

THE ORIGIN OF BIOLOGICAL INFORMATION

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A living entity can be described as a complex adaptive system which differs from any, however complex, chemical structure by its capability of functional self organization based on processing of information. If one asks where does this information come from and what is its primary semantics the answer is: information generates itself in feedback loops via replication and selection, the objective being " to be or not to be ".

Experimental studies referring to different levels of molecular organization are described. They shed light on how genetic information originates.

Although viruses, as we know them today, are presumably of a postbiotic origin, i.e. depending on the existence of proper hosts, the examples well demonstrate nature's strategies of generating information by molecular evolution. The experiments were carried out with the help of automated, computer-controlled bioreactors, called " evolution machines ", that form the basis of a new " evolutionary biotechnology ".

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