The Royal College of Pathologists
Pathology: the science behind the cure

Book review – Diagnostic Pathology: Molecular Oncology, Third Edition

By Mohammad A. Vasef and Aaron Auerbach, Elsevier, 2024, 1048pp, £279.99, 978-0443-11220-1

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The third edition of *Diagnostic Pathology: Molecular Oncology* by Mohammad A. Vasef and Aaron Auerbach is a valuable updated guide for histopathologists working in molecular oncology, where genetic and molecular profiling now play critical roles in diagnostics, prognosis and therapy. With a focus on bridging molecular insights with histopathological practice, this edition continues the *Diagnostic Pathology* series' tradition of clarity and utility, providing a carefully organised resource for quick and effective access to information on diseases, mutations and therapeutic targets.

Each chapter is structured to support the reader in creating integrated reports that link genotype with phenotype, presenting clinically relevant insights for accurate diagnoses. The extensive, high-quality images further enhance understanding by illustrating both morphological and molecular features. This alignment of visual and textual information assists histopathologists in drawing precise connections between mutations and pathology, which is indispensable in diagnostic practice.

One of the edition's standout features is its emphasis on the practical application of molecular data in clinical settings, with chapters organised by organ system and specific tumour type. Each section includes updates on crucial mutations and biomarkers, such as EGFR and KRAS for lung and colorectal cancers, along with PD-L1 and microsatellite instability, all of which are central to personalised medicine. This focus is particularly relevant for UK histopathologists, who are increasingly involved in multidisciplinary discussions on targeted treatments. Their work supports the NHS' Genomic Medicine Service initiatives in which the NHS aims to utilise the power of genomic technology and science to improve population health and deliver on the commitments set out in the NHS Long Term Plan.

Key updates include expanded sections on next-generation sequencing (NGS) and liquid biopsy techniques, now prominent as minimally invasive tools in oncology. The authors skilfully address challenges of NGS interpretation, such as differentiating actionable mutations from incidental findings, something that can be complex for those new to molecular pathology. The book's accessible approach to bioinformatics and variant analysis makes it a valuable resource, even for those less familiar with advanced molecular techniques.

Additionally, the authors have incorporated recent classifications and guidelines, including the fifth edition of the WHO Classification of Haematolymphoid Tumours and the 2022 International Consensus Classification (ICC), ensuring the text remains current with international standards and valuable to all. The book's discussion of new immuno-oncology markers, such as PD-L1 and microsatellite instability, reflects ongoing advancements in immunotherapy, which is increasingly incorporated into cancer treatment protocols.

While the book is comprehensive, some readers may find the depth of molecular biology challenging, particularly if they are less familiar with advanced techniques. Vasef and Auerbach have skilfully simplified complex topics, yet the text assumes a foundational knowledge of molecular genetics. Although the introductory section on core molecular pathology and techniques is helpful, a basic understanding is still necessary, which may somewhat limit accessibility for those newer to the field. In addition, as with many specialised medical textbooks, the cost may be prohibitive for certain readers, especially students or practitioners in resource-constrained settings.

In my opinion, the third edition of *Diagnostic Pathology: Molecular Oncology* is an incredibly useful resource for histopathologists keeping pace with molecular advancements. By combining depth with an accessible format, it meets the needs of both experienced pathologists and newcomers to molecular diagnostics. I believe this latest edition has all the ingredients to become a staple text on the bookshelves of histopathologists and has the potential to enhance diagnostic precision and ultimately improve patient outcomes in the rapidly advancing world of molecular oncologic pathology.

Meet the author

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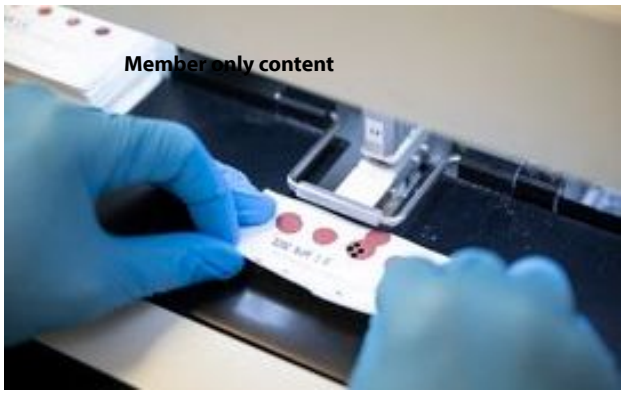

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