Biomaterial

A biomaterial is any substance that has been engineered to interact with biological systems for a medical purpose - either a therapeutic (treat, augment, repair or replace a tissue function of the body) or a diagnostic one. As a science, biomaterials is about fifty years old. The study of biomaterials is called biomaterials science or biomaterials engineering. It has experienced steady and strong growth over its history, with many companies investing large amounts of money into the development of new products. Biomaterials science encompasses elements of medicine, biology, chemistry, tissue engineering and materials science.

see Hemostatic material

The Coronavirus Disease 2019 (COVID-19) pandemic has revealed major shortcomings in our ability to mitigate transmission of infectious viral disease and provide treatment to patients, resulting in a public health crisis. Within months of the first reported case in China the virus has spread worldwide at an unprecedented rate. COVID-19 illustrates that the biomaterials community was engaged in significant research efforts against bacteria and fungi with relatively little effort devoted to viruses. Accordingly, biomaterials scientists and engineers will have to participate in multidisciplinary antiviral research over the coming years. Although tissue engineering and regenerative medicine have historically dominated the field of biomaterials, current research holds promise for providing transformative solutions to viral outbreaks. To facilitate collaboration, it is imperative to establish a mutual language and adequate understanding between clinicians, industry partners, and research scientists. In a article, of Chakhalian et al. clinical perspectives are shared to clearly define emerging healthcare needs that can be met by biomaterials solutions. Strategies and opportunities for novel biomaterials intervention spanning diagnostics, treatment strategies, vaccines, and virus-deactivating surface coatings are discussed. Ultimately this review serves as a call for the biomaterials community to become a leading contributor to the prevention and management of current and future viral outbreaks¹⁾.

1)

Chakhalian D, Shultz RB, Miles C, Kohn J. Opportunities for Biomaterials to Address the Challenges of COVID-19 [published online ahead of print, 2020 Jul 14]. J Biomed Mater Res A. 2020;10.1002/jbm.a.37059. doi:10.1002/jbm.a.37059

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