

LIST OF ESSAYS FOR THE FINAL LESSON ON THE SUBJECT

1. Evidence of the genetic role of DNA.
2. Distribution and role of microorganisms in nature.
3. Practical use of microorganisms.
4. What are probiotics, prebiotics and synbiotics? Give examples and their areas application.
5. How can renewable energy be obtained with the help of microorganisms?
6. Regenerative medicine of the future.
7. Prospects for the development of cell therapy.
8. Prospects for the creation of artificial organs.
9. What is tissue engineering?
10. What is therapeutic cloning?
11. The problem of cell differentiation, dedifferentiation and reprogramming
12. differentiated cells.
13. Mechanisms of cellular aging.
14. Possibilities of regeneration of multicellular organisms.
15. The problem of intracellular compartments.
16. Mobile elements of the genome - modern ideas
17. Evolution of the concept of a gene (ENCODE project)
18. Modern ideas about the structure of the eukaryotic gene (ENCODE * project)
19. Homeosis genes of plants
20. Homeosis genes of vertebrates
21. Phenomenon of RNA interference
22. Why are transgenic plants needed and what are they?
23. Why are transgenic animals needed and what are they?
24. Therapeutic antibodies are the basis of personalized medicine
25. Symbiosis - cellular engineering in nature
26. Molecular modeling of biostructures
27. Proteomics is a new direction in the research of protein systems of the cell.
28. Molecular motors
29. Transport ATRAses - properties and biological role

30. 1946 - Discovery of the mutagenic effect of X-rays (H. Meller)
31. 1958 - Discoveries concerning genetic recombination and organization genetic material in bacteria (D. Lederberg)
32. 1983 - Discovery of mobile elements of the genome (B. McClintock)
33. 1993 - Discovery of the discontinuous gene structure (R. Roberts, F. Sharp)
34. 1995 - Discovery of genetic control of embryonic development of animals and its role homeosis genes (E. Lewis, K. Nusslein-Volhardt, E. Wischhaus).
35. 2002 - Discovery in the field of genetic regulation of the development of human organs (nematode - S. Brenner, R. Horwitz, D. Sulston)
36. 2006 - Discovery of RNA interference (K. Mello, E. Fayer)
37. 2007 - Development of technology for obtaining transgenic animals based on ESC (embryonic stem cells) (M. Capecki, O. Smithis, M. Evans)
38. 2012 - Works in the field of developmental biology and obtaining induced stem cells cells (S. Yamanaka, D. Herdon).