
Preface

Research in the matrix metalloproteinase field began with the demonstration by Gross and Lapière, in 1962, that resorbing tadpole tail expressed an enzyme which could degrade collagen gels. These humble beginnings have led us to more than 20 distinct vertebrate MMPs, along with a variety of homologues from diverse organisms such as sea urchins, plants, insects, nematode worm, and bacteria. Related enzymes, the ADAMs and ADAMTSs, as well as the inhibitors, TIMPs, create a complex picture.

Section I of this book provides the reader with a brief overview of the MMP arena from how these enzymes fit into the larger degradome to what happens when you modulate their expression and function in the mouse. Hopefully this complements the methodology that comes later. Section II presents the reader with a diverse set of methods for the expression and purification of MMPs and TIMPs, bringing together the long and often hard-earned experience of a number of researchers. Section III enables the reader to detect MMPs and TIMPs at both the protein and the mRNA level and Section IV provides the ability to assay MMP and TIMP activities in a wide variety of circumstances.

For folks who are new to MMP research, we hope that this book will enable you to “hit the ground running”, acquiring both some background and many useful laboratory techniques in one easy volume. For the seasoned MMPer, we hope that it will add some new methods to your old favourites or help anyone new in your lab to get going quickly.

The first edition of this book was published in 2001 but was assembled in the 2 years before. This second edition contains several updates of the original chapters, as well as new technologies and methodologies that were not available in the dim and the distant past of a decade ago!

We would like to thank all of the authors for the time and the effort they put in. The demands of writing a book chapter are not trivial, especially against the background of heavy research and teaching commitments, and we have again been overwhelmed with the number of eminent and senior people in MMP research who have contributed.

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