

Preface

The research encompassing the screening, selection, characterization, and exploitation of peptides capable of recognizing and binding inorganic materials is rapidly growing; however, it remains far from maturity. In the space of two decades, this area has exploded with activity, driving innovations in both the experimental and theory arenas. With the strong encouragement of the team at Springer, we considered this an ideal point to reflect on the enormous progress that has been made thus far, to consolidate these accomplishments, and to highlight some of the new applications and research directions emerging in this new field.

One of the key audiences for this book is the scientist or scholar who is new to the research area. The inherently multidisciplinary nature of this research field that embraces chemistry, physics, surface science, structural and molecular biology, genetics, materials science, computational modeling, and informatics, makes a comprehensive entry a challenging prospect. The earlier chapters of this book detail the foundational aspects of this scientific field, to assist those getting started. Another key audience for this volume is the established practitioner in bio-inspired technologies, who is interested in expanding the horizons of the possible applications of their research. The latter chapters in this volume highlight applications that are currently emerging and could potentially have significant opportunities for growth. This includes the expansion of bio-inspired methodologies and applications that could have important implications in sustainability, which is important for future scientific progression.

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