

Preface

The last two decades have seen an explosion in the use of DNA analysis, with key applications encompassing forensic science, pathogen identification, food authenticity and detection of GMOs, personalised medicine and medical diagnostics. Its broad utility has encouraged a rapid and sustained development of the technology, with a wide range of techniques and products being introduced each year as well as new technologies emerging from the research base.

Although many of the commercial offerings help the analyst, DNA analysis remains a complex multi-step process and achieving a valid result is by no means a trivial task. This book sets out to guide the analyst through the steps needed to obtain good quality results. The underlying principles for achieving this goal were formulated by LGC as the six principles for ensuring valid analytical measurement, which are detailed in the Introduction. How to apply these principles to DNA analysis is a core feature of the book. The authors of each Chapter are practitioners of the art of DNA analysis in areas where the quality of the result is critical, be it in forensic applications, food analysis or working at the highest international level, through LGC's role as the designated UK National Metrology Institute for chemical and biochemical measurements. Their advice is based on first-hand experience of making high-quality measurements, which takes the reader through the essential elements for making sound, valid DNA measurements, be they qualitative or quantitative. This updated volume covers topics such as qPCR and microarray analysis, but the underlying theme remains one of quality to ensure that the correct result is achieved first time.

The book is designed to serve as a key component in the DNA analyst's toolkit for designing, planning and carrying out high-quality DNA measurement.

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