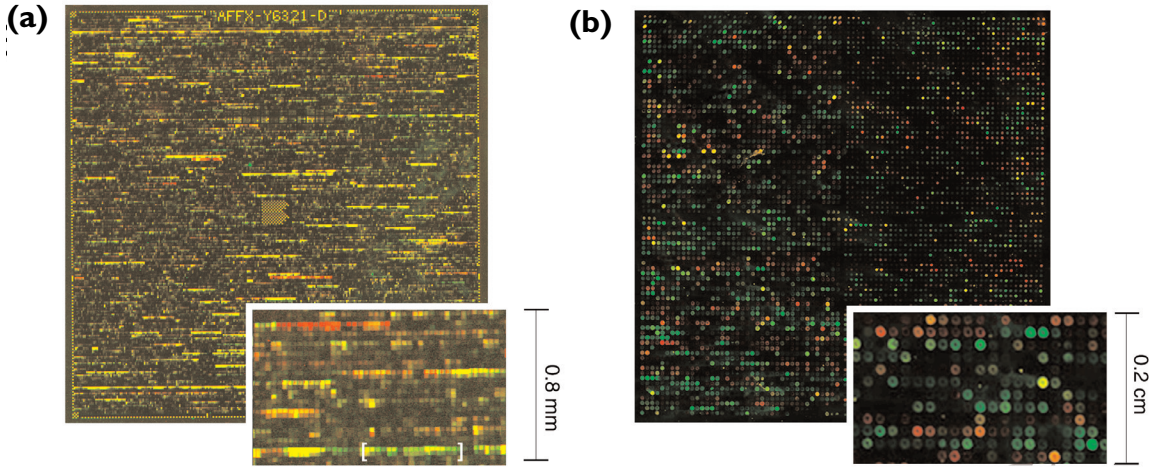

Figure 3.14 DNA microarray technology. Two examples of microarray technology are presented. (a) An oligonucleotide array where multiple (in this case 20) different oligonucleotides for every gene have been synthesised *in situ* using a photolithographic technique. In (b), a cDNA library has been deposited robotically onto a glass slide. A robot could also be used to apply PCR products of every known gene, or plasmids from an ordered genomic library that covers the entire genome. mRNA is isolated from cells grown under two different conditions. cDNA probes are then synthesised from each mRNA pool and labelled with different fluorescent tags. The probes are mixed and hybridised simultaneously. The array is then scanned to generate a quantitative fluorescent image. A pseudo-colour image can then be created to indicate the relative number of transcripts present under two different growth conditions. In this instance: red represents high level expression under condition 1, low level expression under condition 2; green represents low under condition 1, high under condition 2; yellow represents high expression under both conditions; black represents low expression under both conditions. (Reprinted by permission from *Nature* (Lockhart, D.J. & Winzler, E.A., Genomics, gene expression and DNA arrays. *Nature*, 2000, **405**, 827–836) ©2000 Macmillan Magazines Ltd.)