

Industry/University Center for Biosurfaces (IUCB)

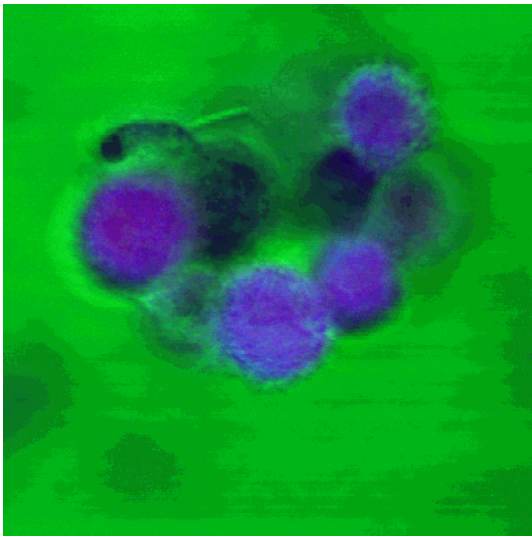
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Inadvertent Implants? Visualizing Lung Cell pH



Inhaled particles and pollution can stress lungs, causing asthma and other diseases. Most difficult to remove are long, thin asbestos-like fibers. IUCB has shown how the body protects itself against safe insulation glass fibers, and how to select formulations for new, safe building materials. A surprise has been the discovery of a new use for the insulation fibers, as scaffolds for regenerating body tissues. “Chemistry in action” is recorded and displayed using laser photonics combined with confocal microscopy to take “visual slices” through living cells. Living cells take in a dye that gives off fluorescent rays of two different colors, red for acid production and blue for alkalinity. Lung cells digest away respirable fiberglass by an acid attack that shortens them, and an engulfment into the cells that allows them to be digested and carried away before disease processes can be triggered. Indigestible fibers, too long to be engulfed, cause lung disease.

