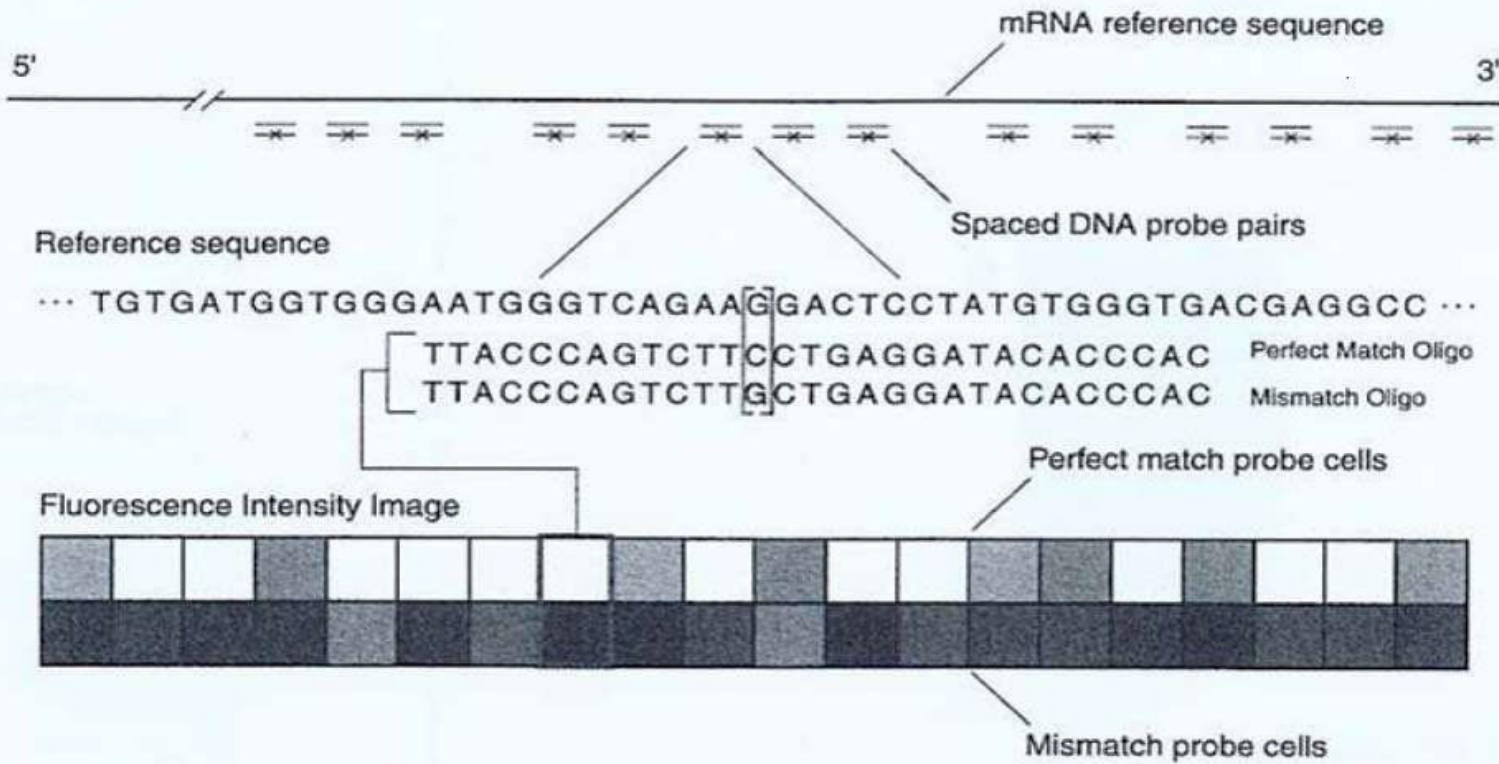




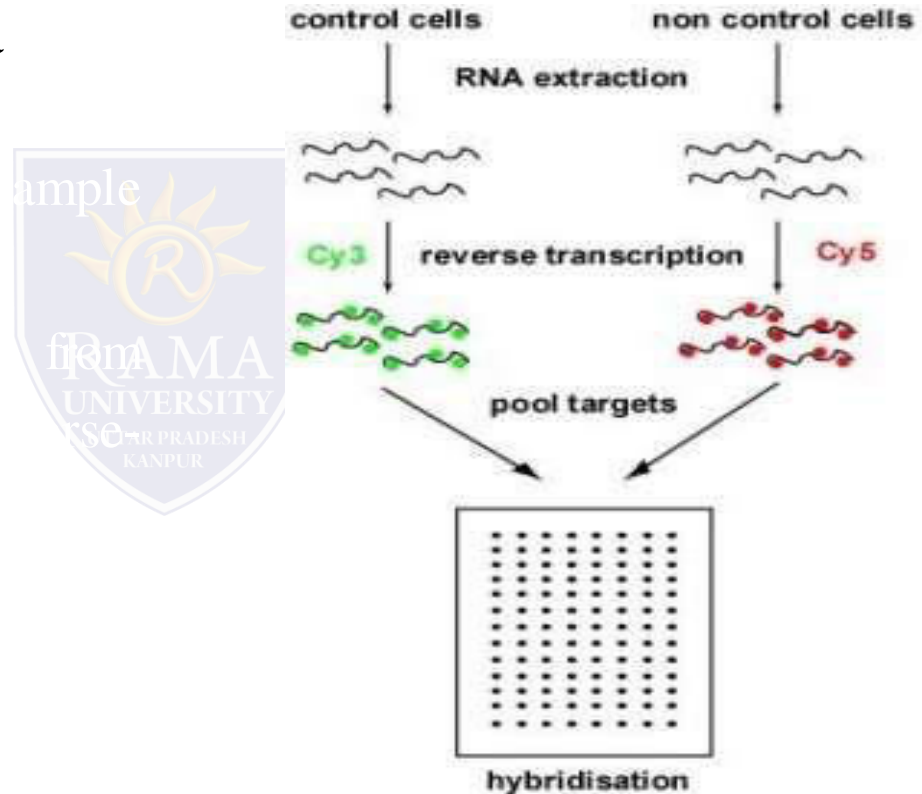
FACULTY OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF BIOTECHNOLOGY

