

GENOMIKA - NOWA STRATEGIA BADANIA WŁAŚCIWOŚCI BAKTERII CHOROBOTWÓRCZYCH

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1. Narodziny genomiki. 2. Genomika funkcjonalna — poszukiwanie genów wirulencji. 3. Ewolucja — horyzontalny transfer genów. 4. Genomika porównawcza. 5. Podsumowanie

Genomics — new perspective for understanding bacterial pathogenicity.

Abstract: The powerful combination of the gene cloning methods with the rapid progress in the sequencing techniques followed by the combination of genomics and bioinformatics provided fresh insight into physiology and pathogenicity of many important agent of human diseases. Analysis of the complete genome sequence allows to classified annotated ORF, potentially encoded the proteins, into three broad categories: those, whose putative function can be assigned, those having an orthologues of undefined functions and orphan genes confined to the analyzed pathogen. The complete sequencing of a number of microbial genomes is providing an opportunity to study global gene expressions and protein — protein interactions by DNA microarray technology. Genome-wide approaches will advance our knowledge and understanding how a whole cell function and how it responds to its environment. The availability of the complete genome sequences of closely related bacterial species as well as pairs of isolates from the same species resulted in comparative analysis to select small set of genes that may be of relevance of specific physiology and „life style” of the pathogen. Finally, rapid genomes and bioinformatics progress allow better understanding of the speciation and evolution of bacterial genomes.

1. Origin of genomics. 2. Functional genomics — in search of virulence genes. 3. Evolution and speciation — horizontal gene transfer. 4. Comparative genomics. 5. Conclusion

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