BB101
Prof. Sanjeeva Srivastava
Feb 07, 2024

Summary of today's session – Lecture 9 -
Development, Stem Cells & Cell Reprogramming

Dear Students,

In today's class, we discussed few fundamental concepts related to development, stem cells and cell reprogramming.

Summary:

Embryonic Development:

- Development progresses through stages like fertilization, cleavage, gastrulation, and organogenesis.
- Morphogenesis shapes the body during these stages.
- Modern reproductive technologies aid in detecting genetic disorders during pregnancy.

Stem Cell Engineering:

- Stem cells play a crucial role in development, transitioning from undifferentiated to differentiated cells.
- Stem cell engineering holds promise for generating various types of differentiated embryonic cells and organ replacement.

Cloning:

Cloning produces genetic duplicates, as shown by the cloning of Dolly the sheep.
The process involves replacing the cell nucleus of an egg with that of a mature, specialized cell.

Ethical Considerations:

- Landmark studies in stem cell research have led to significant advancements but also ethical controversies.
- Discussions around ethics in research and publications are essential, especially in controversial areas like cloning and stem cell research.

Overall, these topics highlight the complex and evolving nature of developmental biology, biotechnology, and the ethical considerations that accompany scientific advancements.

Resource Update:

The course handout and reference materials have been updated and are accessible through the provided Google Drive link:

https://drive.google.com/drive/folders/1FgzzCom1n6WKlgheQrFLA1U8rkJulSGT

Our next lecture will delve into Proteins.

Best wishes,
Sanjeeva