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EMEA ITF Group on Nanotechnologies
April 29th 2009

Website: www.cbni.eu

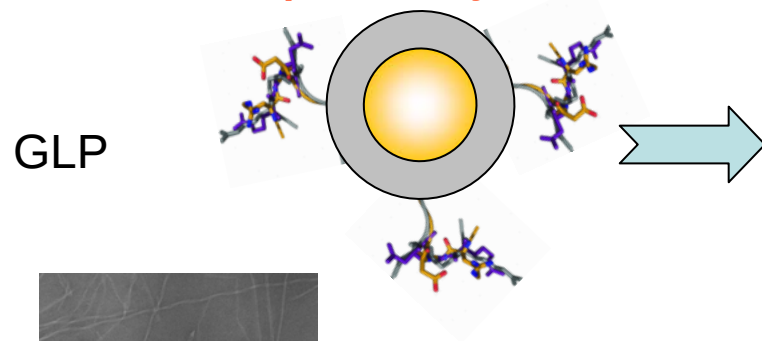


BioNanoInteractions

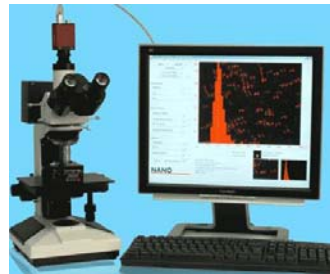
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Area(s) of expertise

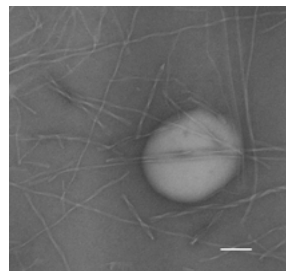
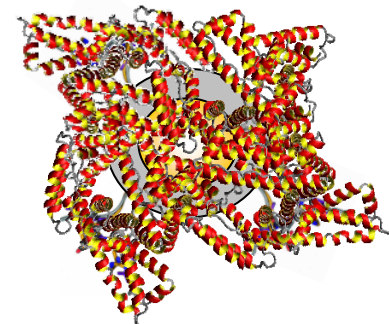
Nanoparticle synthesis



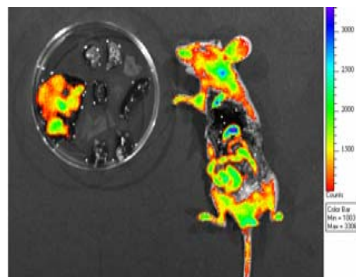
Dispersion and characterisation



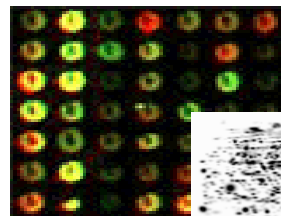
Protein Corona



Disease / therapy



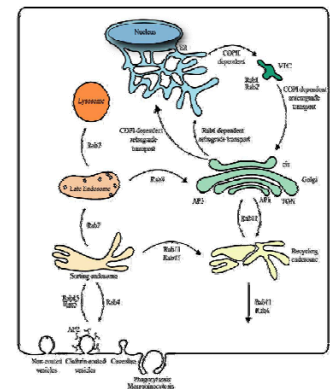
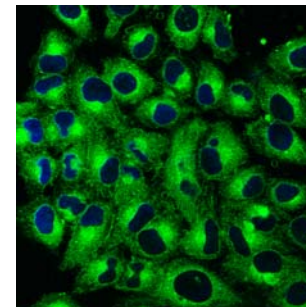
In vivo effects



