



NCI Alliance for **Nanotechnology** in Cancer

**The Intersection of Nanotechnology and Cancer Research:
Today and Tomorrow**

Science Writers and Media Briefing | September 13, 2004

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Nanotechnology is already in the clinic!

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in Cancer

- Liposomes
- DNA chips
- Proteomic nanotechnology
- Imaging contrast agents



Nanotech capabilities are applicable to cancer research and clinical needs

- Identify the signs of disease early
- Visualize the development of the disease
- Capture early signals of drug efficacy
- Deliver improved cancer therapy
 - Increased therapeutic effectiveness
 - Reduced side effects
 - Personalized medicine
- Improve quality of life

Nanotechnology enables early detection of cancer

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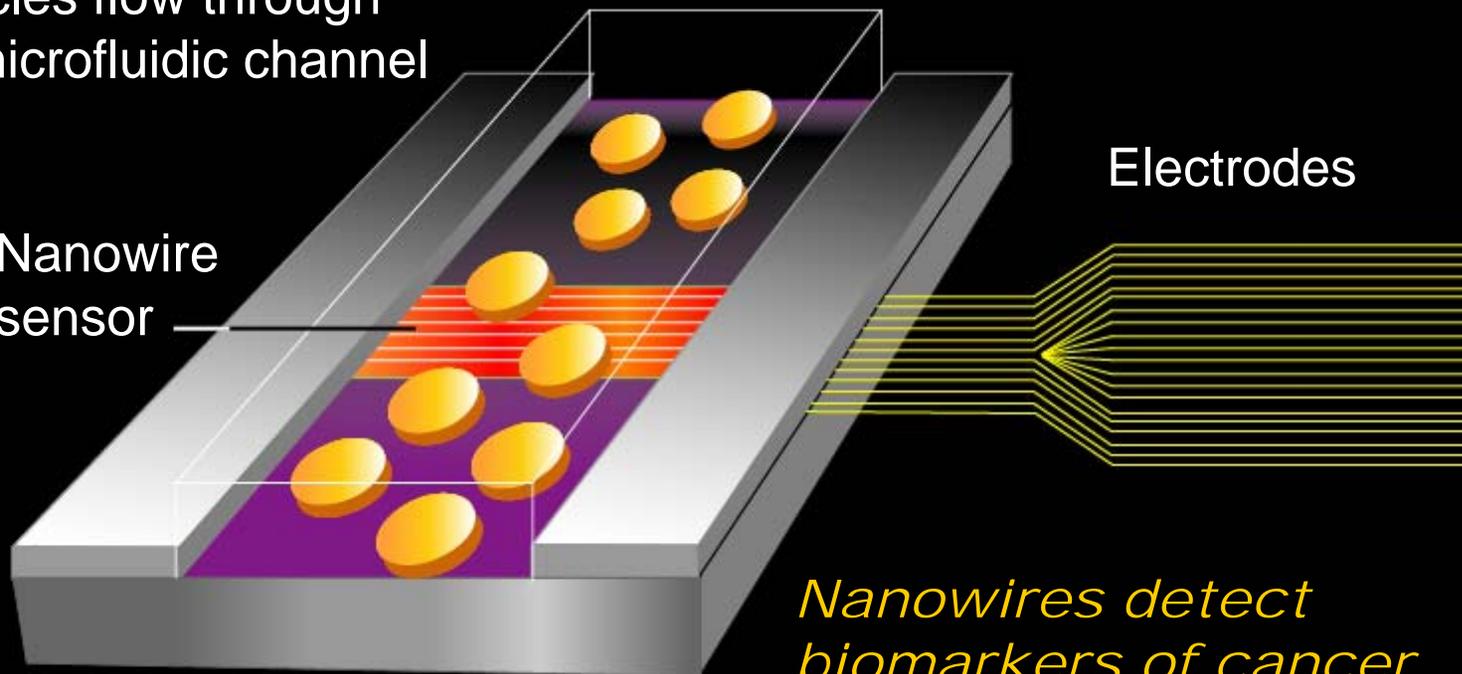
Nanowire Sensor

