Bacteria can become resistant to both endogenous antimicrobial factors and antibiotic drugs during chronic infections in fluids such as purulent sputum. A major reason that natural antimicrobial peptides and some drugs fail to work in such settings is that they are bound by long, negatively charged polymers that are either produced by the bacteria or, like DNA and cytoskeletal polymers, are released from dying tissue cells and white blood cells that are recruited to the site of infection. Very recent evidence shows that some bacteria, such as those that infect the lung, produce long viral particles that enhance their virulence. The viruses have no intrinsic toxicity to mammals but appear to prevent cationic antibacterial factors from reaching the bacterium. This project seeks to define the mechanism by which filamentous viruses produced by *Pseudomonas aeruginosa* bacteria protect them from human antibacterial factors, and to design countermeasures and test new compounds that are not inactivated by these viruses or by other negatively charged polymers.