



محاضرة رقم: 7

¹ Lecture No 7:

Advanced laboratory technique

TISSUE CULTURE

Sawa University

College of health and medical techniques

Department of Medical Laboratories

. Stage third

جامعة ساوة الاهلية

كلية التقنيات الصحية والطبية

قسم تقنيات المختبرات الطبية

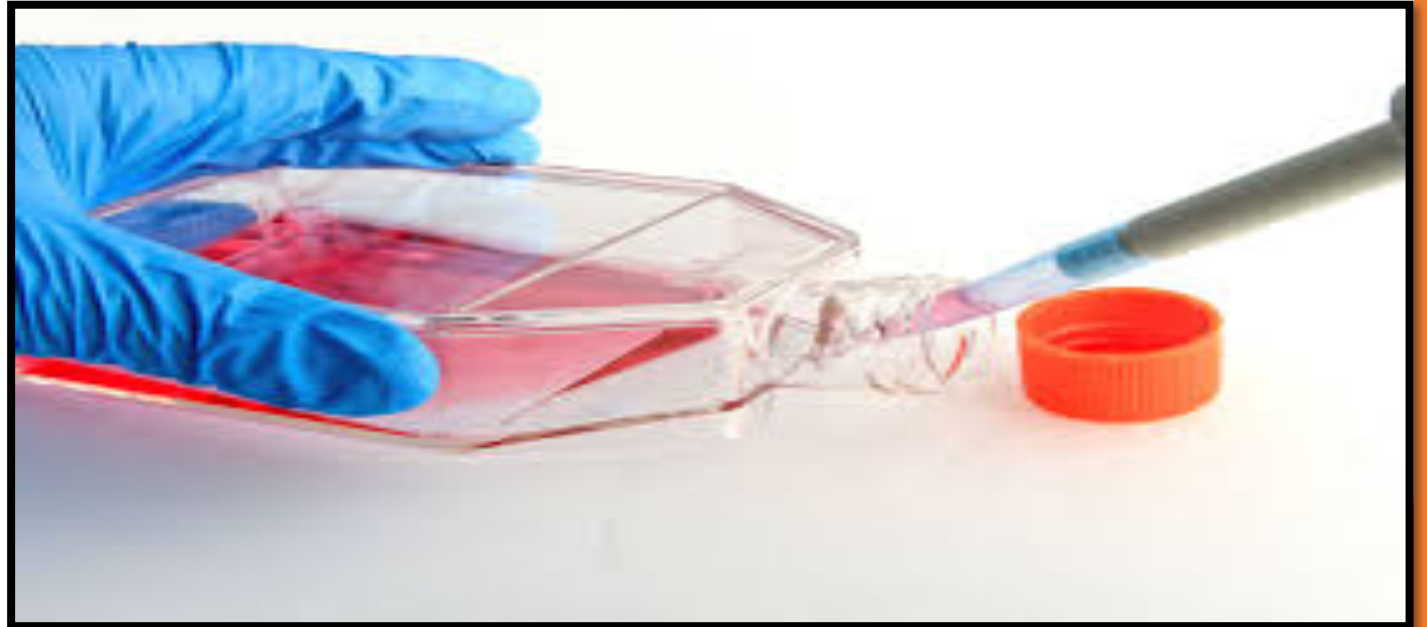
المرحلة / الثالثة

Practical

تدريسي المادة : م.م ايمان علي اعطيه
م.د طيبه شاكر

Tissue Culture

Tissue culture is a **biological technique** used to **grow cells or tissues** from **plants or animals** in an artificial medium **outside** their natural environment . It is widely **applied in research , medicine , and genetic engineering**



Steps of Tissue Culture:

1. **Sample Preparation:** Select a suitable sample from plant or animal tissue (e.g., **skin cells** or **plant fragments**). Sterilize the sample and tools to avoid contamination.
2. **Tissue Dissection and Dissociation:** Cut the sample into small pieces or dissociate it mechanically or enzymatically (e.g., using trypsin) to release cells.



Steps of Tissue Culture:

3. Preparation of the Culture Medium: Prepare a nutrient-rich medium containing essential components (amino acids, vitamins, glucose) and antibiotics to prevent microbial growth.

4. Inoculation of Cells into the Medium: Place the cells or tissue fragments in Petri dishes or flasks containing the medium.

Steps of Tissue Culture:

5. Incubation:

Incubate the cultures in a controlled environment (e.g., 37°C for animal cells) or appropriate light for plant cells.

6. Monitoring Growth: Regularly check the cultures under a microscope to monitor cell growth and ensure they remain free from contamination.

