

*Consumer Abstract*

Recent research suggests that obese individuals have chronic low grade inflammation which may lead to insulin resistance, a precursor to type 2 Diabetes. However, the cause of this inflammation is not fully understood. The Toll-like receptor (TLR) 4, a receptor found in fat tissue that is activated by saturated fat and can initiate inflammation, is one possible candidate. In animal models, high intakes of n-3 polyunsaturated fatty acids (PUFA), has been shown to protect against development of insulin resistance, possibly through inhibiting the activation of TLR4. Dr. Zhao's research group plans to use a special mouse model to determine whether TLR4 initiated inflammation in fat tissue leads to the development of insulin resistance and whether dietary n-3 PUFA can inhibit inflammation of fat tissue thereby decreasing insulin resistance. The results from this research will provide information that will be critical to the design of future human dietary intervention trials.