Transcriptomics and Proteomics



Intracellular Visualization





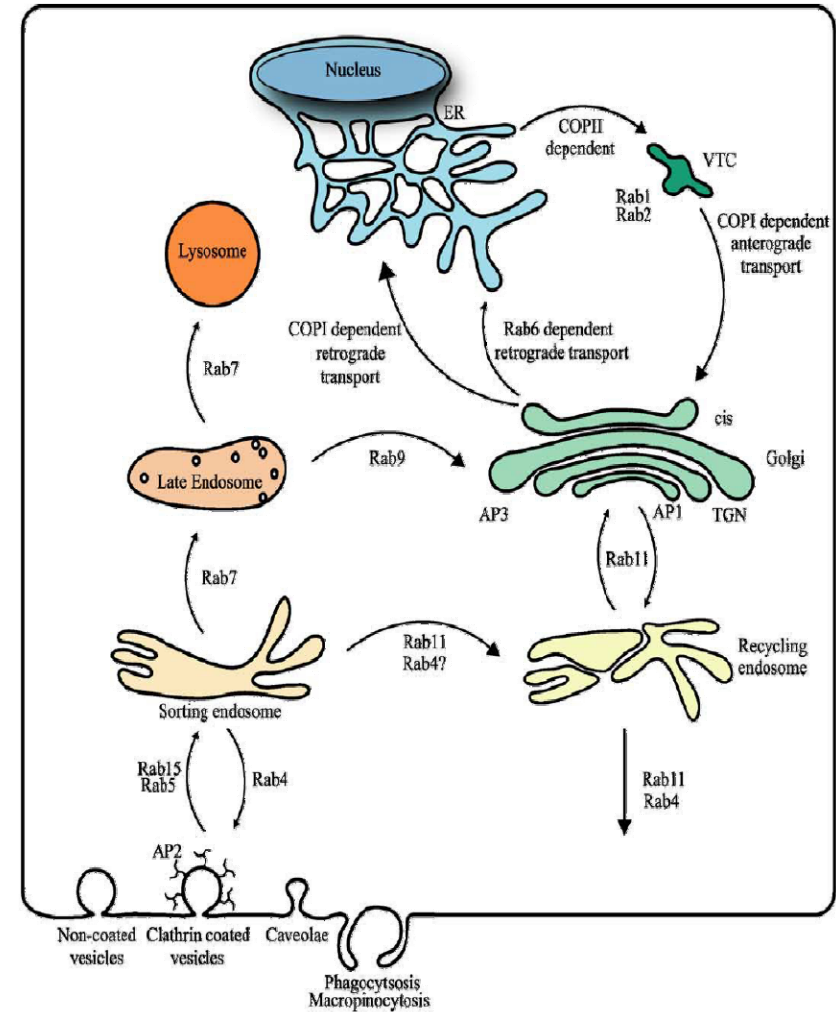
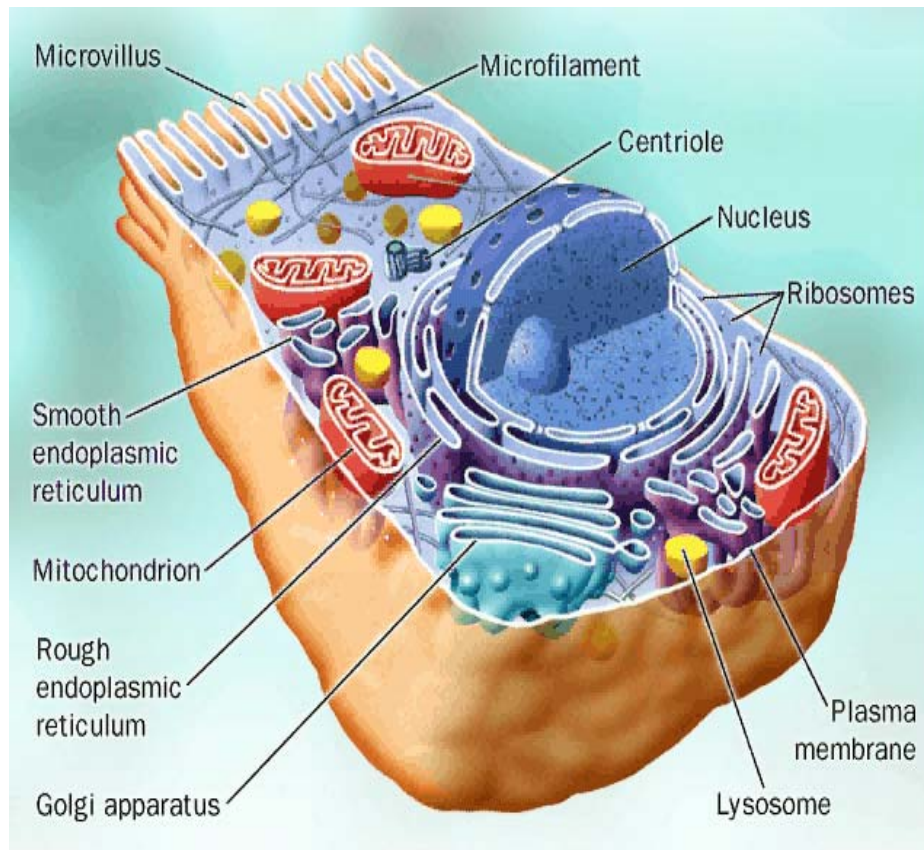
160-200 people





