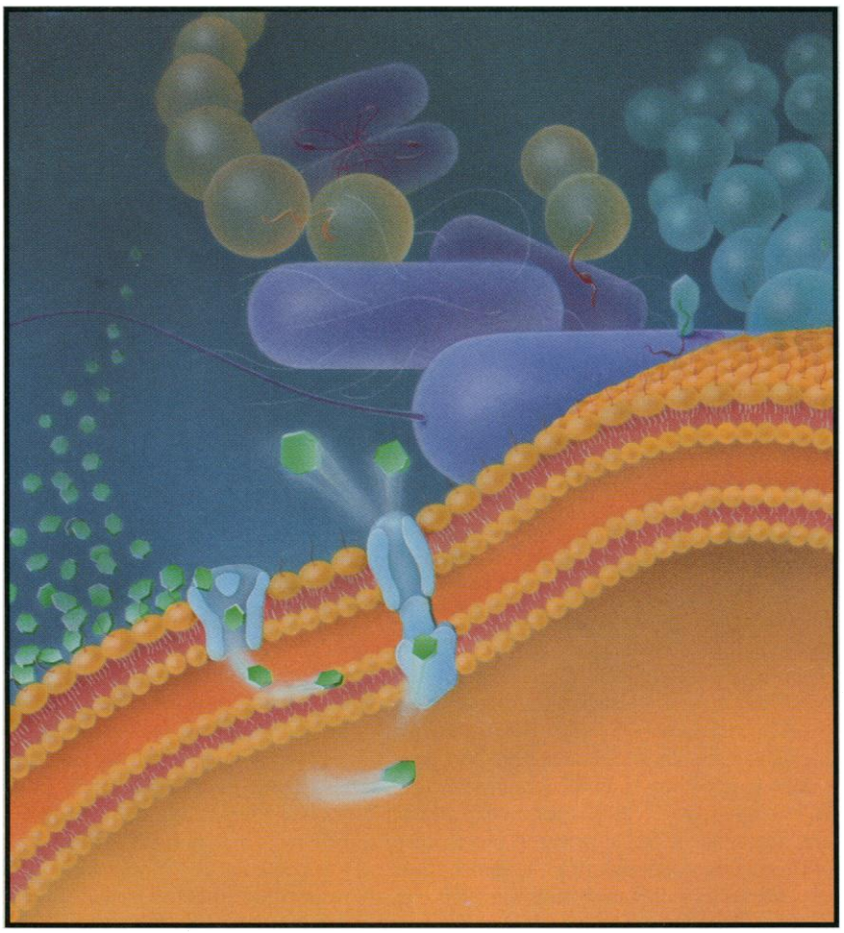
SCIENCE

Resistance to Antibiotics

FRONTIERS IN BIOTECHNOLOGY



For several years now, medical microbiologists have been tracking an alarming trend. With increasing frequency, they've been finding that antibiotics that formerly killed bacterial pathogens with ease were becoming ineffective—the result of resistance mechanisms developed by the ever-crafty bacteria. This raised the specter of what one researcher calls the "post-microbial era"—a return to the bad old days when a simple infection could turn life-threatening for lack of effective treatment. *Science* surveyed the widening scope of this resistance problem in several articles published on 21 August 1992, and now returns to the topic with a special issue produced by the Editorial and News Departments.

This issue picks up where the earlier one left off. Because an appreciation of the mechanisms through which bacteria develop antibiotic resistance is critical to a rational approach to the design of effective new drugs, it takes a much more detailed look at research aimed at understanding those mechanisms, as well as at how that information is being used—or not used—by the drug industry. Other drug exploratory efforts, for fungal diseases and sepsis, an often fatal consequence of infection, also come in for attention, as does the critical issue of funding for research on antibiotic resistance. And finally, because combating the surge in antibiotic-resistant microbes requires not just research but the tracking of new and existing outbreaks, there's consideration of what's needed on the surveillance front. Only through a multi-pronged effort will it be possible to stave off the post-microbial era.

–Gilbert J. Chin and Jean Marx