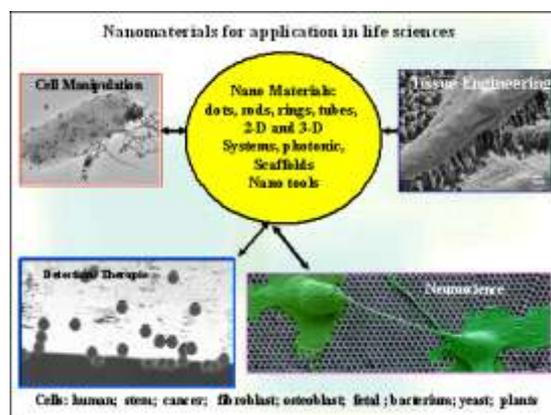


Nanomaterials for application in cancer diagnosis and therapy

Prof. Michael Giersig

Nanotechnology applied to biology requires a thorough understanding of how molecules, sub-cellular entities, cells, tissues and organs function and how they are structured. The merging of nanomaterials and life science into hybrids of controlled organizations and functions is possible, assuming that “biology is nanostructured”, and therefore man-made nano-materials can structurally mimic nature and complement each other. By taking advantage of their special properties, nanomaterials can stimulate, respond to and interact with target cells and tissues in controlled ways to induce desired physiological responses with a minimum of undesirable effects. To fulfil this goal, the fabrication of nano-engineered materials and devices has to consider the design of natural systems. Thus, engineered micro-nano-featured systems can be applied to biology and biomedicine to enable new functionalities and new devices. Amongst others these include nanostructured implants providing many advantages over existing, conventional ones, nanodevices for cell manipulation, and nanosensors that would provide reliable information on biological processes and functions.



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