

This lack of editorial guidance results in a significant amount of redundancy that limits the overall quality of the text and makes it difficult to read from cover to cover. Furthermore, there is a disproportionate emphasis on the clinical sequelae of cardiac- and transplant-related ischaemia-reperfusion injury. This may simply reflect the level of investigation in these disciplines rather than the bias of the editors or authors. However, the extensive discussion of hypothermia during cardiac surgery and solid organ preservation solutions in the final section diverges slightly from the central theme.

Despite these limitations, the text is a valuable resource for individuals interested in ischaemia-reperfusion injury. The editors have achieved their stated objectives of reviewing the current clinical status of ischaemia-reperfusion injury, exploring its pathophysiology, and outlining the treatment strategies. In the process, they have edited a text that is useful to both clinical and basic scientists.

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Inhibition of matrix metalloproteinases: therapeutic applications

Robert Greenwald, Stanley Zucker, Lorne Golub; New York; 1999; Ann NY Acad Sciences; 761 pages.

Since the evolutionary origins of multicellular organisms, stromal cells have inhabited matrix, that is to say, connective tissue. Accordingly, virtually everything that happens to us, from normal processes like embryologic development and wound healing, to pathologic conditions, like tumor invasion and metastasis, is associated with tissue remodeling. Since the discovery of collagenase (matrix metalloproteinase-1 = MMP-1) by Lapiere and Gross in 1962, twenty MMPs have been characterized that are responsible for many cell/matrix processes. Almost all of our common diseases, like plaque disruption in atherosclerosis, joint destruction in various forms of arthritis, and loss of alveolar ridge in periodontal disease, involve MMPs. Presently, there is a dramatic crescendo of interest in pharmacologic inhibition of MMP activity to alter the natural history of dozens of diseases.

The present volume of more than 750 pages, published as an *Annals of the New York Academy of Sciences*, has more than 100 contributions from hundreds of coauthors. My "short" review of this compendium is that it is a must for every scientist working in the MMP field. The first 100 or so pages provide an authoritative account of the basic science of MMPs and MMP inhibition, including molecular models for MMP/inhibitor interactions and complexities of structure/function relationships. The balance explores the potential for MMP inhibition in clinical practice.

My favorite chapter was written by J. Frederick Woessner, Jr, and is entitled "Matrix Metalloproteinase Inhibition—From the Jurassic to the Third Millennium." He jests that he was invited to speak on this subject, since he is a living dinosaur in the field, with a living recollection of the discovery of collagenase. The chapter is a splendid overview, with an interesting graphic that illustrates the exponential growth over time in the rate of discovery of new MMPs.

Shortly before the symposium in 1998 that gave birth to this volume, the US Food and Drug Administration approved doxycycline as an adjunct for periodontal disease, making it the first agent to be approved for use as a collagenase inhibitor. I took an interest in the many chapters on doxycycline, because my dentist recently prescribed it to join the battle on my behalf in my own alveolar ridge wars. Sorsa and colleagues from Finland reported an office "chairside" dipstick test for monitoring MMP-8 activity in gingival crevice fluid. Perhaps someday we may see a dipstick test on patient serum to monitor aneurysm inflammation.

There were several chapters relevant to research endeavors in cardiovascular diseases. R. W. Thompson and B. T. Baxter coauthored a fine chapter on the rationale for a prospective, randomized clinical trial of doxycycline as an inhibitor of aneurysm enlargement, with 83 timely references. Loftus and colleagues has two interesting brief communications. In the first, they reported that MMP inhibition reduced myointimal hyperplasia in segments of human saphenous vein cultured in vitro. In the second, in a study correlating MMP levels in carotid endarterectomy specimens with clinical symptomatology related to embolization or plaque rupture, they found evidence for increased MMP-9 in the group of most symptomatic plaques.

Up my own alley, there was a chapter on enhanced MMP expression in the aortas of apolipoprotein E (apoE)-deficient mice with advanced atherosclerosis. There have been claims by others that this mouse is a model of aneurysm formation,¹ but the published photomicrographs suggest that the lesion is a focal false microaneurysm and not a true fusiform nonspecific aneurysm with a degenerated adventitia. Also, I have seen gross photographs of ectatic vessels in this mouse model, taken in the laboratory of colleagues, and I am suspicious that some of these ectatic lesions may be poststenotic dilatations. Anyway, whether the mouse is a valid fusiform aneurysm model or not, Thompson and Baxter make a strong case in the previously mentioned chapter of doxycycline in AAA in man.

So, in brief, in the tradition of New York Academy of Sciences publications, this book defines state-of-the-art, and I recommend it to all students of connective tissue diseases.

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REFERENCE

1. Carmeleir P, Moons L, Lijnen R, Baes M, Lemaitre V, Tipping P, et al. Urokinase-generated plasmin activates matrix metalloproteinases during aneurysm formation. *Nat Genet* 1997;17:439-45.

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The art of JAMA

M. Therese Southgate; St Louis; 1997; Mosby; 221 pages.

The contents of this beautifully produced quarto-sized album will (or should be) old friends with many, if not most, of the readers of the *Journal of Vascular Surgery*.

