
BOOK REVIEW

Methods in Molecular Biology, Vol. 171, Proteoglycan Protocols

(Walker, J. M., series ed., Iozzo, R. V., ed.,
Humana Press, Totowa, New Jersey, 2001, 558 p., \$135)

The book considers modern analytic and preparative methods used for isolation and characterization of proteoglycans.

The book subdivided into three parts consists of 51 chapters written by 97 internationally distinguished experts in proteoglycan studies.

The first part deals with the methods of isolation and purification of proteoglycans.

Chapters 1-5 consider methods for proteoglycan isolation from cell cultures and tissues (M. Yanagishita), tendons (K. Vogel, J. Peters), bones and teeth (N. Fedarko), endothelium (J. Whitelock), and nervous tissue (Y. Yamaguchi).

In chapter 6, W. Staatz et al. describe methods of analysis of proteoglycan and glycosaminoglycans from *Drosophila*.

Chapters 7 and 8 deal with methods of proteoglycan isolation from smooth muscle using affinity chromatography (J. Melrose), proteoglycan isolation for analysis of internal and N-terminal amino acid sequences (P. Neame). Chapter 9 (N. Shworak) deals with introduction of a radioactive label into heparan sulfate. In chapters 10 and 11 selective determination of sulfotransferase isoforms (N. Shworak) and activity of membrane-bound and soluble enzymes involved into biosynthesis of glycosaminoglycans (G. Sugumaran, J. Silbert) are considered.

In the subsequent chapters 12-19 the authors consider methods of analysis of disaccharide content of hyaluronic acid and chondroitin/dermatan sulfates using electrophoretic separation of fluorophore-labeled carbohydrate derivatives (A. Plaas et al.). J. Turnbull describes methods for elucidation of monosaccharide sequence in heparin and heparan sulfate, analytic and preparative methods employing strong anion-exchangers for HPLC separation of heparan sulfate and heparin saccharides. G. Dodge and R. Heimer deal with methods of proteoglycan analysis by gel-electrophoresis and immunoblotting. M. Karlsson and S. Bjornsson describe the method of quantitative determination of proteoglycans in body fluids by using alcian blue dye. The two last chapters of this part

deal with various electrophoretic procedures employing cellulose acetate (Y. Wegrowski, F.-X. Maquart) and zonal capillary electrophoresis (N. Karamanos, A. Hjerpe).

The second part of this book (chapters 20-39) discusses expression, detection, and degradation of proteoglycans. The authors describe proteoglycan expression in mammalian (D. McQuillan et al.) and prokaryotic (A. Murdoch, R. Iozzo) cells, methods of isolation of recombinant decorin and its subdomains (A. McBain, D. Mann), and identification of genes encoding proteoglycans in somatic cells (G. Ghiselli, R. Iozzo). Several chapters of this part have been reserved for constitutive and inducible expression of genes encoding proteoglycans (M. Handler, R. Iozzo). Other chapters describe cell-mediated proteoglycan transfer (J. Fisher et al.), morphologic evolution of proteoglycans in cells and tissues (S. Lara et al.), and intracellular localization of proteoglycans obtained by gene engineering methods (T.-L. Chen et al.). The last chapters of this part deal with enzymes catalyzing proteoglycan degradation, heparin- and chondroitin lyases, and their inhibitors (L. LeBrun, R. Linhardt; M. Hernaiz, R. Linhardt).

The third part of this book considers various types of proteoglycan interactions with other biological molecules, proteins, lipids and various types of receptors. K. Williams considers proteoglycan interaction with kinase receptors and lipoprotein binding to proteoglycans. D. Moscatello and R. Iozzo analyze the regulatory role of syndecans in cell adhesion and invasion. This part of the book deals with use of optical biosensors for analysis of protein-polysaccharide interaction (D. Fernig) and also other characteristic features of proteoglycans essential for molecular recognition of molecules and cells.

I believe that this book will be a very useful tool for many specialists working in the fields of glycobiology, biotechnology, biochemistry, and experimental medicine. Detailed description of the methods employed for various aspects of proteoglycan analysis and comprehensive bibliography accompanying each chapter make this book especially valuable for a large audience of the mentioned specialists.

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