Protein Corona paradigm

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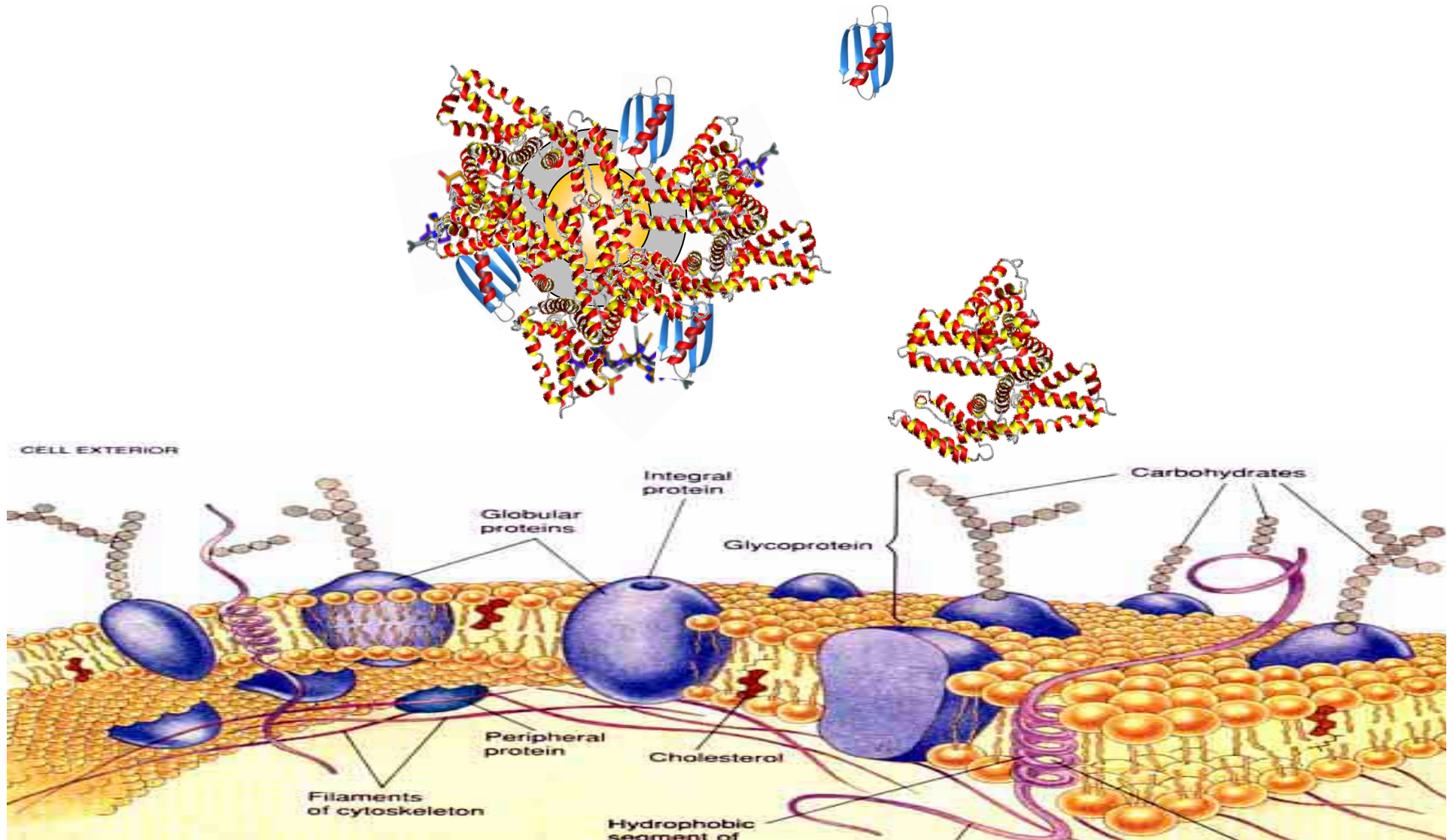


Nanoparticles utilise existing biological pathways (in new ways?)