The book comprises an assemblage of 100 works of visual art almost all paintings, in excellent four-color photographic reproduction, all having appeared on the cover of *JAMA* between 1974 and 1987.

The practice of placing a reproduction of art on the cover of the *JAMA* has, in fact, a longer history. It was the happy inspiration of an earlier editor, John H. Talbutt, to embellish the drab cover page of the journal with a picture, but the innovation was not carried out consistently and there were no appraising comments printed to accompany the illustrations.

The practice that brought forth the samples of visual art displaying *The Art of JAMA* was initiated by a more recent editor, Robert Moser, who invited M. Therese Southgate to take on the task of selecting and commenting on the cover pictures.

M. Therese Southgate had an outstanding potential for one half of the job. She was a physician and an accomplished journalist, holding the position of deputy editor of the journal, but had had no experience in the history of art and in art criticism. Before meeting the challenge of this new assignment, she imposed on herself a rigorous systematic study of art history and art appraisal, which she pursued with unrelenting zeal for several months, until she felt ready to begin her new career. Her first selection and commenting essay appeared on the cover of the December 16, 1974, issue of the *Journal of the American Medical Association*.

Those who have since found pleasure in delving into the technical minutiae and artistic images of the 100 selected cover reproductions as interpreted in Dr Southgate's comments have learned that she had prepared herself for the new assignment with eminent success.

A visual journey through the volume eloquently demonstrates that Dr Southgate's judgment in choosing was singularly sound. Masterpieces selected for the reader's review represent every school of creative approach to visual art since the Middle Ages to the present. Whether by design or accident, the selections are not ordered chronologically or by genres, and the contrast between the selection as they follow one another noticeably raises the level of the viewer's appreciation of their distinctive characters. The typographic quality of the reproductions is as

fine as one can desire. The essays that face the reproductions place the art work in its historic background and sketch the life and work of the artists. The narrative is clear, concise, and brilliantly illuminating. As the essayist smoothly dissects the anatomy of technical details, the reader and viewer begin to see the picture in a revealing new light.

In general, the selections show no planned orientation to medical subjects specifically. There are only four that fall in this category, but two of these deserve particular notice. One is Thomas Elkin's portrait of Samuel Gross (perhaps the best known American surgeon of the 19th century), and the other is Pablo Picasso's early-career *Science and Charity*, a sort of later extension of the theme of the immortal *The Doctor* by Sir Luke Fildes (which is also reproduced). To those who know Picasso by his later works, secretly suspecting that he painted the way he did because he knew no better, the superb technical details of this painting will be a surprising revelation.

Between December 16, 1974, and December 11, 1987, 676 reproductions of pieces of art appeared on the cover of *JAMA*. Dr Southgate selected and commented on all but a handful of these.

The question naturally arises about the appropriateness of the presence of the art on the cover of a scientific periodical. This question must have often been asked of Dr Southgate, for she wrote several paragraphs in the preface of the book to demonstrate an essential, though rather mystic, affinity between the work of the artist and the physician. Her argument is very ingenious, but rather complex to follow.

This reviewer admits to a fundamental, but hard to identify similarity in the inner forces that determine the ultimate goal of the work of the physician and the artist: they both deal with reconciling imperfections of life (health and disease in man for the physician; order and disorder in the physical world for the artist). Also, aside from abstruse interpretations, there are empirical facts that suggest not only attraction, but a deeper relationship between the two: physicians take up the amateur practice of art (mostly painting) much more often than members of other professions, and they are disproportionately frequent sponsors of art.

But in our daily living the recognition of such a kinship is not a requirement for welcoming art on the cover of a medical journal. The rare moment of pleasure that the appearance of great art on the cover offers is triumphant justification for its presence.

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The Washington manual of style, 2nd ed

Gerard Doherty, Jennifer Meko, John Olson, Gary Peplinski, Neil Worrall; Philadelphia; 1999; Lippincott Williams & Wilkins; 720 pages; \$37.95.

Matrix metalloproteinases (MMPs) are a family of proteases that degrade the extracellular matrix as well as other pericellular proteins during processes of tissue remodeling, angiogenesis and metastasis. Previously, we and others have demonstrated the role of the gelatinases MMP2 and MMP9 during the onset of NCC migration. Here we demonstrate the expression of MMP16 mRNA and protein in cranial NCCs in avian embryos. Knockdown of MMP16 inhibited NCC migration. This inhibition was rescued by the addition of recombinant MMP16, which was also sufficient to increase proper NCC migration. Furthermore, excess MMP16 caused enhanced NCC EMT, concomitant with degradation of dNT-related proteins, laminin and N-cadherin. (1999) Inhibition of Matrix Metalloproteinases: Therapeutic Applications. Annals of the New York Academy of Sciences Volume 878. New York Academy of Sciences, NY. Google Scholar. 7. Chau T, Jolly G, Plym JM. Inhibition of articular cartilage degradation in dog and guinea pig models of osteoarthritis by the stromelysin inhibitor, BAY 129566. Arth. Rheum. Role of matrix metalloproteinases in failure to re-epithelialize after corneal injury. Am. J. Pathol.