Assignment 1

Due on 2019-09-11, 23:59 IST.

1. Smoking increases postoperative lumbar fusion. In such cases what could be a feasible option?
   - Autograft
   - Allograft
   - Growth factor (Cytokines, protein) delivery
   - OP-Full
   Accepted Answers: OP-Full

2. VESF has half-life of about 50 minutes. Excessive supply of VESF causes abnormal vessel formation which is evident in cancerous tissue. Considering this what could be a better option to achieve therapeutic dose of VESF that leads to healthier vessel formation?
   - VESF alone
   - VESF encapsulated in particles that are embedded in scaffold
   - VESF encapsulated in particles that have endothelial cells cultured on them
   - VESF alone
   Accepted Answers: VESF encapsulated in particles that are embedded in scaffold

3. Considering the degradation rate, which of the following suits as a better matrix for bone tissue?
   - Hyaluronic acid
   - Polypropylene
   - Chitosan
   - Bone marrow cells cultured on titanium substrates
   Accepted Answers: Chitosan

4. Mesenchymal stem cells (MSCs) are widely used in tissue engineering applications due to their multipotency, availability and accessibility. However, heterogeneity of MSCs is one of the major drawbacks. Considering heterogeneity of MSCs, which one of the following would be a suitable alternative to MSCs for bone tissue engineering?
   - iPSCs
   - ESCs
   - GMP defined MSCs
   - Bone cells
   Accepted Answers: iPSCs

5. Porous tissue engineered scaffold need to be tested in animals before clinical trial, which animal is most suited for such study?
   - Mouse
   - Rabbit
   - Pig
   - Monkey
   Accepted Answers: Pig

6. Name any autogenous treatment of cartilage that deprived of tissue-engineering interventions

7. Radio-temporal release of the growth factors to the receptor cells is mediated by
   - Type I collagen
   Accepted Answers: Type I collagen

8. Bioactive ceramic present in our natural bone

9. Sufficient growth factors for tissue engineering applications can be produced by
   - Type I collagen
   Accepted Answers: Type I collagen

10. Better rate of administration of growth factors