

12.03.2026

CORSO:
FISIOLOGIA DEI SISTEMI

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**Piattaforma
E-learning**

GENERAL INFORMATION

Lessons:

Lunedì 14:30 - 16:30 (14.00 - 17.00) ??

Giovedì 8.30 - 10:30

total 48h from which 1/4 theory and rest laboratory

Exercises:

4 groups (A, B, C, D) +/- 30 person/group every group divided in small group for 3 (total 10 groups each time)

Report after every exercises

Final rate:

Average of 2 intermediate tests 23.04.2026 (I) and 25.05.2026 (II)

to increase final vote you can prepare reports after every practical lessons (exercises) - facultative

12.03.2026	Giovedì: 8.30 - 10.30	Introduction and course organisation.	27.04.2026	Lunedì: 14.00 - 17.00	LAB III (Group A, B) Kariotyping
19.03.2026	Giovedì: 8.30 - 10.30	Lab organisation, safety, equipment, general informations etc. Primary and Cell Culture	30.04.2026	Giovedì: 8.30 - 10.30	Differenziazione Cellulare
26.03.2026	Giovedì: 8.30 - 10.30	Media composition, role of serum, pH, Oxygen, buffering, osmolality, temperature, serum free medium advantages and disadvantages	04.05.2026	Lunedì: 14.00 - 17.00	LAB III (Group C, D) Kariotyping
30.03.2026	Lunedì: 14.00 - 17.00	LAB I (Group A, B, C) Primary Culture	07.05.2026	Giovedì: 8.30 - 10.30	Reprogramming, Somatic Cell Nuclear transfer
02.04.2026	Giovedì: 8.30 - 10.30	LAB I (Group D) Primary Culture	11.05.2026	Lunedì: 14.00 - 17.00	LAB IV (Group A, B) Cell characterisation
09.04.2026	Giovedì: 8.30 - 10.30	Cytotoxicity Cell Characterisation	14.05.2026	Giovedì: 8.30 - 10.30	Base di Embryologia
13.04.2026	Lunedì: 14.00 - 17.00	LAB II (Group A, B) Cell Freezing	18.05.2026	Lunedì: 14.00 - 17.00	LAB IV (Group C, D) Cell characterisation
16.04.2026	Giovedì: 8.30 - 10.30	Cryopreservation vs Lyopreservation	21.05.2026	Giovedì: 8.30 - 10.30	Lezione Magistrale (Prof. Loi)
20.04.2026	Lunedì: 14.00 - 17.00	LAB II (Group C, D) Cell Freezing	25.05.2026	Lunedì: 14.30 - 17.30	TEST INTERMEDIO 2
23.04.2026	Giovedì: 8.30 - 10.30	TEST INTERMEDIO 1	28.05.2026	Giovedì: 8.30 - 13.30	International Conference" Reversible Drying in Cells and Germplasm: Vegetal and Animal Biomimicry Urgently Needed
			04.06.2026	Giovedì 8.30 -10.30	FINAL TEST

PLANNING DELLE LEZIONI (theoretical)

1. Introduction and course organisation. Lab organisation, equipment, safety,
2. Importance of cell/tissue culture, definition, advantages and disadvantages of cell lines, type of cell/tissue culture.
3. Medium composition, role of serum (advantages and disadvantages), buffering, pH, osmolality, temperature, serum free medium.
4. Cytotoxicity
5. Cell Characterisation
6. Cryopreservation vs Lyophilisation
7. TEST I

PLANNING DELLE LEZIONI (theoretical)

1. Cells differentiation,
2. Karyotype
3. Somatic cell Nuclear Transfer (SCNT)
4. Nuclear reprogramming,
5. Base of the Embryology
6. **TEST II**

PLANNING DELLE LEZIONI (practice)

1. Establishment of primary cell line
2. Cell line characterisation (nuclear (Hoechst DNA) /mitochondrial (Mitotracker)/cytoskeleton (Actin) staining
3. Cells splitting
4. Cells counting
5. Freezing cells (cryopreservation)
6. Kariotype

