

Tissue culture and Cell Biology

Tissue Culture and Cell Biology facility

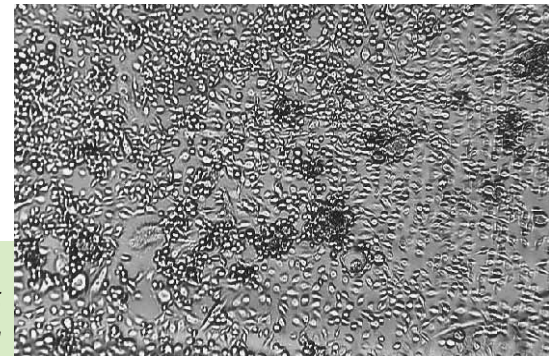
Dr. K. R. P. Singh was the first scientist in the world, who succeeded in the development of a mosquito cell line (ATC-15), later popularly called as Singh's cell line.

Understanding of the nutritional requirements of cells and synthesis of medium was the greatest challenge. A totally in-house formulated nutrient was used for this work.

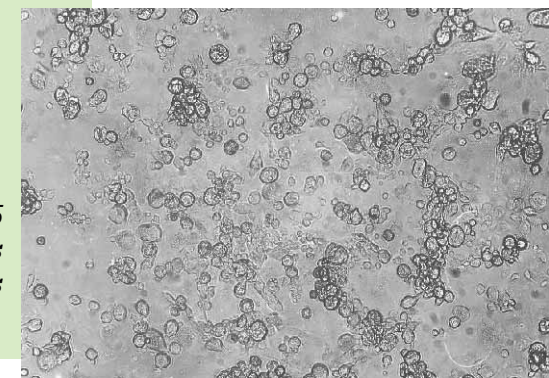
This work was acclaimed as one of the most-cited publications for several years.



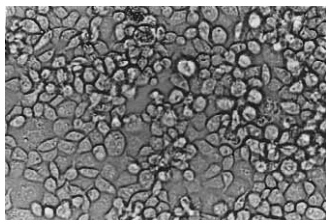
*ATC 15
Normal cells*



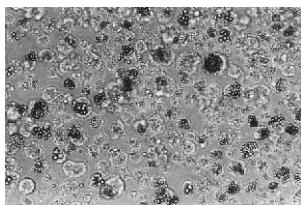
*ATC 15
dengue virus
infected cells*



Several new cell lines from *Cx. bitaeniorhynchus*, *Ae. novoalbopictus*, and *Ae. vittatus* were developed. Similarly, cell lines from ticks, namely *Haemaphysalis spinigera*, *H.turturis*, *H.obesa* were also developed for use in KFD research.



Helicoverpa armigera cells
(normal)

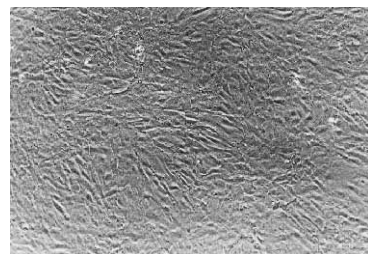


Helicoverpa armigera cells
(infected with HaSNPV)

Recently, eight lepidopteran cell lines, 3 from *Spodoptera litura*, two each from *Bombyx mori* and *Helicoverpa armigera* and one from potato tuber moth have been established. These cell lines provide a system for the growth of baculoviruses, which are being increasingly used to synthesize recombinant proteins.

Two cell lines from gill tissues of Indian freshwater fish Mrigal and Rohu have been developed.

An *in vitro* method has been standardized using fish cell lines to assay the toxicity of chlorides of metals like cadmium, cobalt, nickel, mercury and zinc for assessing aquatic pollution.



Fish Cell line (Mrigal)

Several cell lines of vertebrate origin have been developed.

A new cell line MRK-90 has been established from kidney tissue of a macaque monkey (*Macaca radiata*). The cells are susceptible to several viruses. This is the first continuous cell line established from Indian bonnet monkey.

Developmental, karyological, histochemical, biochemical characterization and virus susceptibility studies have been carried out on established and newly-developed cell lines.

Tracheal and cornea organ cultures were also established and used for the study of virus growth and propagation.

The cell repository has 150 cell lines. These are maintained and supplied to different institutes and scientists working in different fields of biomedical science.

Regular quality control programs are undertaken to test cell lines for the presence of mycoplasma by using PCR ELISA-RFLP. Vero cell lines are also screened for the presence of SV5 by in-house developed diagnostic primers.

Short-term training programs are offered to the scientists and students in Tissue Culture techniques with special reference to application in virology.