

Antioxidant Capacity

The generation of reactive oxygen species (ROS) beyond the antioxidant capacity of a biological system, gives rise to oxidative stress. It is well known that free radical oxidative stress is implicated in the pathogenesis of a variety of human diseases. Cells and tissues normally possess antioxidant defense mechanisms to ensure the removal of reactive oxygen species. Some of these mechanisms are controlled endogenously (i.e. the antioxidant enzymes) and others are provided by diet. Antioxidant rich foods, as part of the regular diet, may influence the treatment/amelioration/prevention of many chronic diseases, such as cancer, cardiovascular and inflammatory damage including cellular degeneration related to aging.

Due to its very high content of antioxidant factors, especially selenium, products made with KAMUT[®] khorasan wheat could have a positive effect on reduction of oxidative stress on living organisms. To verify this, Kamut International is sponsoring two *in vivo* studies:

- **Evaluation of the antioxidant protective effects of the dietary consumption of KAMUT[®] khorasan wheat based food in experimental animals**
- **Assessment of antioxidant capacity of KAMUT[®] khorasan wheat products in people genetically predisposed to oxidative stress**

In the first study, the effect of a diet exclusively comprised of KAMUT[®] khorasan wheat is evaluated on blood, organs and tissues. This is in order to have a complete understanding about the effects this type of diet can have on living organisms.

The second study involves the new fields of nutrigenomics and nutrigenetics. These two fields have distinct approaches to investigate the interaction between diet and genes with a common ultimate goal, which is to optimize health through the personalization of diet. More specifically, nutrigenomics (which comes from nutritional genomics), explores the effects of nutrients on the genome, proteome and metabolome. The major goal of nutrigenetics, is to explain in detail the effect of genetic variation on the interaction between diet and disease.