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**BOOK REVIEW**

# The ELISA Guidebook

## (2nd Edn., Crowther, J. R. (ed.) in Series Springer Protocols. Methods in Molecular Biology, Vol. 516 (Walker, J., Series ed.) Humana Press, New Jersey, 2009, 566 p., $129)

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The book describes the methods involved in heterogeneous enzyme-linked immunosorbent assays (ELISA) that provide ideal systems for dealing with a wide range of studies in many biological areas. Generally, the ELISA is a group of methods where one of the reagents, usually an antibody, is linked to an enzyme and where one reagent is attached to a solid phase. This method is widely using in various scientific and industrial areas including biochemistry, molecular biology, immunology and microbiology, medicine, and biotechnology. The number of publications related to ELISA has dramatically increased in the past decade and, therefore, the publication of the second edition of this book is very timely.

The book consists of 15 chapters and a subject index. Chapter 1 is an overview of ELISA in relation to the other areas of science and will be very helpful for students and those instructing students or researchers just beginning to use ELISA. This chapter includes many charts and diagrams explaining many key steps in ELISA methods.

Chapter 2 deals with systems in ELISA. This chapter is important because the possibilities inherent in the system of ELISA must be understood in order to maximize their versatility in assay design. Direct and indirect ELISA, sandwich ELISA, and competitive and inhibition assays for direct, indirect, and sandwich ELISA are described.

Chapter 3 highlights stages in ELISA and gives general information on significant practical features of ELISA. A separate part of the chapter discuss adsorption of antigen or antibody to the plastic solid phase, addition of the test sample and subsequent reagents, incubation of reactants, separation of bound and free reactants by washing, and other very important practical procedures.

Chapter 4 deals with reagent titration technique. The data presented here help to standardize ELISA methods used in various laboratories.

Chapter 5 discusses theoretical aspects of ELISA methods. Antigen, antigenic site, and various types of epitopes, affinity, and avidity are defined. The chapter also provided detailed information about antibody structure and antibody production in response to immunization/vaccination and to infectious agents.

Chapter 6 provides practical exercises. There are worked examples of each assay, including diagrams of plates and representative data from assays, analysis data, and instructions for investigators to perform each assay in a way that might be use in their own investigations.

Chapter 7 deals with monoclonal antibody (mAbs). A wide spectrum of topics related to structure of mAbs, their processing, and various applications are discussed.

Chapter 8 highlights validation of diagnostic tests for infectious diseases.

In chapters 9 and 10 there is discussion related to charting methods for internal quality control for competition and indirect ELISA.

Chapter 11 deals with ruggedness and robustness of tests with ELISA kits.

Chapters 12-14 highlight statistical methods, internal quality control, and external quality management of data in practice, and also immunochemical techniques, respectively.

Chapter 15 consists of test questions related to ELISA methods.

The book provides a premier practical guide to the understanding and application of ELISA. Each method is described in great detail, and the whole book is an excellent manual for many researchers in biochemistry, molecular biology, immunochemistry, biotechnology, and medicine.

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