

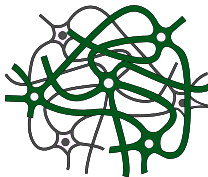
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Past paper Final Lecture 1-2

﴿ إِنِّي تَوَكَّلْتُ عَلَى اللَّهِ رَبِّي وَرَبِّكُمْ مَا مِنْ دَابَّةٍ إِلَّا هُوَ آخِذٌ بِنَاصِيَتِهَا إِنَّ رَبِّي عَلَى صِرَاطٍ مُسْتَقِيمٍ ﴾

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Past paper (1-2)

Which of the following is considered wrong when we use stem cells to treat neurodegenerative diseases?

- A. The cell type to be regenerated and transplanted.
- B. To determine the biological mechanism underlying the observed effects
- C. The stem cell–based approach should show substantial improvement of functional deficits in animal models
- D. Do clinical trials on the patient directly

Which of the following is incorrect?

- A. Stem cells have limited ability to renewal
- B. Adult cells are multipotent
- C. Embryonic cells are pluripotent
- D. None of the above

You have recently heard that stem cells may have a potential in regenerating damaged lung tissue caused by SARS-CoV-2 in COVID-19. Before they can be used in clinic, the following has/have to be checked

- A. Carcinogenicity specificity if pluripotent stem cells are used
- B. The mechanism by which stem cells repair the lost pulmonary function
- C. All experimental stages starts with ex vivo experiment, animal stage, clinical trial of 3 stages
- D. Food and drug administration in the country of practice
- E. All points have to be verified before stem cell can be used as a treatment for Covid-19

Which stem cell is the most potent, can be genetically engineered, and causes minimal immune reaction?

- A) Induced pluripotent stem cells (iPSCs)
- B) Embryonic stem cells
- C) Adult neural stem cells
- D) Hematopoietic stem cells
- E) Mesenchymal stem cells

Which is the best source for adult stem cells in the brain?

- A) Periventricular area (subventricular zone)
- B) Dentate gyrus of hippocampus
- C) Spinal cord
- D) Cerebral cortex
- E) Thalamus

Which statement correctly describes stem cells?

- A) Changes in the niche have no effect on stem cell behavior
- B) They can be used for cell-based therapy and disease modeling
- C) Their niche only drives differentiation and does not maintain stemness
- D) They have limited ability to divide asymmetrically
- E) They can be used directly for therapy after tissue culture testing

you are working on a research project regarding stem cells, cells you are working on have the ability to produce dopamine which can be used to treat parkinson disease, which of the following must be taken under consideration (ethically)

- A) Test on animals for side effects and carcinogenicity
- B) Begin clinical trials immediately
- C) Skip preclinical testing if results look promising
- D) Apply treatment directly to patients
- E) Publish results before safety testing

Which of the following regarding stem cell biology is true?

- A) embryonic stem cells are more potent than adult stem cells
- B) Embryonic stem cells can form both embryonic and extraembryonic tissues
- C) Adult stem cells can form all tissue types
- D) Embryonic stem cells are multipotent only
- E) iPSCs cannot differentiate into neuron

True about stem cells

Answer: embryonal stem cells have
more potency than adults

If you find out that an iPSC is working to produce dopaminergic neurons that can be used in Parkinson's disease, you don't do this:

Answer: start clinical trials to use the technique in patients with Parkinson's disease

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Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			