

Current excitement in health biotechnology

*Excerpts from the State of the Art lecture delivered by **Dr. Anwar Nasim SI*** at the inaugural session*

Biotechnology is defined as “any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use”. He discussed in detail the magic molecule DNA, powerful techniques of DNA manipulation, genetic engineering, Molecular Medicine, Human Genome Project and Gene Therapy. DNA damage, Dr. Anwar Nasim stated, leads to different diseases and at present four thousand five hundred diseases are known to have genetic relevance. The importance of biotechnology can be very well imagined from the fact that out of the last twenty noble prizes, twelve have been awarded for discoveries in genetics. The first catalogue of known genes and genetic disorders was published in 1966. More recently in April 2007 Heart valve was grown from stem cells and stem cells also provided hope for the diabetics. Again in April 2007 GM insulin breakthrough was reported.

Polymerase Chain Reaction (PCR) is now used for genetic manipulations, detection of hereditary diseases, identification of genetic fingerprints, diagnosis of infectious diseases, cloning of Genes, Paternity testing and DNA compounding. Speaking about the top ten biotechnologies for improving health Dr. Anwar Nasim listed the following:

1. Molecular technology for diagnosis of infectious diseases.
2. Recombinant technologies to develop vaccines against infectious disease.
3. Technologies for drug and vaccine delivery system

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4. Sequencing pathogens genomes to identify new antimicrobials
5. Bioinformatics to identify drug targets and to examine pathogen
6. Recombinant technology to make therapeutic products like Insulin and Interferon.
7. Combinatorial chemistry for drug discovery.

Biotechnological innovations can be incorporated in development process and they have a role in agriculture, health, environment and industry. Biotechnology has a role in not only medicines but also vaccines, diagnostics and Gene therapy. Biotech medicines are useful in anemia, cystic fibrosis, growth deficiency, hemophilia, leukemia, hepatitis, genital warts besides transplant rejection and many forms of cancer. COMSTECH, Dr. Anwar Nasim said has at present many research programmes in Applied Biotechnology in various countries of WHO EMRO region which includes Egypt, Iran, Jordan, Lebanon, Morocco, Oman, Pakistan, Syria and Tunisia.