Uptake connected to protein corona

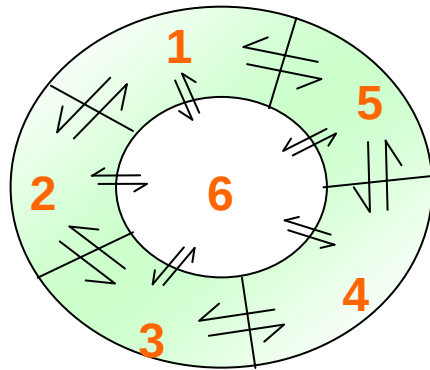
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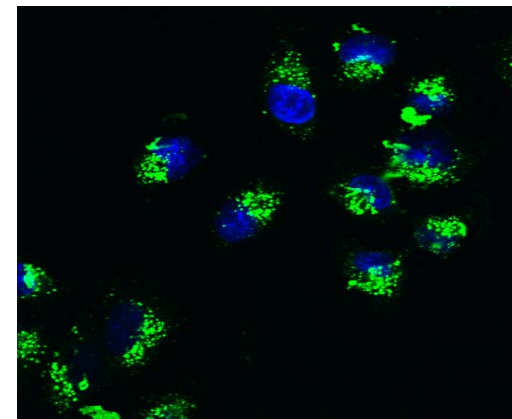
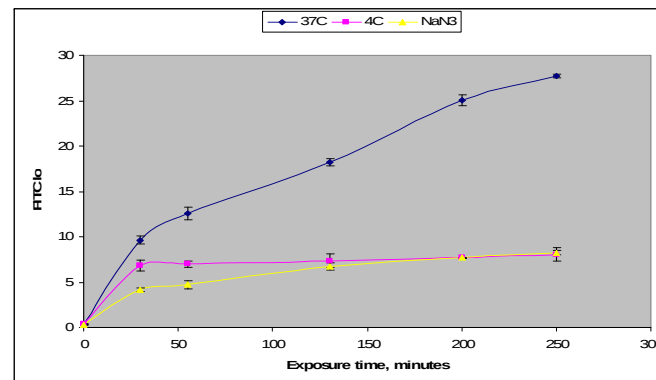
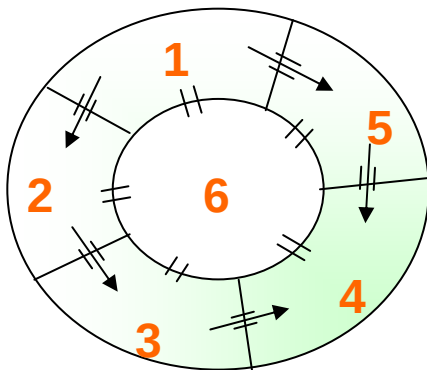
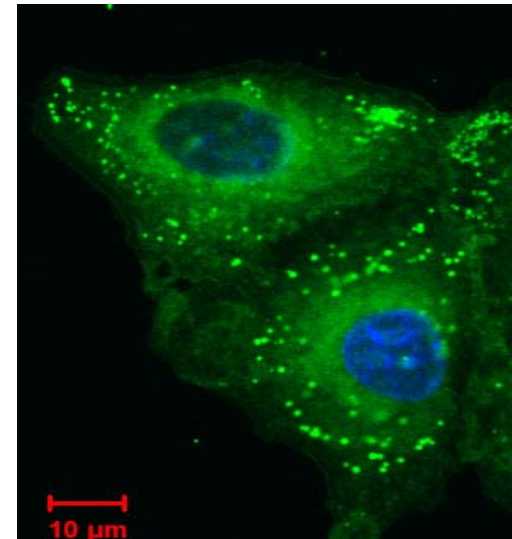
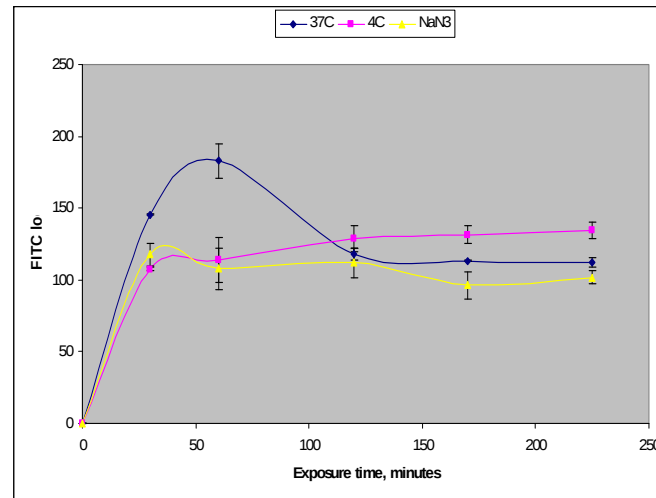