Particles flow through the microfluidic channel

Nanowire sensor

Electrodes

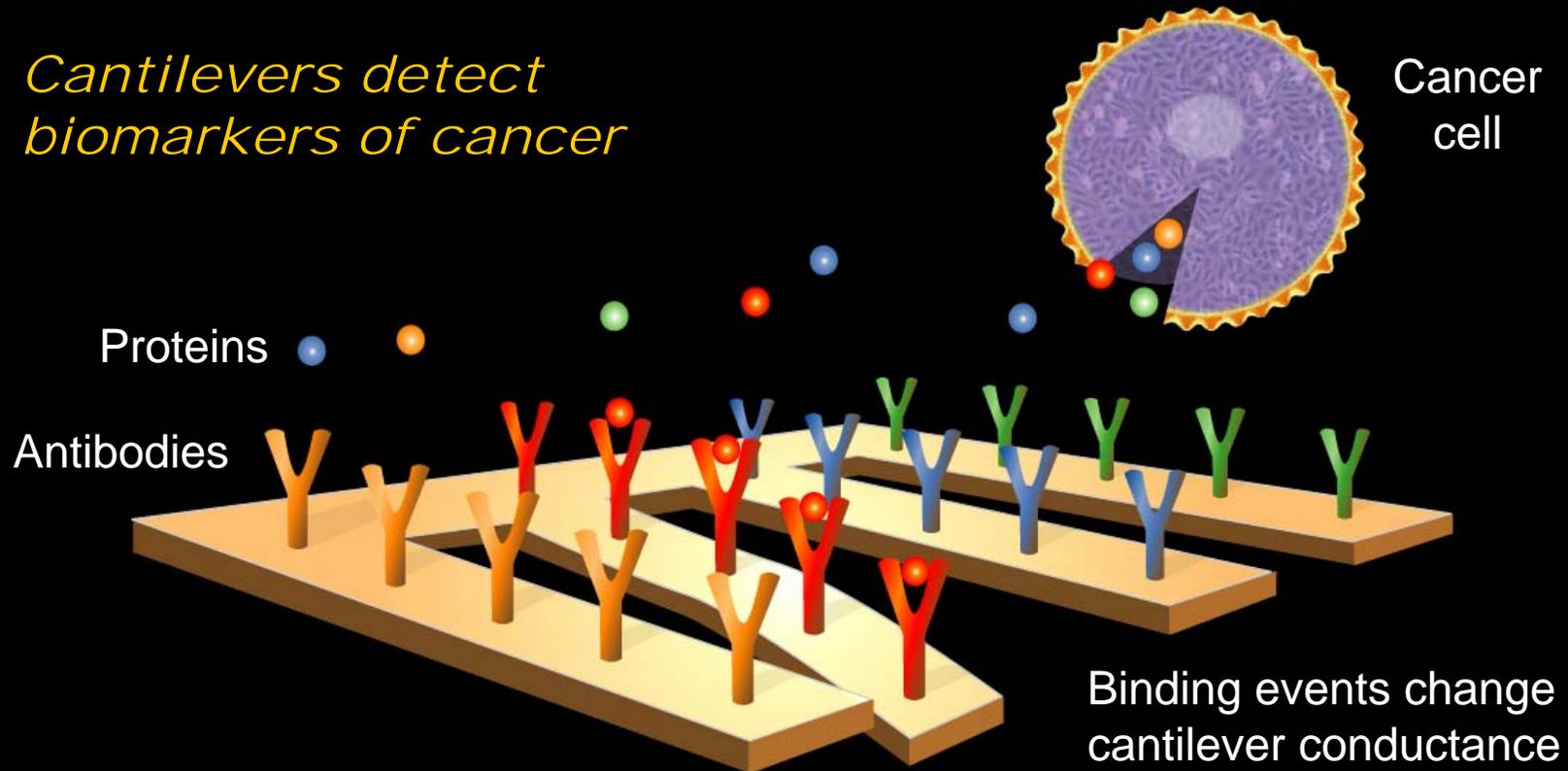
Nanowires detect biomarkers of cancer



Nanotech detects multiple molecular signatures

Nanoscale Cantilevers

Cantilevers detect biomarkers of cancer

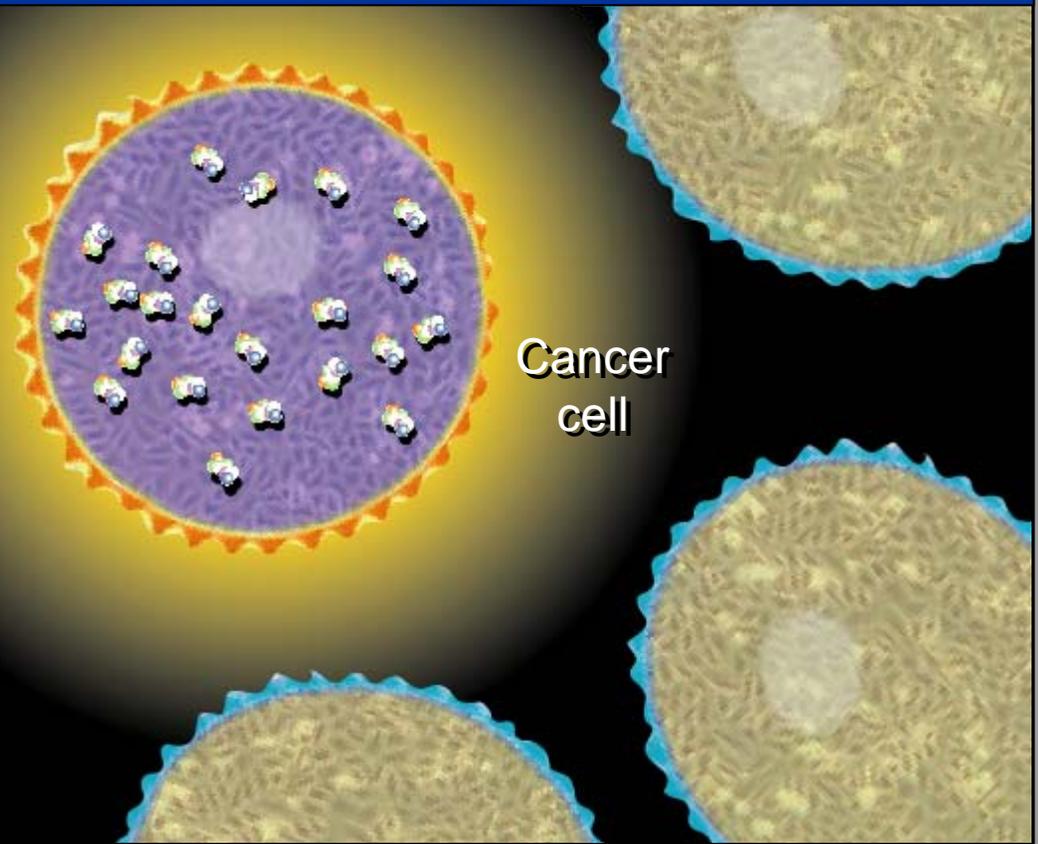


Nanotech allows visualization of cancer lesions and monitoring of therapeutic response

