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An Editorial on Nano-medicine Technology

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Editorial

The innovative idea that tiny nanorobots and associated machinery may be created, manufactured, and delivered into the human body to perform cellular repairs at the molecular level gave birth to the concept of nanomedicine. Many nanomedicine technologies currently being investigated are already close enough to fruition that their successful development is almost unavoidable.

Immunoisolation

A surface perforated with holes, or nanopores, is one of the most basic medicinal nanomaterials. In 1977, Enge G [1], used bulk micromachining to manufacture microscopic chambers within single crystalline silicon wafers in which biologic cells could be put, which might be considered one of the first therapeutically useful nanomedical devices [2].

In 2018, Wainberg M [3], at Colorado State University created the first artificial voltage-gated molecular nanosieve, which consisted of an array of cylindric gold nanotubules with inner diameters as small as 1.6 nm. Positive ions were rejected and only negative ions were carried across the membrane when tubules were positively charged; with a negative voltage, only positive ions could pass. An electric field is used to drive a variety of RNA and DNA polymers through the centre nanopore of a-hemolysin protein channel, which is placed in a lipid bilayer analogous to a living cell's outer membrane [4]. The nanopore could quickly distinguish between pyrimidine and purine segments along a single RNA molecule, and then discern between DNA strands of identical length and content that differed only in base pair sequence in 2000.

Fullerene-based pharmaceuticals

C60, a soccerball-shaped arrangement of 60 carbon atoms per molecule, and other soluble fullerene derivatives show significant potential as medicinal agents. Antiviral and antibacterial agents (Escherichia coli, Streptococcus, Mycobacterium tuberculosis), photodynamic antitumor and anticancer therapies, antioxidants, and antiapoptosis agents as treatments for amyotrophic lateral sclerosis and Parkinson's disease are all possibilities for fullerene compounds.

Engineered bacterial bbiorobotsQ can be built from as few as 300 highly conserved genes (around 150,000 nucleotide bases) that make up the bare minimum genome for a working bacterium [5]. These synthetic microbes could be used in medicine to produce vitamins, hormones, enzymes, or cytokines that a patient's body lacks, or to selectively absorb and metabolise harmful substances like poisons, toxins, or indigestible intracellular detritus into harmless end products, or even to perform useful mechanical tasks.

The biocompatibility of nanomaterials and sophisticated nanodevices has been the subject of preliminary theoretical and experimental research. Our current understanding tells us that these things contradict no known principles of physics, chemistry, biology, or engineering, so take his long-term vision of medical nanorobots to heart. We will be able to generate the financial and moral will to allow such tremendously potent treatment to be used for the greater good of humanity, while keeping important ethical considerations in mind.

Today's nanomedicine

Many current nanomedicine techniques are close enough to completion that their successful development is almost inevitable, and their subsequent incorporation into valuable medical diagnostics or clinical therapies is quite likely and could happen very soon.

A surface perforated with holes, or nanopores, is one of the most basic medicinal nanomaterials. Feng L [6], developed one of the first therapeutically useful nanomedical devices in 1997, employing bulk micromachining to construct microscopic chambers within single crystalline silicon wafers into which biologic cells could be put. Polycrystalline silicon filter membranes micromachined to exhibit a high density of homogeneous nanopores as small as 20 nm in diameter interface the chambers with the surrounding biologic environment. These holes are large enough to let small molecules like oxygen, glucose, and insulin to flow through, but small enough to prevent much larger immune system molecules like immunoglobulins and graft-borne virus particles from passing through.

Conflict of Interest

The author has no conflict of interest towards the article.

References

1. Thangavel, K., A. Balamurugan, M. Elango, P. Subiramaniyam and M. Senrayan. "A survey on nano-robotics in nano-medicine." *Nanotechnol* 2 (2014): 525-528.
2. Khan, Mohammad Nadeem. "Translational nano-medicine lab to clinic." In Intelligent nanomaterials for drug delivery applications. *Elsevier (*2020): 141-162.
3. Chowdhury, Ezharul H. and Toshihiro Akaike. "Bio-functional inorganic materials: an attractive branch of gene-based nano-medicine delivery for 21st century." *Curr Gene Ther* 5 (2005): 669-676.
4. Hamada, Yahia Z. "Nano biology, nano chemistry, nano medicine or nano technology and professor Mostafa A. El-Sayed." *Elect J Biol* 14 (2018): 59-60.
5. Das, Malay K. and Yashwant V. Pathak. "Nano Medicine and Nano Safety." (2020).
6. Desai, Tejal A., Wen Hwa Chu, Jay K. Tu and Gillian M. Beattie, et al. "Microfabricated immunoisolating biocapsules." *Biotechnol Bioeng* 57 (1998): 118-120.

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