

Heterocyclic Compounds and Biological Applications

Edited by M.R.Jayapal

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Preface

This text book is considered essential reading to all scientists involved in synthesis of heterocyclic compounds and biological applications who wish to keep abreast with the recent and important developments in the field. This innovative text is organized in a way that discourages rote memorization, by emphasizing what functional groups do rather than how they are made, highlighting mechanistic similarities and tying synthesis and reactivity together. The text balances coverage of traditional topics with organic chemistry, recognizing the importance of organic topics to today's students.

During the past decade, advances in synthetic chemistry have been one of the driving forces in the development of new classes of novel heterocyclic compounds for applications in biology and medicine. Despite the impressive scientific efforts towards the development of novel heterocyclic compounds, at the current time there is a tremendous need for standardizing cellular and molecular protocols used in biological applications. Since synthetic chemistry field is expanding and becomes part of the curricula in many universities, the present book with protocols will be extremely useful for the researchers, students and medical doctors.

In thinking about how reactions in nature could be integrated with modern synthetic chemistry, I came to see that another approach was required, so I decided to undertake the writing of a textbook that would differ from others in two ways. First, the reactions of organic molecules would be organized and presented by the mechanism of the transformation. Second, the reactions of metabolic and biosynthetic processes would be integrated with the reactions found in most other texts.

This book is an attempt to amalgamate biological, mechanistic and synthetic organic chemistry. It is written by a synthetic organic chemist who happens to also think deeply about mechanism and understands the importance of knowing

structure and reactivity to synthetic organic chemistry. I liked the project especially because I liked the book, and I thought way of dealing with synthesis and mechanism together was an approach sufficiently different that it might be the “whack on the side of the head” that could be useful in generating new thought patterns in students of organic chemistry.

At many points, we have tried to explain concepts from the very beginning level so that individuals who do not recall their basic chemistry can still develop insights into and understand the origin and limits of modeling calculations and correlation equations. We have also incorporated numerous references throughout the text to help people who want to follow particular topics further. Finally, by including many illustrative examples, we have attempted to show biological practitioners how to arrive at quantitative results for particular cases of interest to them. Hence, this book should serve as a text for introductory courses in organic chemistry. We hope that with this textbook, we can make a contribution to the education of synthetic scientists and biological scientist and, thus, to a better protection of our society.

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Those who have ever written textbooks know that the authors are not the only ones who play an important role in the realization of the final product. Without the help of many of our co-workers, colleagues, it would have taken another millennium to finish this book.

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M. R. Jayapal

Editor-in-Chief

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