



# GURU NANAK COLLEGE (AUTONOMOUS)

Affiliated to University of Madras and Re-Accredited at "A" Grade by NAAC

Guru Nanak Salai, Velachery, Chennai – 600042.

## Department of Advanced Zoology and Biotechnology

<b>Event Title</b>	National Webinar on In-vitro animal cell line culture and its tangible benefits
<b>Category</b>	All Students Research Scholar and faculty members
<b>Date</b>	1.8.2020
<b>No. of Resource Person</b>	Dr.Bharathi Ravikrishnan
<b>No. of Participants</b>	363

### (1) Report Description

The head of P.G and Research Department of advanced Zoology and Biotechnology Dr J .Jayanthi organized a National Webinar on 1.8.2020 at 11 am in the title "In-vitro animal cell line culture and its tangible benefits". Dr.Bharathi Ravikrishnan. Assistant Professor and Head of the Department of Biotechnology, Guru Nanak College, Velachery, (Autonomous) was the resource person. Dr .J.Jayanthi, Head, P.G and Research Department of advanced Zoology and Biotechnology delivered the welcome address followed by the introduction of chief guest by Dr.Sharmila. More than 363 participants across the country participated

### (2) Report

Scope of Animal Cell Culture, History of Animal cell Line culture and Terminologies were explained. Instruments, Equipments and media used in Animal cell culture Lab was briefed. Physical Parameters to support animal cell growth, Cell line cultures, Culture influence was also explained. She also spoke about the overview of Tissue engineering in Organ Synthesis, Bioengineered Trachea Bioengineered Liver, Bio-engineered eye lens, Biopolymer for Jaw construction and about the involvement Scaffolds in Biomimetic. Speaker explained about a team of over 50 researchers at Harvard University and Tel Aviv University (TAU) have successfully built human "organs-on-chips" that they say will allow scientists to better predict human responses to drugs during trials as a way to speed up drug development, and may offer alternatives to some animal testing.

A total of eight microchips were created to recapitulate the build and functions of living human organs – including the lungs, liver, intestines, kidneys, skin, bone marrow, brain, and the blood brain barrier. The scientists also built an automated instrument to fluidically link up to 10 "organ chips" to create what they called "a functional human Body on-Chips platform.

## Invitation Copy



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## **PG & RESEARCH DEPARTMENT OF ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

*National Webinar*  
on  
**IN-VITRO ANIMAL CELL LINE CULTURE AND  
ITS TANGIBLE BENEFITS**

Supported by DBT Star College Scheme  
Govt. of India

### *Speaker*

**Dr. BHARATHI RAVIKRISHNAN**

*Assistant Professor & Head  
Department of Biotechnology  
Guru Nanak College (Autonomous)  
Chennai - 42*



**1<sup>st</sup> Aug 2020**



**11:00 AM**



*Mode  
Google Meet*



**Click Here to Register**

<https://forms.gle/NiVXLn9PrA9wyUr18>

*Link will be shared with  
registered participants through  
email*



**Dr. M.G. Ragunathan**  
*Principal*



**Sardar Manjit Singh Nayar**  
*General Secretary & Correspondent*

## Certificate Copy



## Photos

REC Dr. Bharathi Ravikrishnan is presenting

Cell culture refers to the process by which cells are grown in a controlled artificial environment. Cells can be maintained *in vitro* outside of their original body by this process which is quite simple compared to organ and tissue culture.

Optimum pH: 7.2 to 7.8

**Alkalinity**

**Acidity**

- Eagle's basal media
- Eagle's Minimum Essential Media (MEM)
- Dulbecco's Modified Essential Media (DMEM)
- Iscove's Modified Dulbecco's Medium (IMDM)
- Roosevelt Park Memorial Institute (RPMI 1640)
- HAM's F12

The various nutrients required are:

- glucose,
- fats and fatty acids,
- lipids, phospholipids and sulpholipids,
- ATP and amino acids
- Vitamins
- Minerals

Serum:

Serum can provide various growth factors, hormones, cell adhesion factor and other factors needed by the most mammalian cells for their long term growth and metabolism.

- FCS, FBS, CS, HS, HoS.

**Antibiotics**

- penicillin (100 U/ml) for bacteria,
- streptomycin (100 mg/ml) for bacteria,
- or gentamycin (50mg/ml) for bacteria,
- and nystatin (50mg/ml) for fungi and yeast.

Partha Sarathy has left the meeting

Sukanya Mohanty

VIJAYALAXMI MATH

Deva Kumar

Debasis Chandra Dey

Dr. Bharathi Ravikrishnan

National Webinar on In-vitro animal Ce... Turn on captions Dr. Bharathi Ravikrishnan is presenting

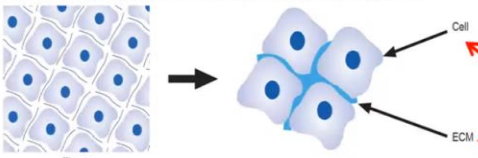


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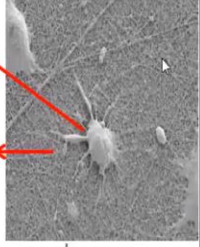
REC Mragraj Singh Samant is presenting

