

Unit 6 - Cell-material Interaction (in vitro and in vivo) and Clinical trials

Course outline

How to access the portal

Week 1 Introduction to Biomaterials and Biocompatibility

Defining tissue engineering scaffolds and implants

Structure and Properties of Proteins and Cells

Stem cells and Cell fate processes

Cell-material Interaction (in vitro and in vivo) and Clinical trials

Osseointegration

In vivo testing

Cell-Material Interaction

Cell Signalling

In vitro testing

Cytotoxicity Assays

Biocompatibility assay

Clinical Trials-I

Clinical Trials-II

Quiz : WEEK 5 ASSIGNMENT

Manufacturing of Biomaterials (metals, ceramics and polymers)

HA-based Composites

Glass ceramics for orthopedic and dental applications, acetabular socket and femoral head, prototype development

Text Transcripts

WEEK 5 ASSIGNMENT

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-04, 23:59 IST.

1) Which animal model is closer to humans for bone implantation study?

1 point

- mouse
 rabbit
 pig
 dog

No, the answer is incorrect.
Score: 0

Accepted Answers:
rabbit

2) Preferred model for studying the large segmental bone defects is

1 point

- mouse
 rabbit
 sheep
 rat

No, the answer is incorrect.
Score: 0

Accepted Answers:
sheep

3) The foreign body response is indicated by the presence of the

1 point

- components of granulation tissue only
 foreign body giant cells, but absence of the components of granulation tissue
 foreign body giant cells and components of granulation tissue
 Angiogenesis as a result of chemotaxis of foreign body giant cells

No, the answer is incorrect.
Score: 0

Accepted Answers:
foreign body giant cells and components of granulation tissue

4) Under flow conditions in vitro, 'no thrombus', 'adhesion thrombus' and 'shed thrombus' are the tests for the quantification of

1 point

- WBC
 RBC
 platelet adhesion
 thrombin

No, the answer is incorrect.
Score: 0

Accepted Answers:
platelet adhesion

5) Preferred animal models for toxicity study are

1 point

- mice and rats
 monkey
 dog
 pig

No, the answer is incorrect.
Score: 0

Accepted Answers:
mice and rats

6) Qualitative assessment of material-tissue interaction is generally done by

1 point

- hematology
 histology
 spectroscopy
 none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
histology

7) Toxicity is preferably studied in mice and rats because

1 point

- the are small
 they have short life cycle
 of statistical availability
 all of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
all of the above

8) Experts from following streams are involved in Clinical Trials

1 point

- Biomaterials researchers
 Clinicians
 Statisticians
 all of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
all of the above

9) Among the following assays, which one is used to measure the cell viability?

1 point

- MTT assay
 Picogreen assay
 LDH assay
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
MTT assay

10) As a first step towards cell adhesion on a biomaterial substrate,

1 point

- Protein absorption takes place
 Cells change their size
 DNA replication takes place
 Cell differentiation takes place

No, the answer is incorrect.
Score: 0

Accepted Answers:
Protein absorption takes place

11) Internalization of signaling molecule typically takes

1 point

- 15-30 days
 15-30 s
 15-30 hours
 15-30 min

No, the answer is incorrect.
Score: 0

Accepted Answers:
15-30 min

12) Picogreen assay is done for

1 point

- dsDNA quantification assay
 Cell viability
 Differentiation
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
dsDNA quantification assay

13) Focal adhesion complex is formed by interacting

1 point

- cell receptor and surface protein
 cell membrane and surface protein
 nuclear protein and surface protein
 nuclear receptor and surface protein

No, the answer is incorrect.
Score: 0

Accepted Answers:
cell receptor and surface protein

14) The following cells are recruited at the site of implantation

1 point

- Neutrophils
 Monocytes
 Fibroblasts
 All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

15) Recommended animal models for cardiovascular study are

1 point

- sheep & pig
 mice & rats
 rabbit & dog
 none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
sheep & pig