

## Clinical bioinformatics: subject and objectives

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At the end of the 20th and the beginning of the 21st centuries, it was accepted that "bioinformatics" is a science, the subject of which is the study of the information state (structure) and information processes in biological systems. In other words, the subject of science "bioinformatics" is the study of the processes of receiving, transferring, processing and storing information in living systems. With this definition, the subject of science "bioinformatics" includes the study of information processes involved in regulation and control at all levels of living systems - from macromolecules to the brain of higher animals and humans (Skrypnyuk 1999 A, 1999 B, 2002; Chailakhyan, 2005).

However, if we draw an analogy between "biochemistry", "pathological biochemistry", "clinical biochemistry", then in addition to the term "bioinformatics" it is necessary to accept the terms "pathological bioinformatics" and "clinical bioinformatics".

If "bioinformatics" or "normal bioinformatics" studies information processes in "normal" (healthy) biological systems, then "pathological bioinformatics" studies information processes in the process of pathogenesis, and "clinical bioinformatics" opens ways not only for understanding the information mechanisms of pathology, but also for understanding the mechanisms of sanogenesis, which allows you to actively intervene in the treatment process, change the schemes and means of therapeutic action.

The main objectives of clinical bioinformatics are:

1. Study of molecular and cellular mechanisms of admission individual information signals and information messages (reception of information signals) in the process of pathogenesis and sanogenesis.
2. Research on the role of various media (physical, chemical) in the pathogenesis and sanogenesis of various diseases.
3. Research of mechanisms of violation of coding and transcoding information in living systems and their recovery.
4. Investigation of the mechanisms of errors in translation information from one biological language to another.
5. Investigation of mechanisms of damage to the structure and function of channels transmission of information in human and animal organisms and their restoration.
6. Research of mechanisms of violation of fixation (memorization) and storage (memory) information and their recovery.
7. Investigation of the violation of processing mechanisms, interaction information and their recovery.
8. Investigation of the violation of the mechanisms of generation of a biological response to information signals, messages (electromechanical coupling, signal-secretion coupling) and their restoration
9. Investigation of the mechanisms of damage to feedbacks in living systems and their recovery.
10. Investigation of mechanisms of violation of the dynamics of information messages in living systems, their recovery.

#### Literature

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Z.D. Skrypnyuk Clinical bioinformatics: subject and tasks // XIII