

Quantum Dots Conjugated with Antibodies for Early Cancer Detection

Inventor(s)

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Abstract

This invention is a novel approach to increase the accuracy of early lung and ovarian cancer detection through the application of nanotechnology. This invention is directed to the conjugation of fluorescent semiconductor nanocrystals called "quantum dots" with cancer biomarker specific antibodies. The Quantum dots are detected by an immunometric methodology utilizing photoluminescence spectroscopy. Some of the benefits of quantum dots include the ability to detect small amounts of biomarkers, extremely broad absorption spectra allowing many different quantum dots to be excited with a single excitation wavelength, and narrow, symmetric emission spectra which minimizes overlap of adjacent quantum dots. The following list represents targets for the antibody: ADAM10, H2BFQ, AASDHPPT, AB026190, DDX10, OPA1, EKI1, ZWINT, hTERT, VEGF, sIL-2, pSAT3, MAGE, MIF, and Osteopontin.

Stage of Development

This invention has been utilized to screen a very small quantity of tissue samples.

Advantages

The invention offers an extremely sensitive method of early detection of cancer.

Patent Status

Non-provisional patent application and PCT patent application have been filed.

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