BioTechnology: An Indian Journal

Editorial Note| Vol 17 Iss 1

Editorial Note for Biocatalyst biosensors

S Ravichandran*

School of Chemical Engineering and Physical Sciences, Lovely Professional University, India

***Corresponding author**: S Ravichandran, School of Chemical Engineering and Physical Sciences, Lovely Professional University, India, E-Mail: ravichandran.23324@lpu.co.in

Received: January 02, 2021; **Accepted:** January 16, 2021; **Published:** January 23, 2021

Ediorial Note

For a biosensor to be pragmatic, efficient and capable, it must inherently possess the following features and the biocatalyst must be highly specific for the analyte under investigation:

- It must not be labile when subjected to normal storage conditions.
- It should exhibit good and uniform stability over a significant number of assays.
- The reaction should be independent of various physical parameters.
- The cofactors/coenzymes must be co-immobilized with the biocatalyst.
- Accurate, precise and linear results must be obtained without the need to resort to dilution/concentration.

While using the biosensor for invasive monitoring [1-4], care must be taken to ensure that the probe is tiny and biocompatible and should eschew toxic or antigenic effects.

Application in diagnostics

Nanotechnology can help in optimizing the diagnostics biochips. These diagnostic chips can be used to analyze thousands of genes simultaneously [5]. For this purpose, the gene fragments with known properties synthesized in the laboratory are bonded to the chip surface, and the diagnosis depends on which gene pieces of the DNA from a patient's blood gets deposited on [6]. Viruses and cell types can be identified on the basis of surface properties, which make them adhere to certain nanostructures [7]. Re-generative medicine widely uses nanotechnology recently.

The principal approach of bioprinting is called biomimicry [8]. The fundamental objective of this methodology is to make manufactured constructions that are indistinguishable from the common design that are found in the tissues and organs in the human body. Biomimicry requires duplication of the shape, system, and the microenvironment of the organs and tissues. The utilization of biomimicry in bioprinting includes making both indistinguishable cell and extracellular pieces of organs.

REFERENCES

1. Ahmad A, Mukherjee P, Senapati S, et al. Extracellular biosynthesis of silver nanoparticles using the fungus Fusarium oxysporum. Colloids and Surfaces B: Biointerfaces. 2003;28(4):313-8.
2. Alexander JW. History of the medical use of silver. Surg Infect. 2009;10(3):289-92.

Citation: S Ravichandran. Editorial Note for Biocatalyst biosensors. Biotechnol Ind J. 2021;17(1):212.

3. Asharani PV, Wu YL, Gong Z, et al. Toxicity of silver nanoparticles in zebrafish models. Nanotechnology. 2008;19(25):255102.
4. Babu S, Michele C, Kesete G. Rapid synthesis of highly stable silver nanoparticles and its application for colourimetric sensing of cysteine. J Experimen Nanosci. 2015;10(16):1242-55.
5. Baer DR, Amonette JE, Engelhard MH, et al. Characterization challenges for nanomaterials. Surf Interface Anal. 2008;40:529-37.
6. Bhainsa KC, D'Souza SF. Extracellular synthesis using the fungus Aspergillus fumigates. Colloids Surf B Biointerfaces. 2006;47(2):160-4.
7. Colvin VL, Schlamp MC, Alivisatos A. Light emitting diodes made from cadmium selenide nanocrystals and a semiconducting polymer. Nature. 1994;370:354-7
8. Cozzoli P, Comparelli R, Fanizza E, et al. Photocatalytic synthesis of silver nanoparticles stabilized by TiO2 nanorods: A semiconductor/metal nanocomposite in homogeneous nonpolar solution. J Am Chem Soc. 2004;126(12):3868-79.