7. Sub-culturing (Passaging):

Transfer cells to a new medium when they reach high density to allow further growth.

8. Storage or Utilization:

Cells can be cryopreserved at -80°C or in liquid nitrogen for future use.



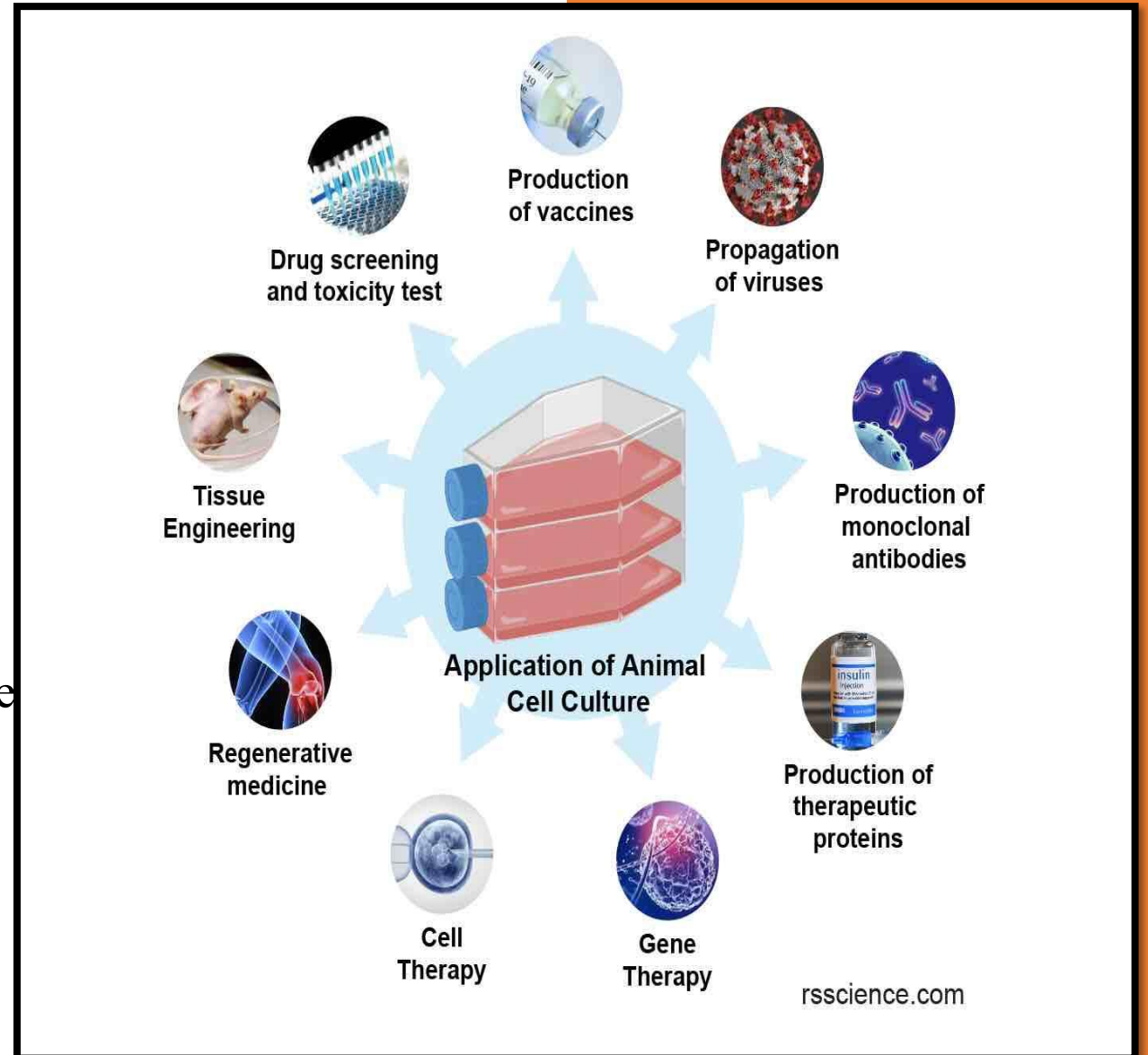
Applications of Tissue Culture

- Production of disease-free plants
- Cloning valuable plants
- Vaccine production
- Cancer research
- Genetic engineering
- Drug testing
- Regenerative medicine and stem cell therapies

Common Problems & Contamination

- Bacterial contamination: cloudiness in media
- Fungal contamination: white or black fuzzy colonies
- Mycoplasma contamination: invisible → affects growth

How to avoid contamination ?



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- Explain the main steps of tissue culture and describe the purpose of each step,

Any questions?

*Thank
You*