Nanotechnology for the Pharmaceutical industry

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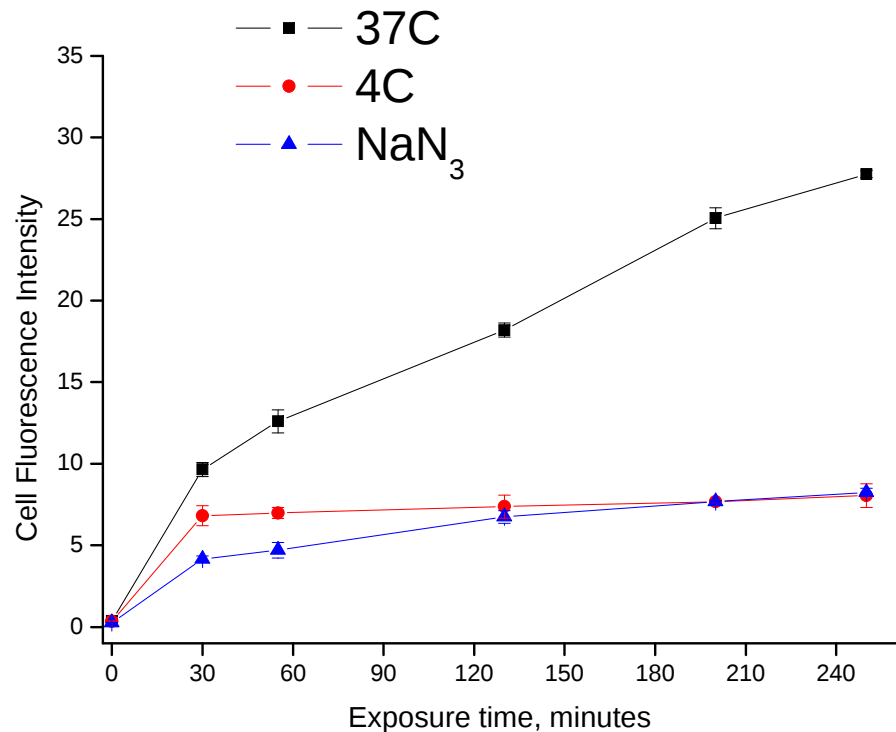
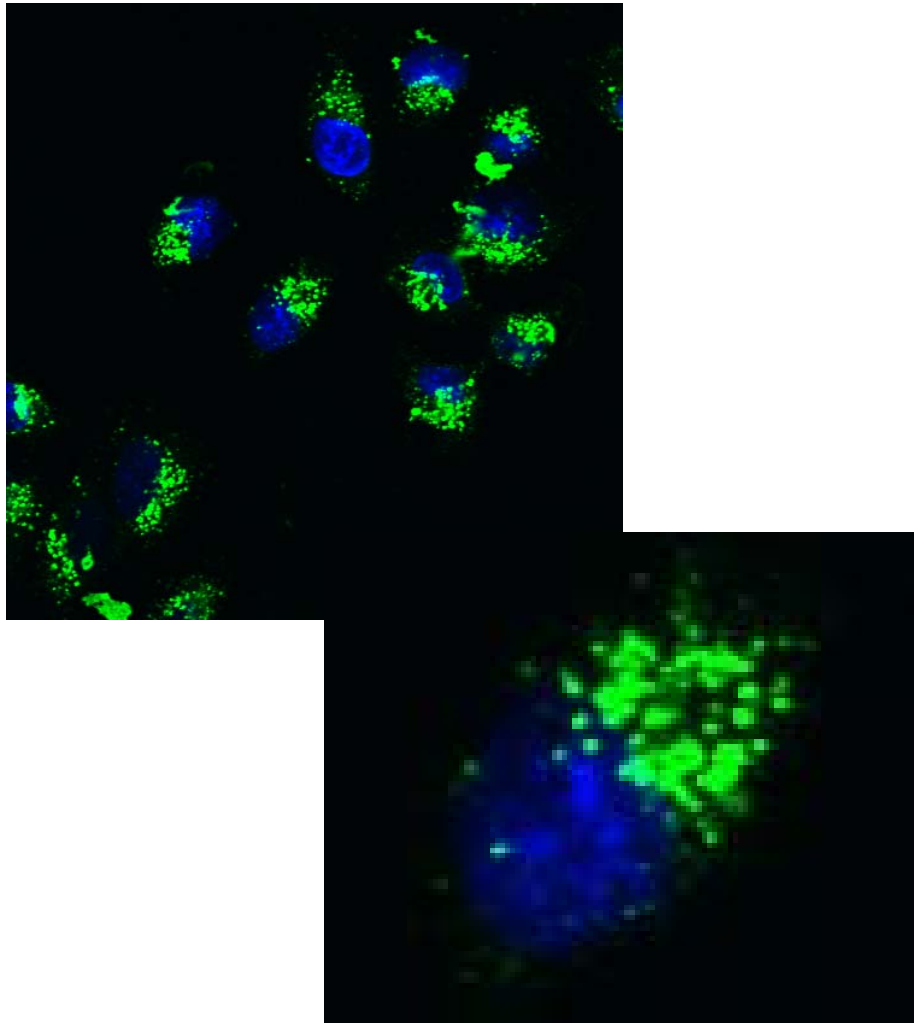
$$K_{15} = \begin{bmatrix} 5 \\ 1 \end{bmatrix}$$