# GeneChip® Expression Array Design



# SAMPLE PREPARATION AND LABELING

Isolate a total RNA containing mRNA that ideally represents a



□

□

□

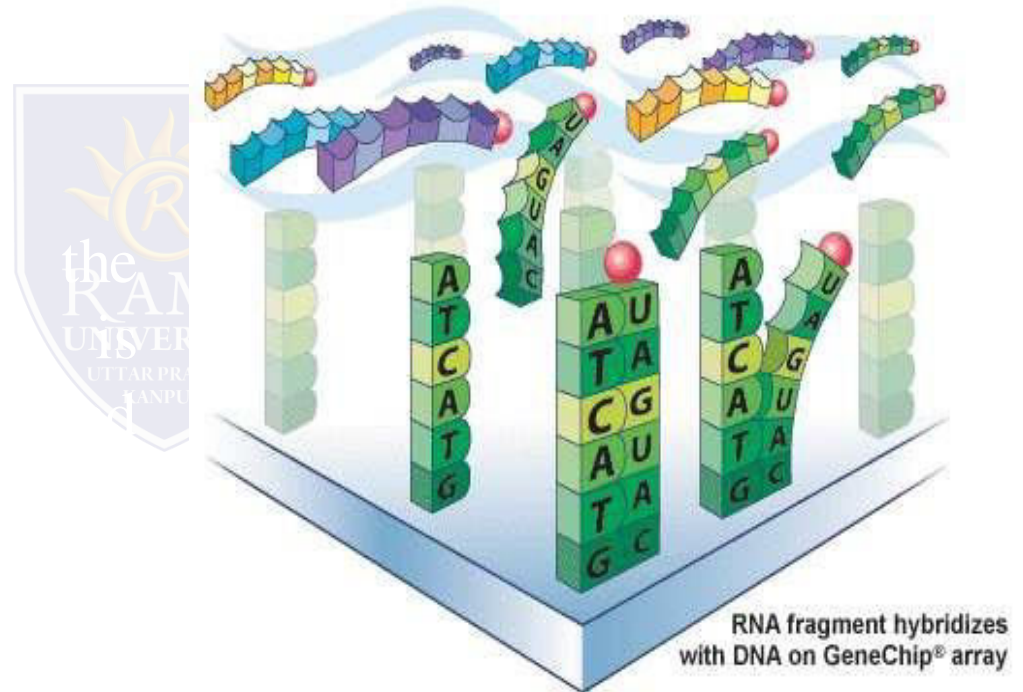
# ARRAY HYBRIDISATION

Here the labelled cDNA

□

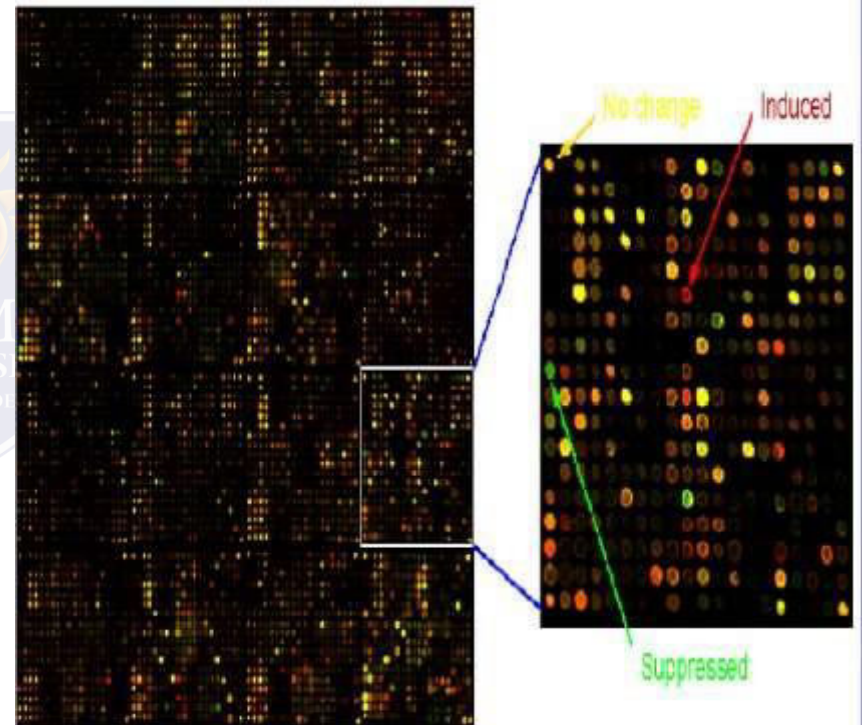
□

RNA fragments with fluorescent tags from sample to be tested



# IMAGE ACQUISITION AND DATA ANALYSIS

- Slide is dried and scanned to determine how much labelled cDNA (probe) is bound to each target spot.
- Hybridized target produces emissions.
  - 
  -



- 1) Glass cDNA microarrays which involves the micro spotting of pre-fabricated cDNA fragments on a glass slide.
- 2) High-density oligonucleotide microarrays often referred to as a "chip" which involves in situ oligonucleotide synthesis.

