Nano BioSensors: Nasal, Organ and Biological Systems Monitoring

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The ever changing landscape in the continuing evolution of the development of the computer within the field of information processing is now blended with nanotechnology. Rapidly moving from the realm of science fiction to commercial products, nanotechnology involves the creation of microscopic devices that can provide support at a smaller scale previously unavailable. We are living in the time where the 1966 movie "Fantastic Voyage, " is a REALITY, where miniaturized submarine is injected into a patient to clear a blood clot, come to life. The uses of miniature computing devices are now reaching the commercial realms as universities license their innovative nanotechnology to industry.

The world of nano is now an array of scientific disciplines that are moving constantly forward toward nanometer-scale sensing systems. The use of semiconductor chips in the form of MOSFET, nano-silicon CMOS and MEMS are terms used in the microelectronic worlds, but now we can put an extra layer of skin on a person, called e-Skin, a BioStamp or even an E-Tattoo and monitor a person's single or multiple biological systems that goes beyond just a target organ system, because it may be used to predict the weather.

The process of monitoring for smell, taste and sight is with the use of nano sensors within a nano composite material that may be located in your nasal passages. We have read and had as a guest on our OCOL radio show the leading authority on the development of various silicon nano tubes, belts, fibers, claws and hooks Dr. Zhang Wang (see his paper), which are the brick and mortar to build a nano tool.

Currently, cell types, both healthy and diseases, can be classified by inventories of their cell-surface markers. Programmable analysis of multiple markers would enable clinicians to develop a comprehensive disease profile, leading to more accurate diagnosis and intervention. Studies by M. You, et. al have designed a DNA-based device, called "Nano-Claw". Combining the special structure-switching properties of DNA aptamers with toehold-mediated strand displacement reactions, this claw is capable of performing autonomous logic-based analysis of multiple cancer cell surface markers and, in response, producing a diagnostic signal and/or targeted photodynamic therapy as the technology advances.

And in January 2015 Princeton University announced that they developed a rice-sized laser, powered one electron at a time tunneling through artificial atoms known as quantum dots. The tinny microwave laser, or "maser," is a demonstration by the fundamental interactions between light and moving electrons. Through the advancement of this type of technology the integration of "maser" into a biological system will occur faster than you can click your fingers together.