

Annotation

Bioengineering of microorganisms

Bioengineering of microorganisms uses advances in bioengineering to redesign and modify microbial systems for biotechnological applications. The latest technologies are being developed and applied for the development of microbial cell factories. Key components of this approach are the use of genome metabolism models and integrated genomics approaches to identify bioengineering and genome optimization to create simplified, stabilized, and highly valued strains as microbial chassis for innovative biotechnology applications. Within the framework of the program of bioengineering of microorganisms, protein engineering is considered - a set of genetically engineered and biochemical methods, with the help of which recombinant proteins are created and the physicochemical or biological properties of natural proteins are modified to improve their quality and create proteins with new properties; obtaining vaccines, antigens, hormone, diagnosticums, immunomodulators, antibiotics using genetically engineered microorganisms, bioremediation - biodegradation, biotransformation by bacteria; social behavior and communication systems of bacteria, biofilms, bioengineering of bacteria in biofilms for use in *in situ and ex situ* bioremediation strategies, geomicrobiology and ecology of oil and coal mining, mining for gold and precious metals.