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| 1. **Nanoparticle Drug/Gene Delivery System**

 **Designing and evaluating Liposomal formulations** -Poorly water-soluble drugs encapsulation - Remote loading technique - Intravenous, oral, topical, and nasal formulations **Designing and evaluating solid lipid nanoparticles (SLNs)**- Cosmetic formulations for topical application **Designing and evaluating other nanoparticles**-Polymeric Nanoparticles - Lipid-Polymer nanoparticles - Silica-based nanoparticles -Micelles -Hydrogels -Nanoemulsions -Theranostic agents1. **Tumor Targeting**

 **Targeted Drug Delivery** - Active targeting with Antibody, Peptide, Aptamer, etc. - Design Aptamer targeting ligands - Targeting Cancer Stem Cells  -Targeting Tumor Microenvironment -Responsive nanomaterials - Overcoming blood brain barrier - Combination therapy - Double targeting **Enhancing Drug Penetration in Tumor** -Modulating Tumor Microenvironment -Modulating Tumor Vasculatures1. **Vaccine Delivery Systems**

 **Cancer Vaccines** - Antigen delivery systems - Dendritic cell-based vaccines **Vaccine delivery systems against infections**- Liposomal delivery systems for cutaneous leishmaniosis-Animal model of leishmaniosis1. **Immunotherapy**

**Chemo-immunotherapy**- Dendritic Cell therapy for cancer - manipulating the tumor-associated macrophage phenotype- Immune Checkpoint Inhibitors for cancer chemo- immunotherapy1. **Biopharmaceutics and Pharmacokinetics**

 **Analysis of biodistribution** -Analysis of Drug concentration in the mice model - Analysis of Pharmacokinetic parameters by non-compartmental model1. **Stem Cells**

**Isolation and characterization**- Isolation from different sources including human, mouse and rat **Cell therapy and delivery system** -Designing engineered exosomes- Cellular vehicles for drug/gene delivery 1. **Tissue engineering:**

**Scaffolds and Regenerative medicine**-Designing and evaluating the new scaffolds -Wound healing and skin regeneration |