast cancer model, 40 percent of the mice receiving the combined therapy survived long-term and tumor-free, compared with no survivors among mice treated with the monoclonal antibody or NSG alone. Similarly, in a liver cancer model the combined therapy extended survival and increased long-term survivorship by 25 percent.

"The data suggests that the therapeutic efficacy of certain complement-activating monoclonal antibodies, like Herceptin, Rituxan and Erbitux, could be significantly enhanced if they were combined with NSG," said Gordon D. Ross, Ph.D., Director of the Tumor Immunobiology Program at the James Graham Brown Cancer Center located at the University of Louisville and the senior author of the paper. "Given the limited tumor-killing mechanisms available to monoclonal antibodies, soluble beta glucan engages another arm of the immune system to fight cancer. NSG is a potentially important adjuvant to monoclonal antibodies for enhancing long-term cancer survival by providing this additive effect to these immunotherapies."

NSG effectively recruits neutrophils, which are innate immune cells, to engage in tumoricidal activities. Normally, these white blood cells do not engage in the fight against cancer cells since they are viewed as "self," only respond to "nonself" cells. Dr. Ross discovered that NSG, a polysaccharide derived from a proprietary strain of yeast, binds to a specific receptor site on these innate immune cells, allowing them to "see" the cancer as "nonself" and trigger killing.

"This is notable research published in a very well respect medical journal devoted to cancer research. Other work performed by Dr. Ross and his colleagues have demonstrated that orally dosed Beta 1,3-D glucan is taken up by macrophages and neutrophil via the Peyer's Patches in the gut. In a period of 3-12 days, these phagocytes digest the insoluble particles and convert them into a soluble form of beta glucan. We would encourage everyone to take this article and share it with physicians and particularly oncologists working with different forms of immunotherapy", say A.J. Lanigan.

1 – Cancer Research 63, 9023-9031 December 2003