بسم الله الرحمن الرحيم

Animal Biotechnology Student Name:
2nd Exam Student Number
Dr. Marwan Abu-Halaweh
With my best wishes for your success .

I- Chose the correct answer:

1- Gene transfer by Microprojectiles characterized by
- **A- Use of DNA coated gold particle.**
- B- This technique is safe and will not cause any damage for plant or animal tissue.
- C- Widely used in animal
- D- A and B
- E- B and C

2- Intracellular Microinjection:
- A- Overcomes many of the biological and other obstacles.
- B- This technique is safe and will not cause any damaged to cell or tissue.
- C- DNA amount is very limited (less than 2Kb).
- **D- A and B**
- E- B and C

3- Different problem associated with Gene Transfer by Retrovirus
- A- Social rejection of customer o accept product modified by this technique.
- **B- recombination between both disabled vectors to generate a fully functional retrovirus**
- C- Limited foreign DNA size approximately 200 kb can be transferred into an organism.
- D- A and B
- E- All of the above

4- Which of the following is not correct for macroinjection:
- A- gene transfer technique involves the use of injection needles with diameters smaller than cell or even nucleus diameters for delivering DNA.
- B- Precise delivery into targeted cells.
- **C- This technique is not safe as it might end up with dead cells and damaged tissue.**
- D- A and B
- E- A and C

5- Different problems associated with Macroinjection technique such as;

A- Majority of DNA applied get attached to cell wall before they have a chance to enter the cell.
B- Penetration is **increased** by the presence of cell walls.
C- This technique has been employed mostly to ovule embryos
D- All of the above
E- None of the above

6- Liposome's have many properties similar to those of biological membrane.
A- They are easy to manipulate.
B- Their lipid contents can be varied and many substances can be trapped in the inter-lamellar spaces.
C- They are ideal carrier systems and now they are used in gene therapy.
D- A and B
E- A, B and C

7- Which of the following/s is/are consider as an advantage/s of this Lipofection gene transfer method?
A- The liposome's protects the DNA from being damaged by the acidic pH protease, and nuclease activity.
B- Protects of the genetic material from immunogenic reaction.
C- Delivery into specific cell.
D- A and B
E- A, B and C

Q#	Answer Y or F	Statments
1.	F	Methylated DNA is not or poorly transcribed.
2.	T	Presence of the 2nd T-DNA leads to methylation of the genes of 1st T-DNA, thus resulting in expression suppression
3.	T	The adaptation of some fish that live at minus 0.6°C is due to the presence of sodium chloride and other small molecular weight electrolytes
4.	T	Antifreeze protein promoter are naturally occurring non-toxic protein
5.	T	The ocean pout AFP mRNA is expressed in liver, skin, and gills
6.	F	Sonication used ultrasound to facilitate the uptake of nucleic acid into plant cells
7.	T	Transgenic mice are often generated to examine the effects of overexpressing and misexpressing of endogenous or foreign genes at specific times and locations in the animals
8.	T	In mammals development of offspring occur in the uterus.
9.	T	In *in vitro* fertilization eggs are fertilized outside the mother, and then reintroduce into the womb.

10.	T	10- Transient expression is one of the lipofiction disadvantages.

III-Essay Questions:

1- Explain how you can use flow cytometry to differentiate between bull X and Y sperm?

2- When Neomycin phosphotransferase used as reporter, a radioactively labeled ATP (P32) and kanamycin will be added to the media explain why?

3- In animal transgenic the first breeding pair composed of Fertile male and superovulated female? Answer he following question

3-A Why we used feritls male?

3-B What is superovulated female? How you can induce superovulation?

3- C Why you need foster parents

مع اطيب امنيا تي لكم بالتوفيق