



Phage

“Bacteriophage have been ignored for decades, but we’re finding now that these bacteria-eating viruses play a larger role in disease than we ever could have realized.”

Vincent A. Fischetti
Professor and this year’s lecturer

Invasion of the Bacteria Snatchers

TUESDAY, DECEMBER 27, 2005
10:30 A.M. – 2:30 P.M.

LUNCH SERVED FROM
12:00 P.M. – 1:00 P.M.

LECTURE WILL BE HELD
IN CASPARY AUDITORIUM

THE ROCKEFELLER UNIVERSITY
1230 YORK AVENUE (AT EAST 66TH ST.)
NEW YORK, NY 10021

The role of phage in health and disease

Every other day, half of the world’s bacteria are murdered cold. Not by Clorox or penicillin or antibacterial hand soap, but by tiny, peculiar organisms that look a little like alien spacecraft.

When bacteria get sick, bacteriophage — phage for short — are the culprit. The tiny viruses invade and infect bacteria, hijacking their systems and forcing them to become factories that produce yet more phage at a rate of up to 100 copies per bacterium. About an hour after infection, they cause the bacteria to explode, killing them and moving on to the next victim.

Before antibiotics, phage were our first line of defense against bacterial infections, and doctors in Eastern Europe used phage to treat wounds and some infections before and after the invention of penicillin. They’re still being used in some parts of Russia.

Now, as bacteria grow increasingly resistant to the antibiotic drugs we’ve relied on for decades, an increasing number of scientists are beginning to again turn to phage to fight disease.

But phage have another side to them. They can use bacteria as a vehicle, becoming an invisible hitchhiker. They can infect and hide, patiently waiting for their host bacteria to transport them to an environment — like your throat — where they can find hundreds of potential new hosts. When phage-infected bacteria find their way into your body, the phage spring to life, giving the bacteria tools to better inflict misery and cause disease.

Rockefeller University’s Vincent Fischetti, head of the Laboratory of Bacterial Pathogenesis and Immunology, takes you on a world tour seen from the perspective of a phage. He shows how we can harness the bacteria-killing capacity of phage for our own purposes, and also exposes how phage can cause disease in people, even though they only infect bacteria. Phage, which are by far the world’s most common organisms on our planet, may be far more important to human health than we ever realized.

