Biosensors. Techniques And Instrumentation In Analytical Chemistry, Volume 11.

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Biosensors combine the unique properties of biological systems to selectively recognize and convert molecules with the benefits of physicochemical sensor technology, such as high sensitivity, simplicity of operation and mass production, and modern electronics. Consequently, their development is closely related to progress in two branches of high technology - biotechnology and microelectronics. This book not only presents the state-of-the-art of biosensor research and development to the specialist, but also introduces the layman to the fundamentals of the subject. The relevant features of physicochemical transducer elements as well as biochemical recognition molecules (enzymes, antibodies, receptors) are outlined. Biochemical and biotechnological aspects of biomolecule immobilization and the interplay of biochemical reactions and mass transfer processes are comprehensively treated with regard to their impact on successful sensor design. Examples of immobilization methods are described in detail. The employment of coupled enzyme reactions, higher integrated biocatalytic systems (cell organelles, microbes, tissue sections) and immunocomponents in biosensors is covered extensively. Optical, thermometric, piezoelectric and particularly electrochemical biosensors for more than 100 analytes are presented, including immunosensors. The relative merits and limits of biosensors are discussed using several examples of their application in clinical chemistry, bioprocess control and environmental monitoring. EAN/ISBN : 9780080875590 Publisher(s): Elsevier Science & Technology Format: ePub/PDF Author(s): Scheller, F. Frieder - Schubert

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