

Superparamagnetic Iron Oxide Nanoparticle Apoptosis Probe

Jonathan Gunn
JIN Fellow
Materials Science and Engineering
March 11, 2005

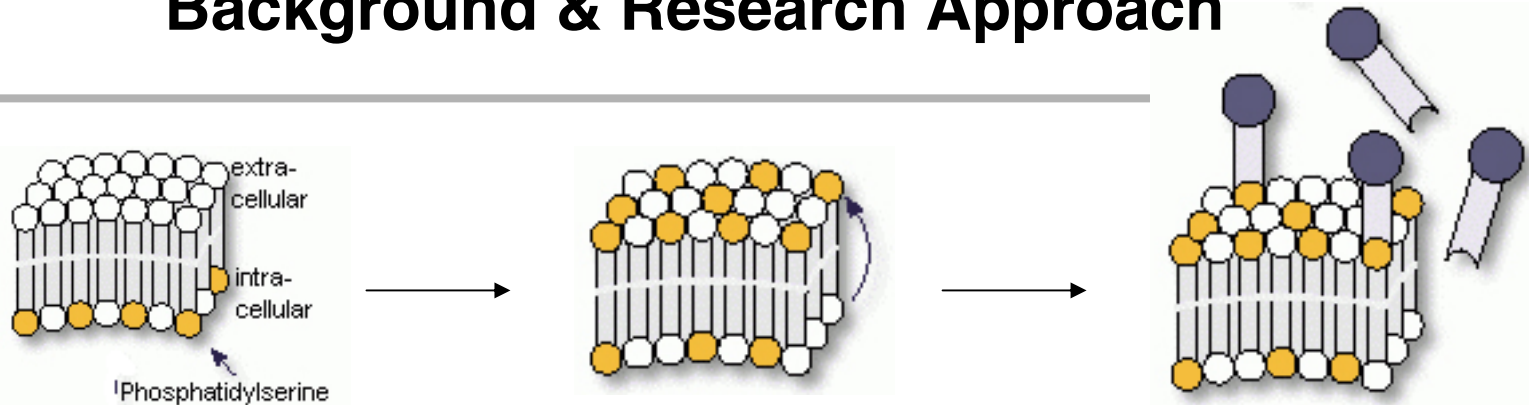
- Chemotherapeutics induce programmed cell death (**apoptosis**). Quantitation of apoptosis allows for tailored treatment plans for patients
- “Smart” magnetic resonance (MR) contrast agents can be used for **apoptotic cell detection** and improved tissue delineation



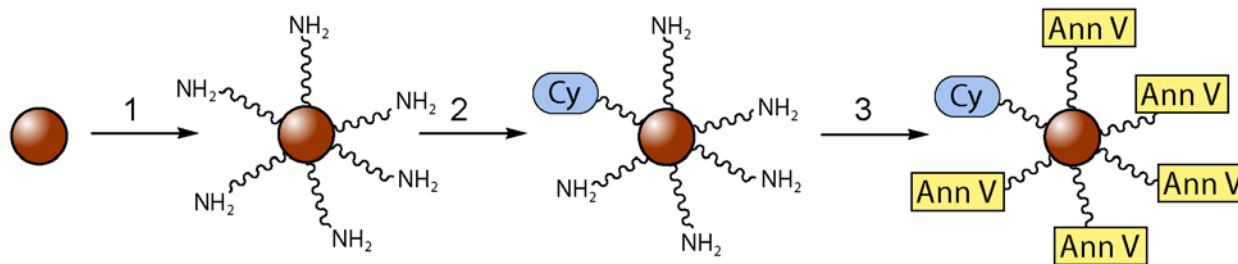
THE CENTER FOR
NANOTECHNOLOGY



Background & Research Approach



Cellular apoptosis and annexin V attachment



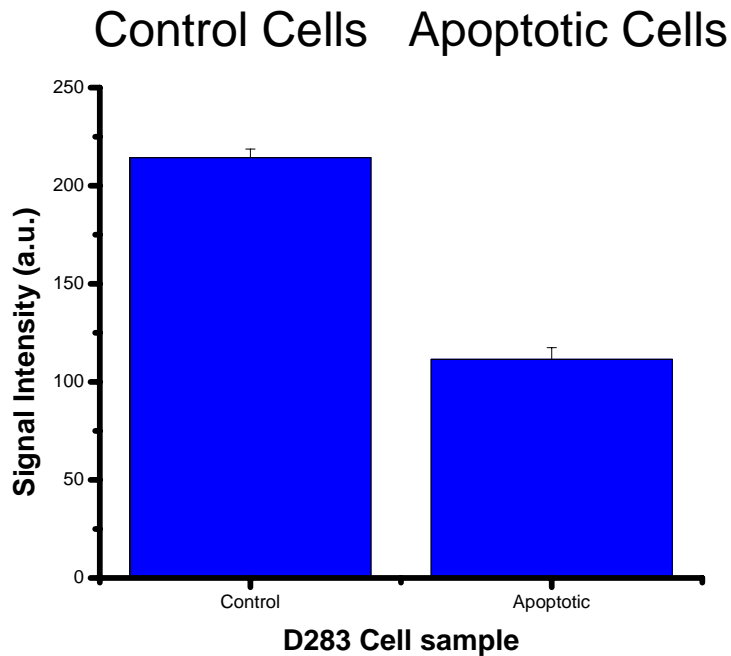
Covalent attachment of Annexin V to iron oxide nanoparticles via a biocompatible poly (ethylene glycol) linker



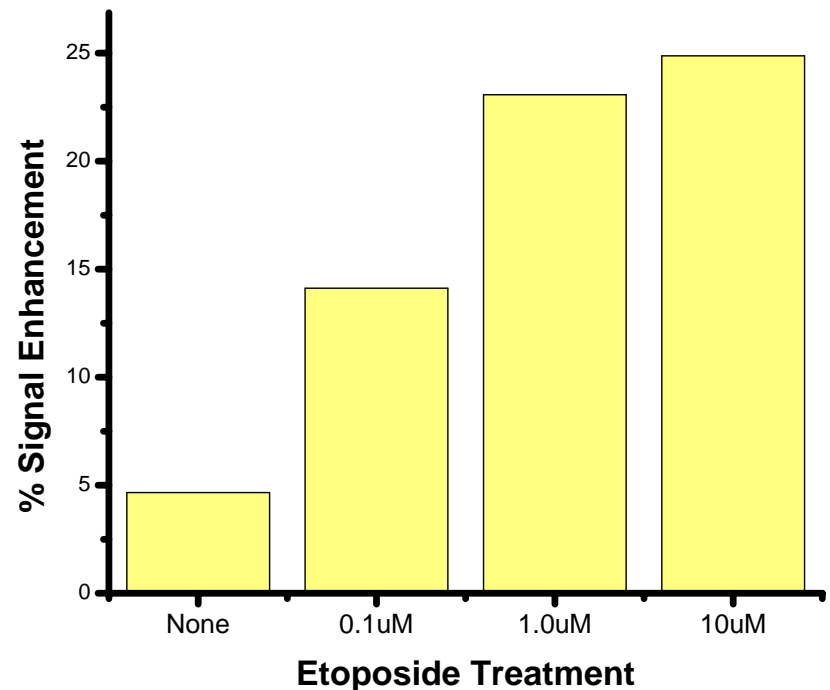
In Vitro Results

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.



13% 23% 64% 78%
Approximate percentage of apoptotic cells



THE CENTER FOR
NANOTECHNOLOGY

