

Nanotechnology in Medicine: Two different perspectives

There are many avenues of research in medical nanotechnology stemming from the pioneering collaborations that the Center for Nanotechnology and Molecular Materials has accomplished in the past five years since moving to Wake Forest University. Two main areas of research are eradication of cancer and wound healing, and they represent opposing fronts in medicine, yet are unified by the same underlying principles of nanotechnology. For eradication of cancer, carbon nanotubes can be used as heat generators in a tissue to ablate tissue, or to increase the uptake of chemotherapeutic agents by cancer cells. In the avenue of wound healing, ceramic nanoparticles have been used to strengthen elastomers for craniofacial applications, leading to the development of new materials, specially designed for pediatric patients. Bacterial infection is a major dilemma for healing also, and metal nanoparticles are exceptionally useful for treatment. Two different perspectives show how the principles of nanotechnology extend to areas of medicine where damage is needed (cancer and bacterial eradication) but these same principles may also be used to aid in healing of wounds and for development of reconstructive biomaterials.