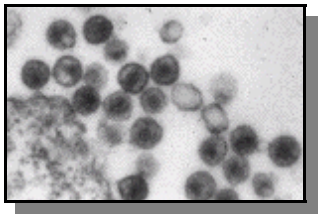
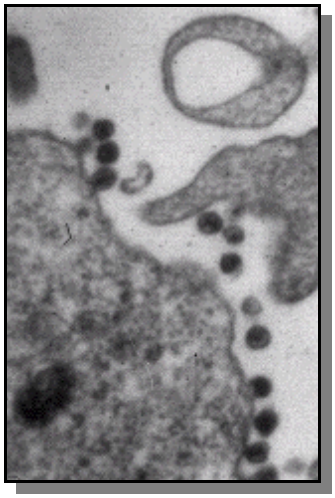
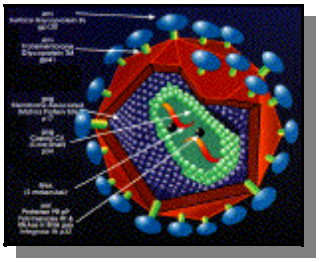
MICROSCOPE IMAGES IN YOUR WORLD



Viral particles are seen at medium magnification in this electron micrograph. Note the central core and the outer envelope.
From AIDS Pathology.

Viral particles are seen at low magnification adjacent to the cell surface in this electron micrograph from AIDS





A 3-D diagram of the mature human Immunodeficiency virus

The HIV Virus and AIDS

One of the most widely publicised diseases of the 20th century is AIDS. Here too, microscopes play the most vital part of identifying and researching this HIV virus which leads to AIDS.

It is mainly the Transmission Electron Microscope which is used by doctors, pathologists and scientist to see the virus.
The power of the TEM lets us see the small virus in various states of it's development. However it takes a lot of time to find the virus as the TEM limits the scientist to samples of only 3mm in diameter at a time. You can imagine how many samples you need to make to look through, say, just one liver or one heart to find a virus which is only about 0.000,005m in size . Thousands.

Different types of viruses have been around for thousands of years. A virus can't live, multiply or spread on its own. It needs living cells from human, plants or animals to live, grow and multiply.
HIV (Human Immunodeficiency Virus) uses the cells of the immune system of a human host to grow and multiply. When HIV has used a cell, that cell can no longer do its job as part of the immune system. The immune system's job in the body, is to attack, destroy and remember how to destroy thousands of other viruses and bacteria that enter the body.
Each day billions of HIV viruses are created, once the body is infected. This means that more of the host's immune cells are destroyed, thus leaving the host defenceless against other infections. This is when the host develops full blown AIDS. The HIV virus does not directly kill off the host but rather kills off the defence mechanism the host has against other viruses and bacteria which then end up killing the host.
For the development of effective medication against HIV, it is therefor crucial for researchers to understand the exact way in which the virus functions and how it reproduces in the body. This is where we need to stop it.

This information is brought to you by the Microscopy Society of Southern Africa in the interest of furthering research, awareness and development of microscopy in the region.

Contact Alan Hall of the MSSA committee at +27 (0) 12 420 2075 for more information.
web site: http://www.microscopy.org.za