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Effects of Zinc Oxide Nanoparticles on Antigen-Antibody Binding

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Antibodies, found in the blood of humans, are used to find and attack foreign objects such as bacteria. The antibody of interest is immunoglobulin G (IgG) which is the main antibody used by the immune system to invade pathogens. An antigen is a harmful molecule that triggers an antibody response. Once the antibody and antigen are bound, the antigen is tagged to be attacked by the immune system.

A person is routinely exposed to zinc oxide micro- or nanoparticles since they are additives in many personal care products including sunscreen. Little research has been done on the effects of zinc oxide nanoparticles on antigen-antibody binding after the introduction of zinc oxide nanoparticles into the body. This research project used capillary electrophoresis to determine the peak shifts when zinc oxide is exposed to the antigen-antibody bound system. The detailed experimental conditions and results will be presented at the undergraduate research conference.

Brooke Burroughs is a senior chemistry major and will be graduating December 2008. Her future goals are to work in research and development in the pharmaceutical industry.