Completely different uptake behaviour

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Distinct localisation in ER

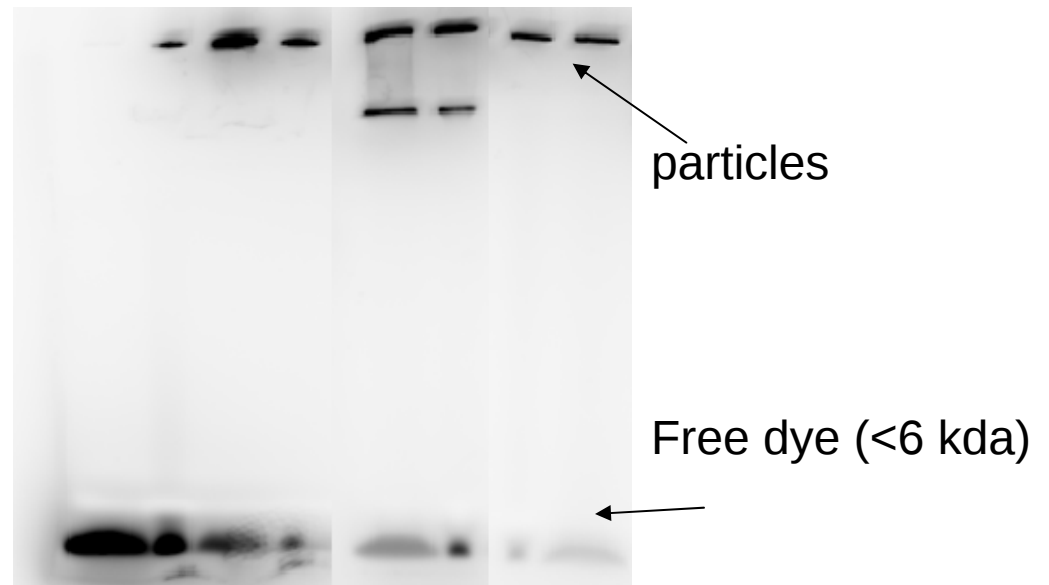
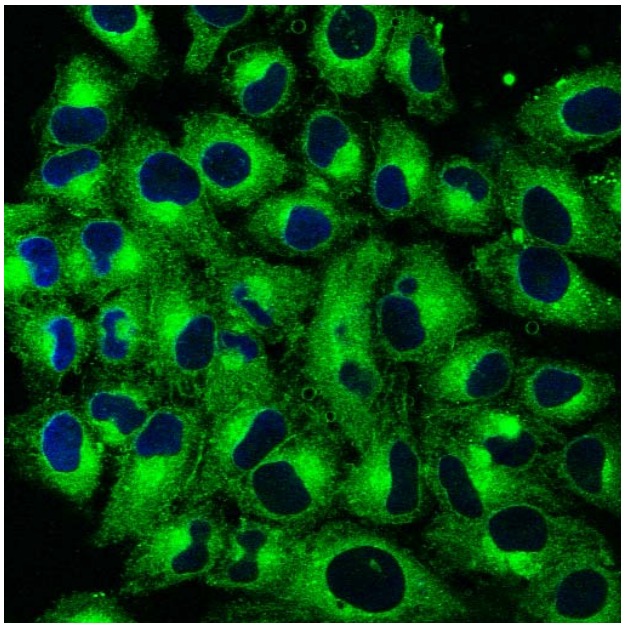
Clear energy dependence



