GENE TECHNOLOGY

GENE THERAPY AND DNA DIAGNOSTICS

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GENE THERAPY

Introductions:

1. Human Genome Project – Public concern corruption of Human Gene population over the years. - genomics beyond 2000 -
2. Germline Gene Therapy / Somatic cell Therapy / Ex vivo, In vivo
3. SNPs in Human Genome Project - Accumulation of defective genes in future generation. Future Gene Therapy – open field test for patients – Ethical issues and public awareness
4. Liposomes: unilayer and multiplayer, DNA and drug entrapment – liposome delivery through blood system - Isolation of human genes – use of wild type gene in genetic disorders virus infecting human.
5. Development of non-oncogenic vectors – use of viral vectors as vehicles for gene delivery antisense RNA its use in therapy – Therapy for lung cancer and other human and animal diseases.

DNA DIAGNOSTICS

Introductions:

1. Important of DNA Dignotics – Genetic diseases / Genetic disorders and attempts for cure - Methods of identification of diseases, Genome-based medicine — prospects
2. Probes for identification – future problems and possible remedial messures
3. Polymerase chain reaction, long template PCR system, High fidelity PCR system, RT PCR, RFLP, RAPT, PCR – ELISA – Thermostalbe DNA polymerases, Taq DNA polymerases, PWO, DNA polymerasem Tth DNA polymerase, vent. DNA polymerase
4. Identification of human and primate genomic sequences SINE (short interspersed repeat sequences) – PCR primers for Hepatitis, B virus, diagnosis of human viral disease, Vairable number tandem repeats (VNTRS), short tandem repeats (STRS)
4. Sex-specific probes, detection of genetic mutations, detection of food-borne pathogens, Forensic applications, relationship among plant species primer design, choice of polymerase

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