



The Harvard Crimson

ONLINE EDITION

Arts

'Molecules' Binds Science and Life

"Molecules and Medicine" - By E.J. Corey et. al. (Wiley) - Out Now

Published On 10/5/2007 12:04:32 AM

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How many books have you read that are as relevant to kindergartners as they are to college graduates?

Personally, I can think of very few—not even the Harry Potter series rises to the challenge. So when I heard that Nobel laureate E.J. Corey, the Harvard Chemistry Department's biggest gun, planned to write a book examining the biochemistry of the world's most important medicines that would be accessible to college undergrads and scientists alike—the equivalents of kindergartners to college graduates in terms of technical scientific knowledge—it's an understatement to say that I was skeptical.

But "Molecules and Medicine," the book that Corey created with his two post-doctoral co-authors, Barbara Czako and László Kürti, comes much closer to reaching Corey's lofty goal than I imagined it could.

That isn't to say that "Molecules and Medicine" is the book you'll want to read before bed. (If it is, however, you should be concentrating in chemistry.) What Corey, Czako, and Kürti's colorful 249-page soft-cover will do is give anyone with a hankering to understand, for example, why aspirin dulls pain but morphine does it much better, some basic familiarity with the scientific answer.

For the most part, the book keeps close to the boundary separating reference books, textbooks, and anecdotal history. Its content is broken into six parts, one of which is an introduction designed to provide an understanding of chemistry jargon to those whose last encounter with the subject came before their first high school date. The remaining five sections are broken down further by types of disease, spanning the spectrum from allergy to cancer to brain disease.

"Molecules and Medicine" allots exactly one page to each molecule in medicine that it covers, breaking the pattern for occasional explanations of the biological targets on which a given class of drugs work, and providing the all-important context that turns its potentially dry pages into a wellspring of useful information.

And context is what gives "Molecules and Medicine" value, allowing it to be more accessible than a medical textbook and more credible than an online source. Context is also where Corey, Czako, and Kürti's book transcends its visual resemblance to a reference book; it allows them to teach rather than just enumerate points. The pages explaining underlying biological systems connect the details of any given molecule to the big picture of a medical condition.

A section on immunology manages to be not only informative but also strikingly clear despite the surfeit of names and medical jargon necessarily associated with the field. The authors, chemists all, have enough of an outsider's perspective on biology to strike an appropriate balance between providing useful technical vocabulary and dumping a list of Latin on the reader, and they do so without sacrificing their authoritative tone.

The 27-page introduction leaves little to the imagination, providing a whirlwind overview of chemistry as well as fodder for the critics. While its writing is lucid and well-illustrated, a reader not intimately versed in (at least) Advanced Placement high school chemistry might find its pace too quick.

But the introduction is an admirable attempt to remedy the challenge the authors recognize in the book's preface—that of writing at too high a level for some and too low a level for others. And though Corey, Czako, and Kürti do a good job for the most part, the remainder of the book suffers somewhat from the sense that some details were left unsaid while others were over-embellished.

Nonetheless, the curious reader who, in preparation for a dentist's appointment, flips to the page on lidocaine, will find an intellectually pleasing mixture of history, drug discovery, chemistry, and neurology, which, most importantly, is easy to read. It is a testament to the authors' expertise and economical writing style that all of this is packed comfortably onto a page that includes three chemical structures and four lines of reference information.

Some may see the stories of discovery as irrelevant to science, some may decry the insufficient medical or biochemical detail, many will think the single-page write-ups exceedingly choppy, and others will simply find the whole combination unappealing.

But for the college student with an appetite for science and somewhere in the early stages of ascendancy from chemistry kindergarten to graduate-level knowledge, "Molecules and Medicine" hits the spot. Most importantly, the book acts as a rocket-booster for the curiosity of the uninitiated and the cognoscenti alike, providing the tools to explore below the impenetrable shell of medicine, whether at Harvard Medical School or at University Health Services.

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