

**Biomaterials in the Service of World Health and the
Improvement of our Patients' Quality of Life**

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In the past 50 years we have seen biomaterials science and engineering as a cornerstone of the development of new medical devices and a wide range of products. Ours has been mostly a success story. While we still do not have a complete and satisfactory answer to blood biocompatibility, our biomaterials industry is a vibrant one. In the last ten years we have reached across a broader spectrum of applications, from the regenerative medicine and tissue engineering market to medical devices and organ replacements, and even to drug delivery systems. Research in the field of biomaterials is moving toward medical devices with nanoscale components or individually tailored intelligent therapeutic systems containing "smart biomaterials" which are capable of responding to and correcting undesirable conditions, on a molecular level. These systems mimic natural biosystems in their size, structure, and function, and are miniaturized using advanced nanofabrication techniques. However, significant biological and technological barriers exist to successfully developing intelligent therapeutic systems for *in vivo* applications. I will discuss some of the promising methods that will lead to improved quality of patient life as well as reduced health care expenses through the use of novel biomaterials