### The effects of changing the growth environment on cells

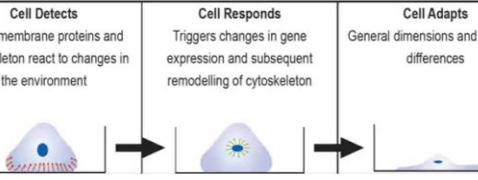
**In vivo 3D environment:** typically cells maintain a 3D ellipsoidal structure and organisation



**In vitro 2D environment:** cells adopt flattened morphology in a mono-layer

Cell Detects	Cell Responds	Cell Adapts
ECM, membrane proteins and cytoskeleton react to changes in the environment	Triggers changes in gene expression and subsequent remodelling of cytoskeleton	General dimensions and physical differences



National Webinar on In-vitro animal Ce... ^

Turn on captions Mragraj Singh Samant is presenting

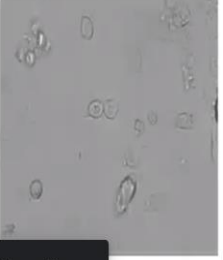
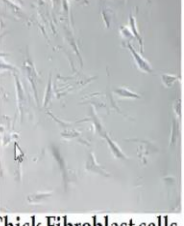

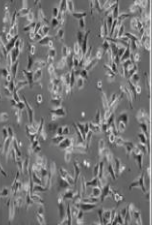
People (251) Chat

- Dr Manoj Bhiroria
- Dr. Amit Saxena
- Dr. Bharathi Ravikrishnan (Pres...
- Dr. Bharathi Ravikrishnan
- Dr. Bharathi Ravikrishnan
- Dr. Gundu Rathod
- DR. JAYANTHI J
- Dr. K. Amudha
- Dr. K. S. Raghunandan
- Dr. M. G. Ragnathan Principal
- Dr. M.N. Kolpuke

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REC Mragraj Singh Samant is presenting

### Types of Cell Culture

- Primary cell line culture
  - All the cells in the tissue segment grows, without change in their division rate
  - 
  - Chick Fibroblast and
- Continuous cell line culture
  - Finite Cells
    - Single cell type with enhanced cell division, but can undergo apoptosis
    - 
  - Indefinite
    - Single cell type but have the ability to continuously divide- Transformed cell (Neoplastic cells)
    - HeLa cells
      - ATCC Number: CCL-23
      - Designator: Hep-2
      - 
    - MCF-7 cells
      - 

kaborn doruk has left the meeting

National Webinar on In-vitro ... X

People (251) Chat

sundaram sivakumar 11:31 AM  
Pls pin Dr. Bharathi Ravikrishnan mam to view the slides without disturbance.

sudha.M, Assistant Professor Munitrathnam 11:32 AM  
good morning all

Barsharani Borah 11:32 AM  
Helpful

You 11:32 AM  
Mragraj singh samant plz stop presenting sir

Dr. M. G. Ragnathan Principal 11:33 AM  
Good,Dr Bharathi

Muskan Shukla 11:33 AM  
Vioce problem

SANA ZIYA 11:33 AM  
Can't see ppt

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REC

National Webinar on In-vitro animal Ce... X

People (249) Chat

please feedback link send to email [muskanshukla5446@gmail.com](mailto:muskanshukla5446@gmail.com)

Parimala Basappa 11:35 AM  
I pinned bt control see ppt

Laxmi Sowmya 11:35 AM  
Can you provide us with the softcopy of the presentation please?

DR. JAYANTHI J 11:36 AM  
Pls pin Dr. Bharathi Ravikrishnan mam to view the slides without disturbance.

Padma Shan 11:36 AM  
Very interesting session

Jitendra Tiwari 11:37 AM  
Very nice and useful session

sundaram sivakumar 11:37 AM  
There will be two Dr. Bharathi Ravikrishnan. Pls check the both and pin the one that shows the slides. So that you can view the slides without disturbance.

Dr. M.N. Kolpuke has left the meeting

**Subpassages**

**Trypsin: with EDTA and Glucose, suspended in PBS buffer**

**Adherent Monolayer of cells**

**Free floating -Trypsinised cells**

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REC Dr. Bharathi Ravikrishnan is presenting

National Webinar on In-vitro animal Ce... X

People (249) Chat

DR. JAYANTHI J

Basavaraj karwar 11:42 AM  
Very useful session

Deva Kumar

Shah Altaf 11:42 AM  
How can I see slides?

vishali vishali 11:42 AM  
Email ID [vishallekha97@gmail.com](mailto:vishallekha97@gmail.com) please share ppt mam

Abdullah khan 11:43 AM  
This question has been asked in many exams

Sonal Verma 11:43 AM  
Very interesting session

You 11:43 AM  
There will be two Dr. Bharathi Ravikrishnan. Pls check the both and pin the one that shows the slides.

**Cryopreservation**

Remove the growth medium, wash the cells by PBS and remove it by aspiration

Dissociate the cells by Trysin

Dilute the cells with growth medium

Centrifuge the cells at 200g for 5 minutes at RT and remove the medium by aspiration

Resuspend the cells in the freezing medium (1 to 2 ml) containing DMSO

Transfer the cells to cryovials and incubate at refrigerator condition, then to freezer temp, then to -80°C

Next day transfer the cells into the Cryocoolers

Dr. Bharathi Ravikrishnan is presenting

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