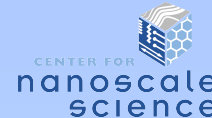
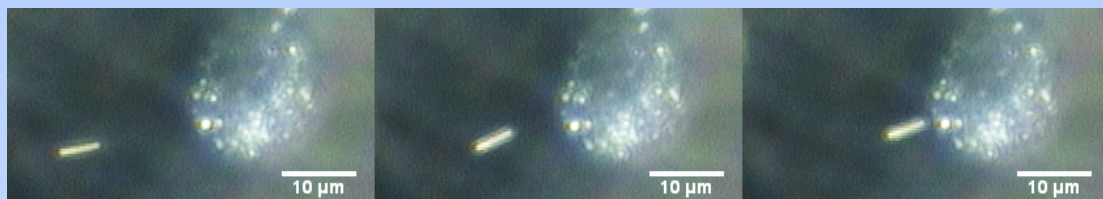


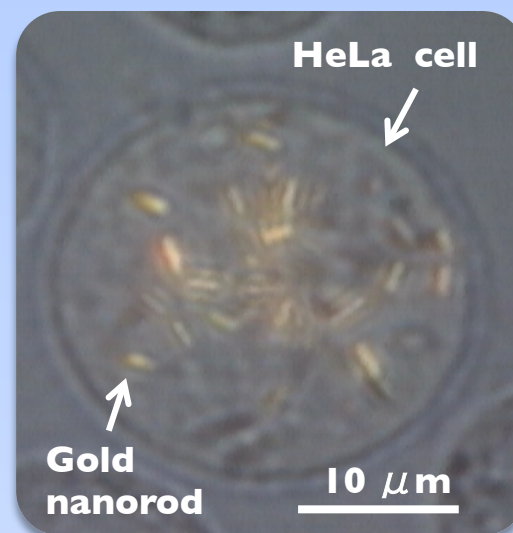
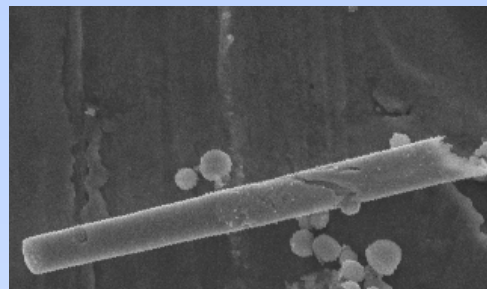
Biocompatible nanomotors powered by ultrasound: magnetic steering and interactions with live cells



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Optical microscope image of an acoustically powered nanorod motor being steered *in vitro* towards a HeLa cancer cell; electron micrograph of nanorod, and incorporation of nanorod acoustic motors into a HeLa cell.



Following the discovery (*ACS Nano* 2012, 6, 6122) of bio-compatible, acoustically powered nanorod motors, MRSEC researchers have collaborated with scientists at ESPCI (Paris Tech) and NIST to study the interactions of the motors with live cells. Metallic rods that incorporate a thin nickel stripe can be deliberately steered towards cells *in vitro* by using the weak external field of a Nd-Fe-B permanent magnet. Preliminary experiments involving live HeLa cells incubated with gold nanorods show them being taken up by the cells. Interestingly, the nanorods can still be driven by ultrasound while they are inside the cell. This discovery opens the exciting new and unexplored possibility of intracellular drug delivery as well as subcellular and organelle surgery using acoustically powered motors.