Lateral Flow Immunoassay

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Editors

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To our families for their patience and support during the preparation of this book.

This book epitomizes the friendship and collaboration of the co-editors for over forty years.

Preface

Since its initial development in the 1980s, the technology of Lateral Flow Immunoassay has gained wide acceptance. The main reason for its popularity is the simplicity of the test design. The lateral flow immunoassay devices are compact and easily portable. Most of them do not require external reagent for results. Addition of a liquid sample would initiate and complete the test. Results are quick and easy to interpret, usually without the help of an instrument. The technology is also powerful. Multiple analytes can be tested simultaneously with a single device. It can also be easily combined with other technology to provide a comprehensive analysis like simultaneous drug and alcohol determinations by the police force in a roadside testing situation. Manufacturing of the test is relatively easy and inexpensive. Advancement in the detection moieties, improvement in material components, availability of better processing equipment, and increased attention to quality manufacturing all contribute to increase in the reliability, accuracy, and applications of the technology. However, the continuing demand for quantitative result and sensitivity has presented great challenge for assay developer.

In this book, we have compiled the essence of the current state of the art of this technology and addressed what can be expected in the future. After an introduction on the evolution of the technology, some market information is provided. They are followed by discussions on the various materials, biological and chemical components involved in making the test. A chapter on manufacturing equipment and process completes the production section. Later chapters concentrate on the common issues encountered by the users or developers of the technology. Discussions are made on the design of handheld readers, the causes of false results and some way to reduce them, and the regulatory aspects in the development and marketing of lateral flow immunoassay devices.

We hope this book will enhance the understanding on the lateral flow immunoassay technology, enable better products to be made, and provide impetus for further technology advancement.

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