

スマートポリマー (荻原 充宏)

Smart polymers (EBARA Mitsuhiro)



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スマートポリマーで拓く未来医療 ~途上国でも利用可能な医療をめざして~

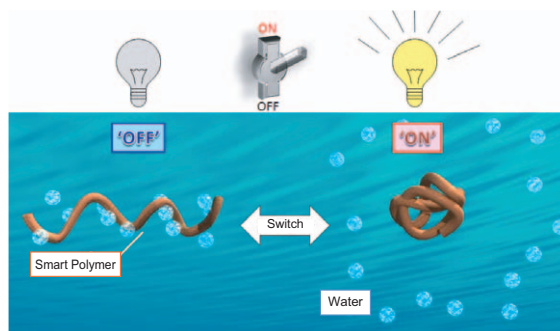
みなさん、スマートポリマー（スマポ）ってご存知でしょうか？ポリマーとはプラスチックのことです。そのプラスチックの中でも、周りの環境の変化に敏感に反応して（空気を読んで？）自ら性質を変えると賢いプラスチックのことをスマポと呼んでおります。私たちは、このような新素材を利用して、未来の医療材料（バイオマテリアル）の研究に取り組んでおります。特に、電気や水などのライフラインが不十分な途上国、被災地、宇宙などでも病気を治せるような医療機器をつくるべく、日々、創造と開発を行っております。

Smart polymer technologies for global health

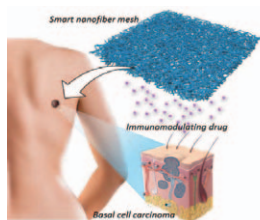
Most of my research interests focus on developing 'smart' biotechnologies using stimuli-responsive polymers that respond to small changes in external stimuli (e.g., Temperature, pH, light, magnetic field, piezoelectric etc.) with large discontinuous changes in their physical properties. These 'smart' biomaterials are designed to act as an "on-off" switch for not only newest biomedical applications in developed countries such as drug delivery technologies, gene therapy, affinity separations, chromatography, diagnostics, but also public health in developing countries diagnostics for Malaria, Influenza, and HIV etc.

Smart Polymers

Stimuli-responsive,
 environmentally
 sensitive polymers



Cancer



Nanofiber meshes for cancer chemo/thermo-therapy

Kidney Disease



Wearable filters which adsorb uremic toxins selectively

Infectious Disease



Enrichment technology of biomarkers for early diagnostics