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SYNERGISTIC EFFECT OF MODIFIED ARABINOXYLANE(MGN-3) AND LOW DOSE OF RECOMBINANT IL-2 ON HUMAN NK CELL ACTIVITY AND TNF- PRODUCTION

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We have recently showed the potent biological response modification of a new product called MGN-3, an arabinoxylane from rice bran that has been modified by extract from *Hyphomyces mycelia*. MGN-3 possess anti-HIV activity, NK immunomodulation and anti-cancer activity. Success with recombinant IL-2 (rIL-2) immunotherapy of human cancer appears to depend on the administration of high doses, which are frequently associated with excessive toxicity. Therefore certain modifications are greatly needed on the use of rIL-2 at low doses without significant loss of anti-tumor efficacy. Experiments were designed to examine NK activity post culture human peripheral blood lymphocytes (PBL) with MGN-3 alone (1mg/ml), rIL-2 alone (500u/ml) and MGN-3 (1mg/ml) plus rIL-2 (500u/ml). Results showed that MGN-3 and rIL-2 increase NK activity by 138.6% and 179.5% respectively. Interestingly a synergistic effect on NK activity was noticed post culture of PBL with MGN-3 and rIL-2 (332.7% of control).

The mechanism underlying this phenomenon is not fully understood but could be attributed to action of MGN-3 on TNF- production. Results showed that TNF- levels from control untreated PBL of 20 subjects was 195pg/ml \pm 102. Treatment with rIL-2 showed no change in TNF- level (216ng/ml \pm 100), while MGN-3 significantly increased TNF- production (5773pg/ml \pm 2653). On the other hand, a synergistic effect MGN-3 plus rIL-2 resulted in a further increase of TNF- production (8127pg/ml \pm 2578).

We conclude that ;

1) MGN-3 is a potent TNF- α producer, and

2) the immunomodulatory function by low concentration of rIL-2 on anti-tumor activity by NK cells could be greatly augmented by the concomitant use of MGN-3.