Food Immunochemistry and Immunology

食品免疫化学与分析

LIBING WANG • CHUANLAI XU

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Preface

Rapid urbanization and corresponding lifestyle changes mean that more and more people purchase processed food, eat in restaurants, or buy meals from street vendors. Food production is increasingly industrialized. This introduces multiple opportunities for contamination to occur and makes populations more vulnerable to lapses in food safety at any point along the production chain.

China is a big country for food production and consumption, and also a big trading partner for food. So far, there are 448,000 food enterprises of various varieties in China with a huge annual output. The food industry faces great pressure in developing systems such as total quality management and hazard analysis to identify and manage key steps in food production. Food safety authorities in force a major control. The Chinese government, as it has always done, attaches great importance to food quality and safety. It has been making unremitting efforts to improve food quality and to ensure food safety since the "10th National Food Safety Management 5-year Plan". Quality control analysis is an essential tool in food production. Immunoassay, and related immunochemical analytical procedures [e. g. , ELISA, fluorescence polarization immunoassay (FPIA) and immunochromatographic assay (ICA)] have been widely used to detect various residues in foods. *Food Immunochemistry and Immunology* summarizes the most representative immunochemical technologies applied in food detection. It consists of 13 chapters. Chapter 1 provides the reader with a concise overview of immunology. Chapter 2 describes the binding properties of an antibody to an antigen. Chapters 3 and 4 introduce the common procedure for antibody preparation, purification and modification. Chapter 5 summarizes the labelling technology for antibody with tracers. Chapters 6-9 outline the primary knowledge of time-resolved fluorescence immunoassay, techniques in the molecular immunology and immunogenetics, biomimics (molecular imprinting technique) and immuno-electron microscopy technique. Chapters 10-13 give state-of-the-art information about the application of immunoassay in the following topics: pesticide, veterinary drug, biological toxin and other persistent pollutes detections. This book is of special benefit to researchers on antibody production of chemicals and immunoassay development in food analysis.

I greatly appreciat the help from my teammates (Dr. Chifang Peng, Dr. Hua Kuang, Dr. Wei Ma, Dr. Liguang Xu, Dr. Yingyue Zhu, Dr. Yuan Zhao, Dr. Liqiang Liu and others in preparing this edition of the book). Many more people collaborated in the project, directly and indirectly, and I would like to acknowledge my gratitude to all of them.

Libing Wang

Colored Figures

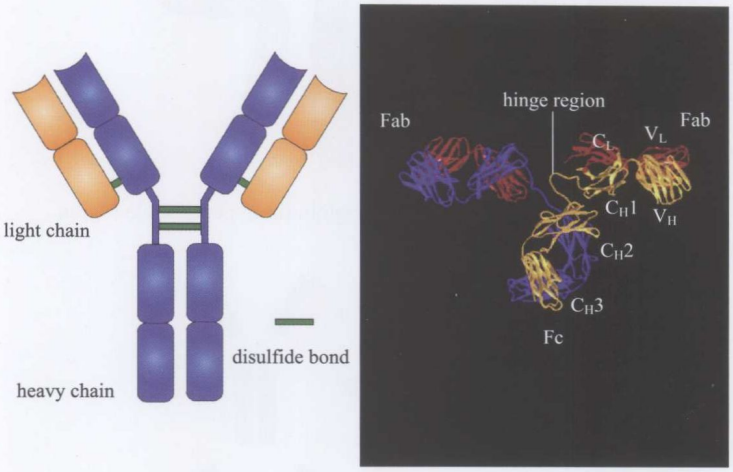
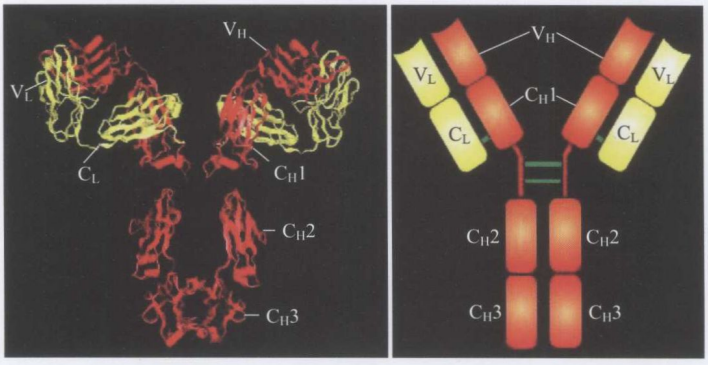


Figure 2-1 Structure model of immunoglobulin (IgG)



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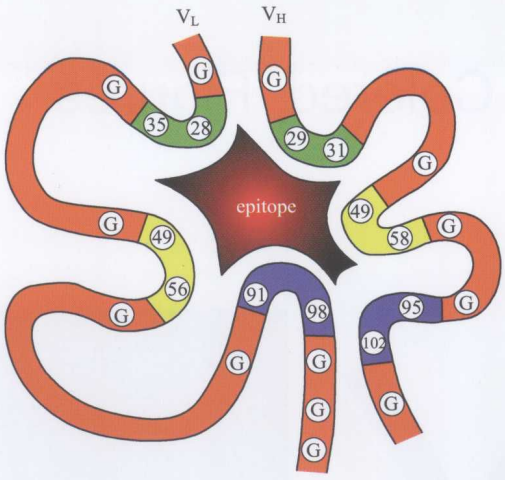
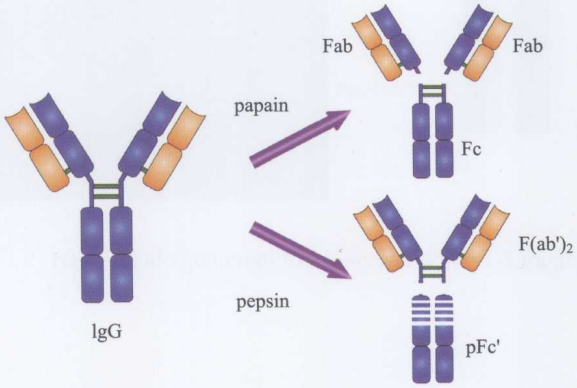


