

ABOUT THE 10TH EDITION COVER:

For several hundred years microscopes have shone a penetrating light into the microcosmos, that hidden world of microorganisms that exists all around us. One microscope in particular—the scanning electron microscope or SEM—has created some of the most striking and mysterious images, often startling in their detail and dimensions. Our cover image is a case in point. At first it may look like knobby pink sausages caught up in blue strings, but looks are deceiving when it comes to the SEM. What we are actually witnessing in this photograph are two rod-shaped bacteria being engulfed by the fine tentacles of a white blood cell. Microbiologists have recently turned their attention to these tiny microbes, known by the scientific name *Klebsiella pneumoniae*, because of their involvement in deadly outbreaks of disease in hospitals. These

microbes belong to the family Enterobacteriaceae, which are normal residents of the large intestine and not usually serious pathogens—as long as they remain in the intestine. Unfortunately a number of them readily infect patients with compromised immune systems, leaving pneumonia, meningitis, along with blood, wound, and surgical infections in their wake. The recent outbreaks are especially problematic because this group of bacteria has developed resistance to an essential class of drugs called carbapenems, from which we get the shorthand designation CRE (carbapenem-resistant Enterobacteriaceae). CRE are an example of the notorious “superbugs” that evade nearly every type of antibiotic and are a continuing concern in health care. As you delve further into the contents of this textbook, you will learn more about this important topic and many others relevant to your future professions and everyday life.