Quality And Standards Issues

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Commercial samples leak - free dye!



Sds-gel (4% stacking gel and 10% resolving gel)

Much of the literature in this area questionable!

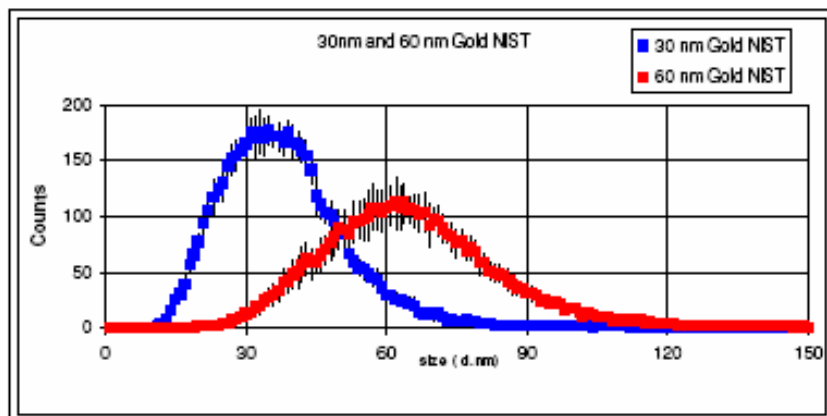
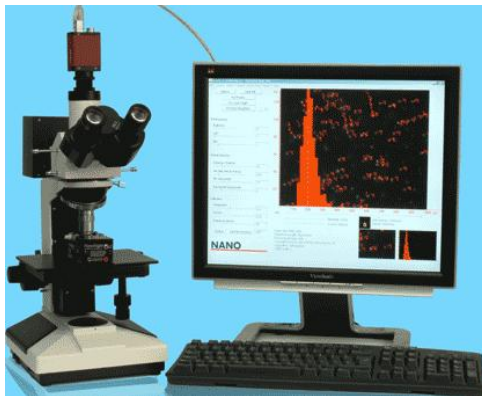
Also observed for FITC-dextran etc., not only nanoparticles.



new methods in-situ characterization

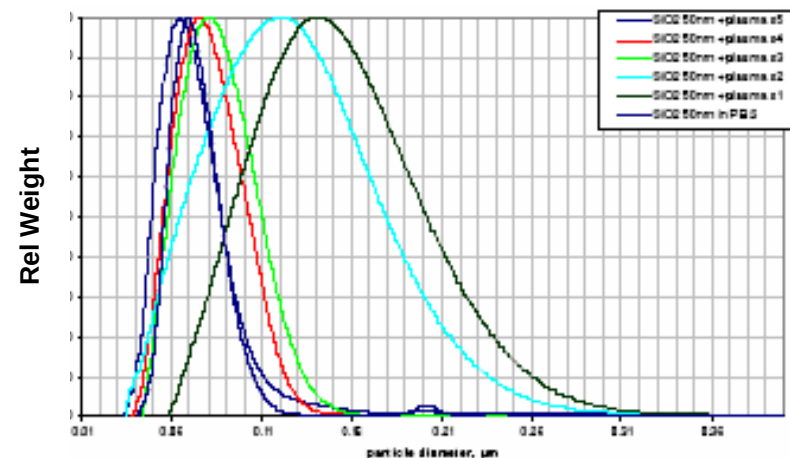
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NanoSight



NIST Gold nanoparticles 30nm and 60nm
in citrate buffer

Spinning Disc Centrifugation



SiO₂ nanoparticles with increasing
plasma concentration