

## DDT and Glucose Uptake

by Grace Erickson

Thousands of sites, called Superfund sites, exist across the United States. These sites are areas in which hazardous waste has been improperly managed, resulting in environmental contamination. This contamination not only adversely affects the environment, but also human health since exposure to environmental chemicals has been linked to a variety of pathologies. In close proximity to Alma College is the St. Louis, Mich. Superfund site, which hosts an array of abundant contaminants such as DDT and polybrominated biphenyls. DDT has been linked to metabolic disorders in humans such as obesity, insulin resistance, and diabetes, but the mechanisms behind which DDT might lead to these disorders are still largely unknown. Insulin resistance and diabetes often arise from issues in glucose metabolism. As such, the aim of this study was to determine the effect of DDT on glucose metabolism in skeletal muscle, a main metabolic tissue. This was done by conducting glucose uptake and hexokinase activity assays in L6 skeletal muscle cells. Preliminary data suggests higher levels of glucose uptake, contrary to expectations. Hexokinase activity assays are currently being completed, but based on glucose uptake results, enzyme activity would be expected to be elevated as well. Further testing will be completed to confirm an increase in skeletal muscle glucose handling. If glucose metabolism is enhanced in muscle, then this would suggest the cause of DDT-linked insulin resistance and diabetes lies elsewhere. Future studies would need to investigate other metabolic tissues such as the liver, adipose or the pancreas to uncover the mechanism of metabolic disease development following DDT exposure.