On Mathematical Models of Regulatory Mechanisms of Cellular Communities

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The notion of functional units of cellular communities which is entered in the works [1,2] allows to realize mathematical and computer modelling cellular community regulatorika with taking into account the main uniform groups of multicellular organism cells and temporal relations in its regulation system. According to entered notion, the cells of multicellular organism in the course of performing the general functions are united in structural-functional formation, consisting of character cells groups, fulfilling the following functions: dividing, growing, specialization, fulfilling the specific functions and aging, i.e. united in Cellular Communities Functional Units (CCFU), its spatial and functional formation forms organs and tissues of multicellular organism. In the given work the basic tendencies for quantitative researches of cellular communities, possible methods for mathematical modelling a regulatorika of cellular communities on the basis of the CCFU functional-differential equations for multicellular organism are considered. The results obtained on application of the given approach for the quantitative analyzing CD4 lymphocytes dynamics in immune system at HIV/AIDS; computer modelling regulatory mechanisms between hepatocyte and hepatitis B and D virus's molecular-genetic systems under delta-hepatitis are given.

References

[1] M. Saidalieva, *Modelling of Regulation Mechanisms of Cellular Communities*, Scientiae Mathematicae Japonicae **58** (2) 415-421, 2003.

[2] M. Saidalieva, *Modelling of regulatory mechanisms of cellular communities of multicellular organism*, Mathematicheskoe modelirovanie **16** (10) 67-80, 2004.