Nanotubes trigger biochemical 'cross talk' for consumer protection tests

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Researchers in West Virginia and Japan are reporting an advance toward a blood test that could help protect consumers from new products containing potentially harmful kinds of nanotubes. These ultra small wisps of carbon -- 1/5,000th the width a single human hair -- may become the basis for multibillion-dollar medical, consumer electronics, and other industries in the future.

Their report is appeared in the Jan. 14 issue of ACS' *Nano Letters*, a monthly journal.

Petia Simeonova and colleagues cite hints from past studies that nanotubes are toxic to the lungs of laboratory animals. Those findings emphasized the need for tests to check on the toxicity before products containing these particles hit the market.

In the new research, scientists deposited nanotubes in the lung of lab mice, and discovered the existence of a "cross-talk" mechanism, in which the animals' lungs alerted the rest of the body to the nanotubes presence. The alert caused specific genes in the animals to kick into action and produce certain proteins. The resulting biochemical signature of nanotube exposure could become a biomarker for exposure to harmful nanoparticles, the researchers say.

Article: "Cross-Talk between Lung and Systemic Circulation during Carbon Nanotube Respiratory Exposure. Potential Biomarkers," *Nano Letters*

Source: ACS