

Chapter 1

Web Text Box 3

Finding the bugs: the detection of pathogens

Infection is a constant problem in hospitals, where the illness you pick up from other patients may be more serious than the problem you went in for in the first place. To see how well a hospital is maintaining sterility, swab samples are taken from surfaces and smeared onto agar plates. Fungi and bacteria grow into colonies that can then be examined by light microscopy to reveal the individual cells. Their appearance, as well as the gross appearance of the colonies and the use of specific stains, allows identification of the pathogen.

Viruses are not alive and will not grow into colonies on an agar plate. Nor can they be seen easily: the vast majority are smaller than the 250 nm resolution of the light microscope. Assays have to be specific, usually by the polymerase chain reaction (see page 116 of the book, and the [animation](#) “**The polymerase chain reaction**”) using primers specific for known viruses.