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Nanoparticles

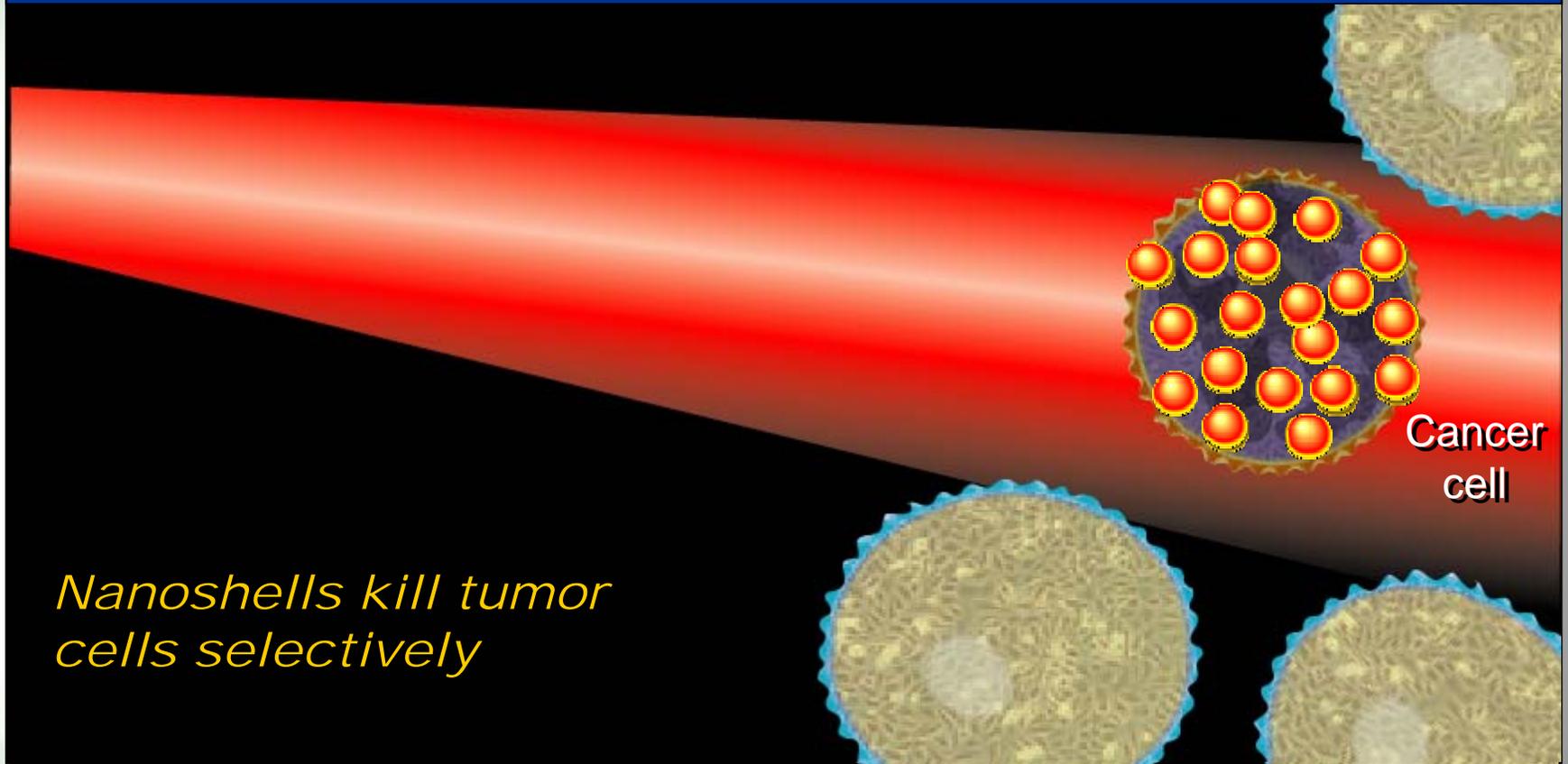
Nanoparticles used for molecular imaging of malignant lesions



Nanotech enables targeted delivery of therapeutics

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Nanoshells



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