

Nanotechnology in head and neck cancer

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Head and neck cancers represent 2-6% of all cancers in the United States and are aggressive neoplasms that can be resistant to current treatments. Treatment of tumors can be cosmetically and functionally disfiguring and tumors can still recur or spread to regional lymph nodes or distant organs. Novel technologies are necessary to overcome this disease. Nanotechnology represents a novel technology with the potential to revolutionize medicine with a range of diagnostic applications and treatments. At the size range of less than 200nm, nanoparticles can demonstrate new physical properties unlike their bulk material. For instance some nanoparticles serve as ultrabright beacons over 1 million times brighter than current probes. Extensive research is currently underway to evaluate nanoparticles as diagnostic probes, drug and gene carriers, electro/magnetic/photothermal therapy agents and even as radiation enhancers. This talk will review potential medical innovations using the our lab's work with gold nanoparticles as an example.

Biography

Dr. El-Sayed completed his Otolaryngology training at Boston University and a Head and Neck Surgical Oncology fellowship at the University of California San Francisco in 2003. He is currently the Co-Director of the Center of Minimally Invasive Skull Base Surgery at UCSF and focuses on management of tumors of the paranasal sinuses, skull base, salivary glands and infratemporal fossa. His research interests are endoscopic skull base surgery and also nanotechnology in head and neck cancer as the Director of the Head and Neck Nanomedicine Laboratory. His team has put on an annual course "Surgical Approaches to the Skull Base" for neurosurgical and otolaryngology residents for the past 3 years. Dr. El-Sayed has authored nearly 50 journal articles or book chapters, including the number 1 cited article in the field of chemistry in 2007. He is serving or has served on the editorial boards of the World Journal of Oncology, Journal of Nanomedicine & Nanotechnology, Otolaryngology-Omics Group, ISRN Nanotechnology- Hindawi, and the World Journal of Otolaryngology, and the Open Otorhinolaryngology Journal.

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