

# New triple-threat weapon needed in war between man and microbe

March 24 2008

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Without a breakthrough, microbial resistance might be inevitable in humanity's struggle against infectious disease, a medicinal chemist reports. Above is a color-enhanced scanning electron micrograph showing *Salmonella typhimurium* (red) invading cultured human cells. Courtesy of National Institute of Allergy and Infectious Diseases of the NIH

Mankind's age-old battle against infectious diseases stands to rage on and on, unless scientists develop a new generation of triple-action antibiotics, according to an article scheduled for the March 28 issue of ACS' monthly *Journal of Natural Products*.

In the article, Lester A. Mitscher presents a "rather personalized" account of the turbulent tug-of-war between microbes and mankind,

describing past tactics, lessons learned, and a cautious prediction about the road ahead.

Mitscher notes, for instance, that “miracle drugs” in the 1940s and ’50s failed to live up to expectations. Though penicillin promised an end to infections worldwide in 1941, reports of resistant bacteria appeared only a year later. “Significant clinical resistance is now known for virtually all antibiotics in medical use,” the article states. “Unfortunately, the problem is getting worse since big pharma has largely withdrawn from research directed toward new antibiotic discovery.”

The review concludes that microbial resistance is inevitable pending unforeseen breakthroughs. One involves development of new antibiotics that go beyond killing or slowing the growth of disease-causing microbes. Those new medications would contain antimutagenic ingredients that discourage bacteria from mutating into resistant forms. In addition, they would pack immunostimulants that enlist the body’s own immune defense system to fight off an infection.

“Continued close observation and exploitation of natural phenomena appear at present to be the wisest course for scientists to follow in trying to deal with this problem,” says Mitscher.

Source: ACS

Citation: New triple-threat weapon needed in war between man and microbe (2008, March 24) retrieved 27 April 2024 from <https://phys.org/news/2008-03-triple-threat-weapon-war-microbe.html>

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