



Nanotechnology based wearable and disposable sensor platforms as diagnostic tools

Rupesh Kumar Mishra

Amity Institute of Biotechnology, Amity University Rajasthan, Jaipur 303002, INDIA

Abstract:

Nanotechnology has emerged as a novel tool for varied applications. Nanomaterial based sensor platform offers novel resolutions in chemical, physical and bio-related detection which empowers the detection range, selectivity, sensitivity and multiplex sensing proficiencies in wearable and disposable devices for extensive assortment of biomedical, environmental, food and security applications [1]. The growing problem of diseases such as cancer, dementia etc. and security and food adulteration require better-quality sensors to screen early-stage disease and inform disease management. Similarly, sensors are needed to assure the safety and security of common population. Several novel nanotechnological based sensor devices have already verified for fast response and increased sensitivity at miniaturized level. However, translation of such devices to the marketable level is delayed by interrogations about consistency, repeatability and robustness. Wearable sensor has emerged as a novel diagnostic tool to assess individual's physio-chemical parameters and reveal about individual's fitness. We have developed and demonstrated various biosensors using wearable sensor platforms such as microneedles, gloves, tattoos, textiles for nerve agents, opioid, alcohol, cancer biomarkers and vitamins detection in body fluids.

Biography:

Dr. Rupesh Kumar Mishra is currently working as an Associate Professor and Ramalingaswami fellow at Amity Institute of Biotechnology, Amity University Rajasthan, Jaipur, India. He holds a Ph.D. degree in Biosensor development from BITS, Pilani, India. Dr. Mishra has served to various Universities which includes University of Cali-



fornia, San Diego, USA, Aix Marseille University, France and University of Perpignan, France. He received prestigious awards from French Embassy as a sandwich Ph.D. fellow in 2011 and Ramalingaswami fellowship award from Department of Biotechnology, New Delhi, India in 2019. He authored 49 research articles and 2 international patents. He is currently working and developing wearable sensors for biomedical, security, and environmental application using electrochemical techniques.

Recent Publications:

1. Rupesh Kumar Mishra, et al; Simultaneous detection of salivary Δ^9 -tetrahydrocannabinol and alcohol using a Wearable Electrochemical Ring Sensor, 2020.
2. Rupesh Kumar Mishra, et al; OPAA/fluoride biosensor chip towards field detection of G-type nerve agents, 2020.
3. Rupesh Kumar Mishra, et al; Phenolic Composition, Antioxidant Capacity and Antiproliferative Activity of Ten Exotic Amazonian Fruit. *Journal of Food Science & Technology* 5(2) (2020) 49-65, 2020.
4. Rupesh Kumar Mishra, et al; Wearable Electrochemical Microneedle Sensor for Continuous Monitoring of Levodopa: Toward Parkinson Management, 2019.
5. Rupesh Kumar Mishra, et al; Wearable Bioelectronics: Enzyme-Based Body-Worn Electronic Devices, 2018.

Frontiers in Nanotechnology and Nanomaterials; May 04-05, 2020; Vienna, Austria

Citation: Rupesh Kumar Mishra; Nanotechnology based wearable and disposable sensor platforms as diagnostic tools; *Nanotechnology* 2020; May 04-05, 2020; Vienna, Austria.