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This book provides a detailed and practical overview of the development and use of immunoassays in many different areas. Immunoassays are analytical tests that utilise antibodies to measure the amount, activity or identity of an analyte. The book is designed to provide a critical and helpful insight into the subject and to give the user practical information that would be of assistance in assay format selection, antibody generation and choice of appropriate detection strategies. It comprises 12 chapters written by highly experienced researchers in the fields of antibody-based research, immunoassay development, assay validation, diagnostics and microfluidics.

Beginning with a comprehensive survey of antibodies, immunoassay formats and signalling systems, the book elucidates key topics related to the development of an ideal antibody-based sensor, focuses on the important topic of surface modification, explores key parameters in the immobilisation of antibodies onto solid surfaces, discusses the move to 'lab-on-a-chip'-based devices and investigates the key parameters necessary for their development. Three of the chapters are dedicated to the areas of clinical diagnostics, infectious disease monitoring and food security, where immunoassay-based applications have become highly valuable tools. Next-generation immunoassays and the future of electrochemical-based detection systems are discussed. Furthermore, the book covers the application of optical detection systems (with a focus on surface plasmon resonance) in immunoassays and provides a compilation of pertinent, routinely used protocols, concurrently addressing problems that may be encountered during assay development.



Richard O'Kennedy is professor of biological sciences at Dublin City University (DCU). He is president of the London International Youth Science Forum and chairman of the Centre for Talented Youth. He represents Ireland and the Royal Irish Academy (RIA) on the Biosciences committee of the European Academies Science Advisory Council and is a member of the Industrial Research and Commercialisation Committee of Enterprise Ireland. Prof. O'Kennedy directs the Applied Biochemistry Research Group, internationally recognised for its expertise in antibody generation and immuno/biosensor assay development. He has a Google Scholar H-Index of 49, with ca. 9500 citations, 7 patents and multiple licenses, and many of his reagents and innovations have been licensed and commercialised. He has received many awards for research (Biochemistry Medal of the RIA, President's Award for Research, 3 Fujitsu Awards for Innovation, Ireland's Bioscience Lab of the Year, 2014) and teaching (President's award, DCU, Outstanding Masters Programme Award, Graduate Ireland, 2011).



Caroline Murphy completed her PhD in biochemistry and immunology from Trinity College Dublin in 2010. She is now an experienced post-doctoral researcher in the areas of molecular diagnostics, immunoassays and microfluidics in Dublin City University. She received a Technology, Innovation and Development (TIDA) award, and National and International funding for her work involving the development of immunoassays/sensors towards harmful algal toxins. She is scientific advisor on 'Mariabox', an FP7 EU grant, and has over 750 citations in Google Scholar.