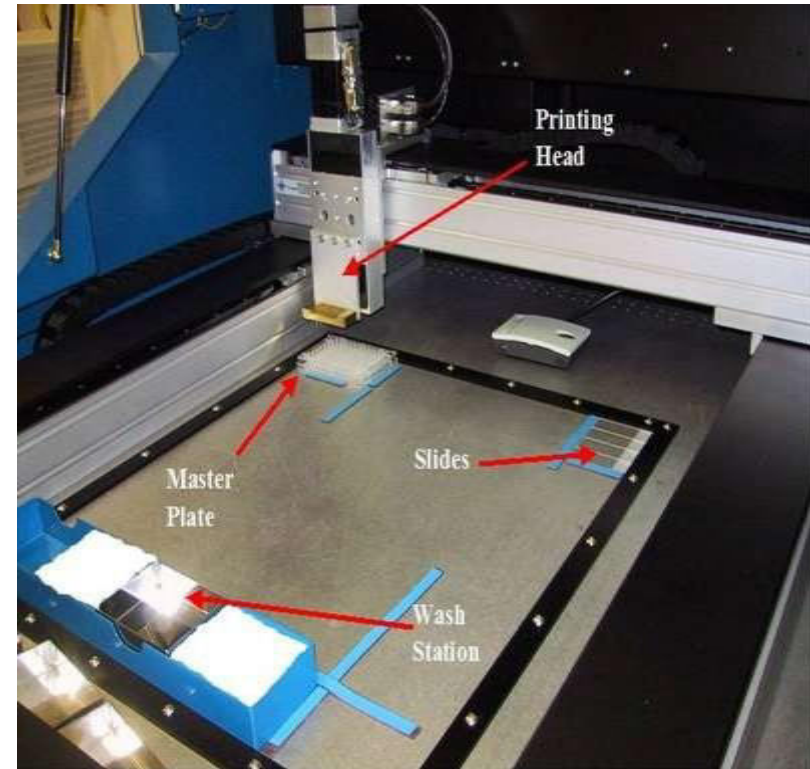


# MANUFACTURING OF GLASS cDNA MICROARRAY

Selection of the material to spot onto the microscope glass surface.

Preparation and purification of DNA sequences representing the gene of interest.

Spotting DNA solution onto chemically modified glass slides via a contact printing or inkjet printing.



## ADVANTAGES OF Glass on c-DNA Micro array

- Advantages of Glass cDNA microarrays include their relative affordability with a lower cost.
- Its accessibility requiring no specific equipment for use such that hybridisation does not need specialised equipment.
- Data capture can be carried out using equipment that is very often already available in the laboratory.