Goals of the course

1. General idea how to “move” in the lab - sterile conditions
2. Basic techniques of a laboratory of cell culture
3. Communication skills for working in groups
4. Working independently.
5. Learning skills and working with protocols
6. How to write laboratory reports

EXPERIMENT NO: 9

DATE :

CULTURE OF VIRUS IN CHICK EMBRYO

Aim: To adapt and propagate New castle disease virus in chicken embryo

Principle

Virus is an obligate endoparasite which can grow inside the host. It is effectively grown in embryonated egg i.e. viral suspension is inoculated into the egg allantoic membrane, where it infects the embryo by replication or multiplication. The infected embryo forms lesion on it.

Materials required

- Eighth day embryonated egg
- Iodine-alcohol disinfectant
- Syringe
- Scotch tape
- Incubator
- NDV suspension culture

Method

1. Surface sterilize an embryonated egg.
2. Locate the position of air sac by holding the long axis of egg horizontally in front of a light source and mark the position.
3. Sterilize the needle by dipping in alcohol and then flaming it.
4. Use this needle to make a small hole or puncture the shell over the air sac. The membrane at base should not be punctured.
5. Inject 0.2ml of dilute viral suspension into the allantoic cavity. Seal the hole in the shell with scotch tape.
6. Maintain an uninoculated control by injecting 0.2ml of sterile saline and incubate at 37°C in incubator.

Observation

Examine the egg periodically in front of light source for embryo death (usually takes 3-4 days) This is indicated by cessation of movement and disappearance of veins from egg shell. Once embryo death has been confirmed then crack the shell and collect the contents in a Petridish. Repeat the procedure with control egg. Compare the two embryos the infected embryo will have lesions on it. Virus can be separated from the infected tissue and purified.

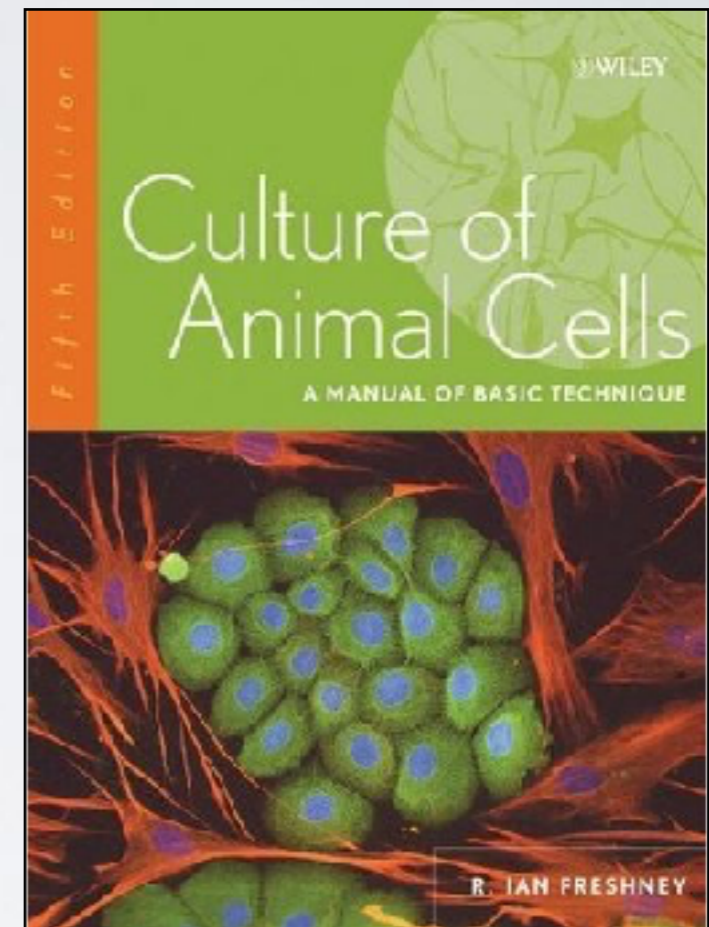
← What for?

← Important!

FOR EXAM

SLIDES

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Pdf in English and Italian
available