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The history of bioprocess technology in drug discovery and its future perspectives

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Bioprocess technology encompasses all of the basic and applied sciences in microbiology, biochemistry and molecular biology as well as the engineering aspects to fully exploit living systems and bring their products to the market place. To-day bioprocesses have become widely used in several fields of commercial biotechnology including in medicines and drug discovery. While our understanding of biotechnological process has rapidly and remarkably advanced in recent years, it has been in existence since prehistoric times, making it one of the oldest technology even before the discovery of the field of microbiology. The discovery of microbial enzymes and the development of bioconversion technology led to the production of new drug with high yields and cost effective. Bioconversion process is also known by the name biotransformation and refers to the use of living organisms or its extracted enzymes to carry out chemical reactions that are not feasible or costly when produced by synthetic chemistry methods. These enzymes convert a substance to a chemically modified form with multiple uses and applications including medicines. In the 1980s, the recombinant gene technology led to the production of genetically engineered insulin for diabetes as the first product manufactured with recombinant technology. This newly developed genetic engineering technology has led to the introduction of a large number of new bio drugs such as interferon, tissue plasminogen activator, erythropoietin, colony-stimulating factors, and monoclonal-antibodies.

Biography

Osama O Ibrahim is a highly-experienced Principle Research Scientist with particular expertise in the fields of biochemistry, microbiology, molecular biology, and bioprocessing for both pharmaceutical and food ingredients. He was external research liaison for Kraft Foods with universities for research projects related to bioprocessing and molecular biology. In the 2005, he accepted an early retirement offer from Kraft Foods and formed his own biotechnology company (Bio Innovation) providing technical and marketing consultation for new start-up biotechnology and food companies. He holds three bioprocessing patents and received his PhD in basic medical science (Microbiology, Immunology and Molecular biology) from New York Medical College. He is a Member of American Chemical Society, American Society of Microbiology, and Society of Industrial Microbiology since 1979.

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