**0203-PE-050 Human Susceptibility to Trichothecene Mycotoxins.**

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Grant #: 59-0790-9-060; $58,823; 1 Year
Research Area: FSTU

PROJECT ABSTRACT
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Vomitoxin (VT or deoxynivalenol) and other trichothecenes are elaborated during head blight and thus pose a potential threat to human health. Potential regulations that would lower the tolerance level for VT in wheat and wheat products either in the U.S. or other countries could threaten the ability of U.S wheat, barley and resultant products to compete in the national and global economies. Should such regulations be proposed, it is absolutely essential that basic information be available relative to human sensitivity.. Based on studies in the mouse immune system, we believe that the most critical step for VT toxicity induction is its action on cell signaling in leukocytes (white blood cells). *We hypothesize that the levels of VT and closely related 8-ketotrichothecenes required for cytokine and apoptosis induction will be identical in mouse and human leukocytes.* We propose to determine *if* human leukocyte cytokine dysregulation and/or apoptosis induction are indeed targeted by the same levels of VT and related 8-ketotrichothecenes as are their mouse equivalents. If this is true, then the risk of low ppm levels of VT to humans will be extremely small when one considers the diversity of the human diet and the actual potential level of VT exposure in human tissues. Such evidence is critical because it would support the argument against establishing lower action levels than those currently set for VT. Two critical leukocyte types- the macrophage and T cells are being assessed in this study. We have shown that cloned human macrophage and T-cell lines are sensitive to the 8-ketotrichothecenes clones. We now plan to validate these findings in blood cultures from human volunteers as well as with purified leukocytes subsets of peripheral blood mononuclear cells (PBMC) obtained from blood donated to the Red Cross.