

# Prokaryotes, Eukaryotes, & Viruses Tutorial

## Viruses

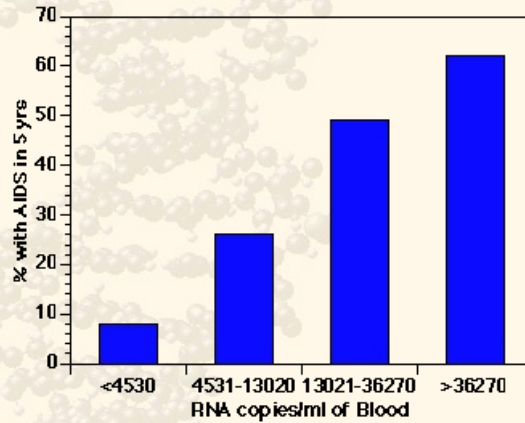
### Basic characteristics of viruses

Simply stated, viruses are merely genetic information surrounded by a protein coat. They may contain external structures and a membrane. Viruses are obligate intracellular parasites--meaning that they require host cells to reproduce. In the viral life cycle, a virus infects a cell, allowing the viral genetic information to direct the synthesis of new virus particles *by the cell*. There are many kinds of viruses. Those infecting humans include polio, influenza, herpes, smallpox, chickenpox, and human immunodeficiency virus (HIV) causing AIDS.

### Biology and AIDS

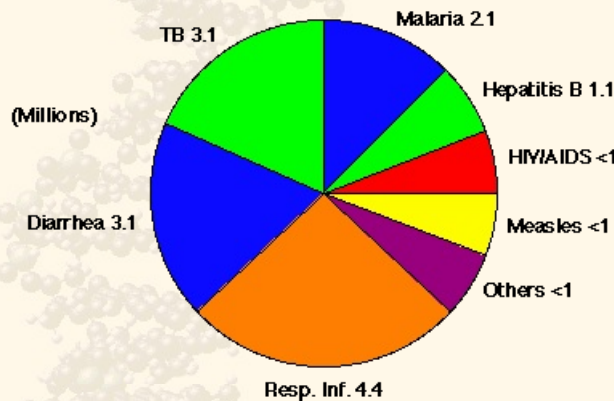
Recent studies show that having low virus levels allow longer life (Science 272, 1124 (1996))

**HIV levels predict survival**



Molecular studies of HIV have led to the development of drugs that interfere with viral biology. Taking a combination of three drugs, indinavir, zidovudine, and lamivudine caused 85% of patients to have no detectable virus in their blood. Data being collected will show if these and other drugs will make AIDS treatable.

### Infectious Diseases: Killers in 1995



Note that that since 1981, there have been 2.5 million deaths by AIDS and 20-40 million deaths by malaria.

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