5В060700 - Biology

«Cellular mechanisms of morphogenesis»

Fall semester 2021-2022 academic years

Independent work of student with teacher

1. Signs, properties of the living. Biological levels of organization of living things.
2. Non-cellular life forms. Prokaryotes and eukaryotes.
3. Evolutionary prerequisites for the creation of cellular and tissue levels of organization.
4. Morphogenesis: definition, history of study, examples.
5. Morphogenesis - Genetic and molecular basis: Transcription factor.
6. Morphogenesis - Genetic and molecular basis: Cell junction.
7. Cellular mechanisms of morphogenesis: Cell migration.
8. Cellular mechanisms of morphogenesis: Cell adhesion.
9. Hedgehog signaling pathway.
10. Cellular mechanisms of morphogenesis: Gastrulation.
11. Epithelial–mesenchymal transition.
12. Morphogenesis - Cellular basis: cell-to-cell adhesion.
13. Morphogenesis - Cellular basis: extracellular matrix.
14. Morphogenesis - Cellular basis: cell contractility.
15. Cellular differentiation. Tissue growth.
16. Differential adhesion hypothesis.
17. Embryonic differentiation waves.
18. Cancer morphogenesis.
19. Virus morphogenesis.
20. The organelle of differentiation in embryos: the cell state splitter