Book Review

Cell-Based Biosensors, by Jaroslav Racek

Technomic, Lancaster, PA; 1995; 107 pp.; $45.00;
ISBN 1-56676-190-5

Cell-Based Biosensors, by Jaroslav Racek is a well-rounded examination of the principles, response characteristics, and applications of cell-based biosensors. The book is informative and yet short enough that reading does not become tedious.

He begins the book by enumerating the advantages to the use of whole cells as a source of enzymatic activity as opposed to isolated enzymes. He points to the convenience and stability of enzymes in whole cells as two of the key advantages. Likewise, several disadvantages to the use of whole cells are also mentioned. The discussion on principles of cell-based biosensors highlights some of the differences between these and biosensors employing isolated enzymes.

Next, he covers the construction of cell-based biosensors and their characteristics. The convenience of using tissue slices over microorganisms is the ease of their preparation and holds as long as sufficient enzyme activity can be found in relatively thin slices. Also, hybrid sensors are discussed that employ an isolated enzyme and either microbial cells or tissue slices.

Response properties, such as limit of detection and reproducibility, are compared to those of biosensors utilizing isolated enzymes. Also, he points out the difference between the two types of biosensors in terms of their response times and response lifetimes.

Of key importance to every biosensor is its selectivity. Racek does an excellent job of listing a number of physical scenarios that undermine the selectivity of cell-based biosensors. These range from the detected product of an enzymatic reaction being found initially in the sample to the influence of metabolic pathways of microbial contamination in tissues or microbe cultures.

A lengthy chapter by comparison to the others is devoted to methods of selectivity improvement of cell-based biosensors. It does cover a number of critical issues, but its title is somewhat misleading. It focuses on examples of biosensors, which are, for one reason or another, very selective. It would be more useful, and consistent with the chapter's title, to cite examples of sensors and how their construction might be altered to increase their selectivity.

A few examples of the application of cell-based biosensors are given. These include uses in clinical chemistry, food analysis, fermentation control, and environmental control. Finally, Racek provides an excellent appendix containing a number of examples of cell-based biosensors and rankings of their selectivity.

Though a short 107 pages, this book provides a good review of cell-based biosensors. Not many books have been written specifically on this topic, so it is a unique and valuable reference guide.

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Corrigendum

Please note the following correction to the article "Screening of *Bothrops* Snake Venoms for L-Amino Acid Oxidase Activity" by Marcos L. Pessatti, José D. Fontana, Maria F. D. Furtado, Manoel F. Guimãraes, Lorenzo R. S. Zanette, Walliana T. Costa, and Madalena Baron in *Applied Biochemistry and Biotechnology*, vols. 51/52 (Spring 1995), pp. 197–210.

In the caption for Fig. 3 on p. 207, there was a mistake in the identification of the parts of the figure. The corrected caption should read:

Fig. 3. PAGE isoelectric focusing-based zymogram for *B. cotiara* venom. Top: Coomassie staining. Bottom: LAO reaction with *o*-dianisidine as chromogen.