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Book Review

Methods of protein and nucleic acid research, Vol. 1, Electrophoresis, isoelectric focusing, ultracentrifugation, Vol. 2, Immunoelectrophoresis, application of radioisotopes; by L. A. Osterman, Springer Verlag, Berlin, Heidelberg, New York, Tokyo, 1984. Vol. 1, X + 342 pp., price DM 156.00, US$ 58.20, ISBN 3-540-12735-6. Vol. 2, X + 204 pp., price DM 98.00, US$ 36.60, ISBN 3-540-13094-2.

One may have the impression that recently there has been some overproduction of books on various biochemical and molecular biological methods. However, every such new book, when prepared well, seems to serve its purpose well because of the enormous progress being made in the development of new methods. The two volumes by L. A. Osterman reviewed here are certainly such useful books. Volume 1 deals with (1) the gel electrophoresis of proteins (101 pages) and nucleic acids (52 pages) (mainly analytical gel techniques, but also with short but informative chapters on preparative applications); (2) isoelectric focusing (IEF, 53 pages), including also two-dimensional fractionation of proteins and preparative IEF; (3) very briefly, isotachophoresis (4 pages); and (4) ultracentrifugation (97 pages; technical aspects, rate-zonal, isopycnic and zonal rotor centrifugation). Volume 2 contains chapters on (1) immunoelectrophoresis (64 pages), including fundamentals of immunochemistry, the use of immunochemical methods to detect zones following conventional electrophoresis and IEF, immunoelectrophoresis according to Grabar and Williams, Laurell rocket immunoelectrophoresis and crossed immunoelectrophoresis; and (2) an extensive chapter on the use of radioisotopes (120 pages), dealing with the essentials of radioactivity measurement, autoradiography and fluorography, various methods of labelling proteins and nucleic acids, indirect immunoprecipitations and different radioimmunoassays. A subject index, a list of references and nomograms for the calculation of centrifugation times are also included.

The book is certainly not a monograph, but also not merely a cook-book of exact recipes. Rather, it provides a sound basic introduction to the methods, describes and critically evaluates in more or less detail the practical aspects, stresses the major areas of research applications and gives a short account of more special modifications. Valuable comments are made on many technical tricks and pitfalls of the methods, which underline the author's experience and expertise. The methods selected certainly belong to those most frequently used in the laboratory practice of molecular biology.

There are several minor mistakes and omissions. For example, in the paragraph on crossed immunoaffinity electrophoresis, Bøg-Hansen's work should have been cited, a citation in the paragraph on affinity electrophoresis is missing (but is in the list of references) and in a few instances certain sub-chapters contain paragraphs that should not be there or their titles do not correspond well with the content (Vol. 1, last part of paragraph 3.6.3, p. 72; 3.7.4, p. 83, top; 3.7.5, p. 86). The state-

ment on p. 192 that Triton X-100 may be better for some purposes than Nonidet P40 (actually they are different trade names for the same detergent) is misleading and the statement on p. 210 that isotachophoresis was developed by LKB is incorrect. I have doubts about the possibility of handling successfully larger unsupported slabs of agarose gels for IEF; the information on the simple pouring of these gels on agarose-coated glass plates is missing. The importance of blotting techniques on nitrocellulose could have been more stressed and more practical examples on this technique should have been given, and also some special features of the use of monoclonal antibodies should have been treated more extensively. The common technique of drying polyacrylamide gels in vacuum dryers should have been described in detail in the chapter on PAGE. There are a few typing errors (*e.g.*, 1 *M* solutions are sometimes referred to as "*M* solutions"; hystidine and tyroxine are used instead of histidine and thyroxine). Paragraph 1.2.4 (Vol. 2) on the biosynthesis of immunoglobulins seems to be unnecessary and the information about the immunogenicity of Fc or Fab fragments (with respect to anti-idiotypic antibodies) is not completely correct. Sometimes the author seems to be a little biased in favour of LKB and Pharmacia products.

However, these minor shortcomings do not substantially affect the merits of this book, which should be useful for many experimental workers in biochemical and molecular biological laboratories.

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