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Syed H Askari

Maculus Therapeutix, USA

Medical devices as tools for drug delivery: Challenges and opportunities

Medical device with drug delivery technology has improved over the last 20 years to address issues with ease of application or implantation, biocompatibility, durability, bio-absorbability and drug dosage control. These developments have been applied to stents and lenses, heart valves and seats, vascular stents and shunts, hemostasis and embolization, post-surgical closure, liquid bandages and other areas. The devices have also been used as drug delivery vehicles. New technologies must be tailored to the target physiologic environment since materials that function well in one environment may fail in another. Research has brought about a much greater understanding of the importance of the surfaces of medical devices in terms of the reaction to contact with bodily fluids and tissues, and novel materials have been developed that resist attachment to cells, platelets, calcium deposits, etc. Overall, greater understanding of the specific environment in which a device will be deployed leads to more reliable, durable and functional designs with fewer complications over time. This talk will explore some of the advancements in polymer chemistry and hydrogel-based materials and how these technologies have been applied to medical devices and drug delivery in numerous settings. Significant challenges remain in the medical device and delivery arena, and potential future advancements will be discussed.

Biography

Syed H Askari is the Founder, President and CEO of Maculus Therapeutix, an ENT medical device/drug delivery company. Previously he founded Medicus Biosciences and launched two wound healing products, SutureSeal and HyFlex. He holds more than 25 patents/patents applications. He has received a PhD in Organic Chemistry from the University of British Columbia and has completed his Post-doctoral work at UCLA and UCSB under Prof Wudl and Prof Heeger Nobel Laureate (year 2000) labs.

syed@maculustherapeutix.com

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