Figure 2-2-B A model of immunoglobulin hypervariable region



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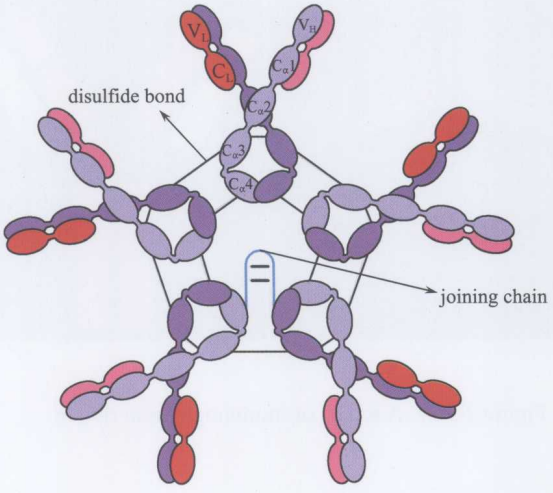

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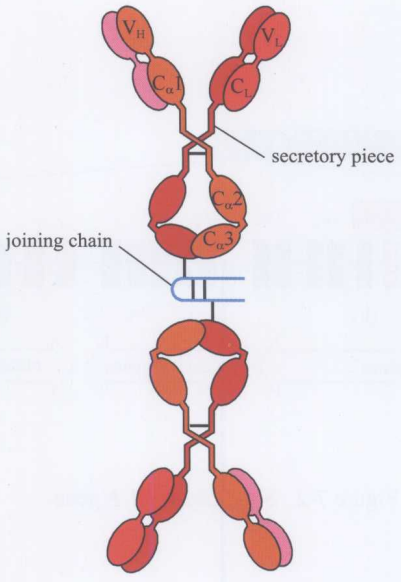

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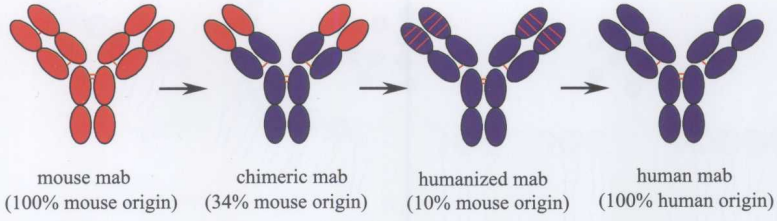

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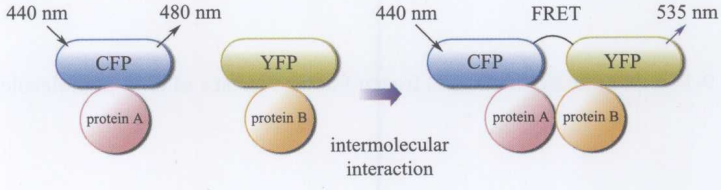

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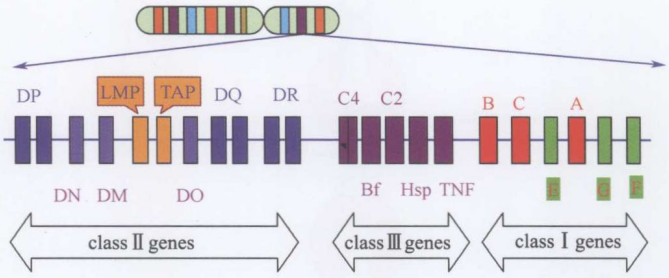

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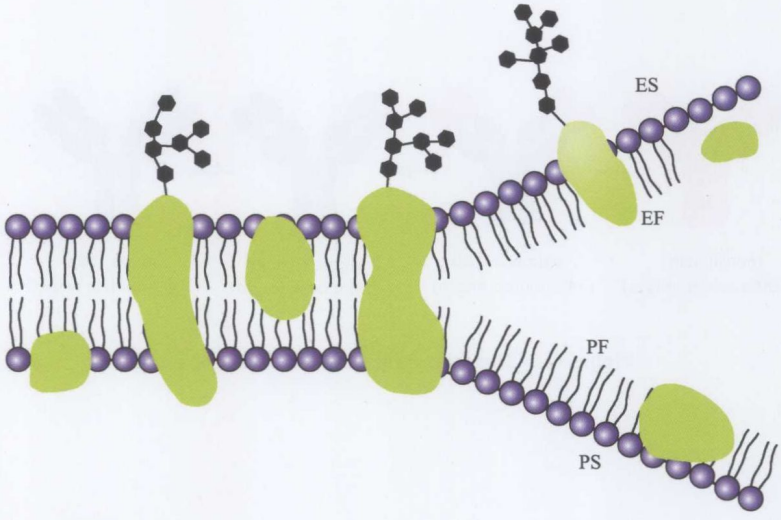

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