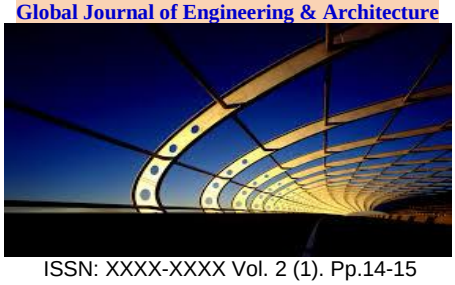
Global Science Research Journals

Available online at
www.globalscienceresearchjournals.org

Global Journal of Engineering & Architecture



Editorial 2021 Open Access

ISSN: XXXX-XXXX Vol. 2 (1). Pp.14-15
February, 2021

Architecture through Nanotechnology in Nanomedicine

Andreotti L[1]

[1]Professor of Architecture Georgia Tech Ecole d'Architecture de Paris La Villette,Italy

E-mail: libero.andreotti@design.gatech.edu

Nanotechnology was born as a result of the impressive technological advances driven by electronics, but has led to a set of methods and ideas drastically impacting other fields. In this presentation our increased ability to tailor molecule and, more in general, nanosystem properties will be discussed as a means to design and produce multifunctional nanosystems of interest for biomedicine. These can provide a signal or a function dependent on the value of a specific biological parameter and can target specific subcellular domains. Importantly, they can be optimized also for the application to live organisms.

Recent results will be discussed that highlight the impact of nanobiotechnology in this context with a particular emphasis given to methods suitable for in vivo studies that can be transferred to the biomedical world.

Additionally I shall show that such nanotools can be integrated in lab-on-a-chip architectures to provide fast, automated diagnostic functions. In this context an on-chip pumping protocol based on surface acoustic waves will be shown also within complex fluidic networks. This approach eliminates the need for external pumps or circuitry and opens the way to fully stand-alone miniaturized fluidic chips.

One of the exciting feature of nanotechnology is its utility in the field of nanomedicine, therapeutics, and medical devices. When these small size materials are introduced into biological systems, their extremely small size and their unique nanoscale properties make it possible to use them as delivery vectors and probes for biological diagnostics, imaging and therapeutics. Infact, when size decreases, the surface area to volume ratio of materials becomes very large, so that a vast suitable surface is available for chemical interactions with biomolecules. This critically implied that nanotechnology is facing a transition into the tangible advancement of human therapeutics. Recently, we have seen the beginning of multiple clinical trials of nanomaterials; both for therapeutics and for medical devices. Nanotechnology offers multiple benefits in treating chronic human diseases by site-specific, and target-oriented delivery of precise medicines. Recently, there are a number of outstanding applications of the nanomedicine (chemotherapeutic agents, biological agents, immunotherapeutic agents etc.) in the treatment of various diseases. The current review, presents an updated summary of recent advances in the field of nanomedicines and nano based drug delivery systems through comprehensive scrutiny of the discovery and application of nanomaterials in improving both the efficacy of novel and old drugs (e.g., natural products) and selective diagnosis through disease marker molecules.

Nanomedicine, is an emerging field implementing the use of knowledge and techniques of nanoscience in medical biology and disease prevention and remediation.

It implicates the utilization of nanodimensional materials including nanorobots, nanosensors for diagnosis, delivery, and sensory purposes, and actuate materials in live cells. Nanostructures stay in the blood circulatory system for a prolonged period and enable the release of amalgamated drugs as per the specified dose. Thus, they cause fewer plasma fluctuations with reduced adverse effects. Being nanosized, these structures penetrate in the tissue system, facilitate easy uptake of the drug by cells, permit an efficient drug delivery, and ensure action at the targeted location.