

HOW PATHOGENIC VIRUSES WORK



Lauren Sompayrac, Ph.D.

Retired Professor

Dept. of Molecular, Cellular, and Developmental Biology

University of Colorado

Boulder, Colorado



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About the Cover

We are grateful to Dr. David Hockley for contributing a black and white version of the cover photo, showing HIV-1 entering its target cell.

Photo Credits

p. 29, electron micrograph of measles virus budding from the surface of a cell, courtesy Dr. Shpilke Rozenblatt

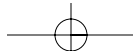
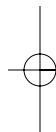
p. 36, electron micrograph of rotavirus, © Science Photo Library

p. 41, adenovirus model, courtesy Dr. Richard J. Feldmann

p. 41, electron micrograph of adenovirus, courtesy Drs. Nick Wrigley and Robin Valentine

DEDICATION

I dedicate this book to my sweetheart, my best friend, and my wife: Vicki Sompayrac.



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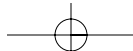
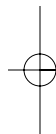
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Finally, I would like to thank my editor at Jones and Bartlett, Chris Davis. If you want an editor who will make writing a book fun and easy, Chris is your man.





How to Use This Book

There are many books which employ viruses as tools to teach molecular and cellular biology. This makes sense. A lot of what we know about these subjects was learned by observing how viruses usurp the biochemical machinery of their host cells. However, these texts tend to treat viruses as bit players, focusing mainly on the cells they inhabit. Consequently, such a book can teach you a lot about cell biology, but it usually won't give you much insight into the "mind of the virus." In *How Pathogenic Viruses Work*, the virus will occupy center stage, because my goal is to give you an overall picture of virus-host interactions from the point of view of the virus.

There are also big, heavy books that seem to contain every possible detail about every virus in the universe. These texts are great for reference, but they give the impression that viruses are incredibly complicated and almost impossible to understand. In fact, viruses are quite simple. They really only know how to solve three problems, and the diseases viral infections cause are the consequences—frequently the unintended

consequences—of the different ways viruses solve these problems.

How Pathogenic Viruses Work is written in the form of "lectures," because I want to talk to you directly, just as if we were together in a classroom. In this book, I will focus on the important concepts, and will leave out as much detail as possible. We will also limit our discussion to viruses that cause diseases in humans. Lord knows, there are plenty of them, and to me (and probably to you), these viruses are really the most interesting ones.

Your professor may use this book as the core text for a course, supplementing these lectures with fascinating facts about his or her favorite viruses. Alternatively, your professor may use this book as a course preview, both to provide you with a global view of how pathogenic viruses work, and to give you "pegs" on which to hang more detail as the course progresses.

But no matter how your professor may choose to use this book, you should keep one thing in mind: I didn't write this book for your professor. This book's for you!

