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| * **Tissue engineering**    + - * **Scaffolds designing**       * Designing and evaluating the new scaffolds with tissue/organ de-cellularization       * Designing and evaluating the new scaffolds with 3D printing method       * Designing and evaluating the new scaffolds with freeze drying method       * Designing and evaluating the new scaffolds with electrospinning method * **Stem cell technology**   + - * **Stem cell based therapies**       * Cell therapy for the treatment of chronic disease of liver, kidney, heart, bone fractures, cartilage problems and cancers       * Using stem cells as cellular vehicles for delivering of drugs and genes       * **Stem cell differentiation recipes and treatments** * Evaluation the stem cell behavior under treatment with different drugs, biological molecules, etc. * Investigating the new materials that induce or inhibit stem cell differentiation * **Nano-biotechnology**   + - * **Nanoparticle drug delivery systems**         + Designing and evaluating self-assemble structures: micelles; peptosomes, polymersomes and biological vesicles         + Hybrid lipid-polymer nanoparticles         + Coordinated metal-based hybrid platforms * Hydrogels * Biomaterial synthesis including synthesis of amphiphilic copolymers, inorganic nanoparticles, metal organic frameworks, covalent organic frameworks, prodrugs, intelligent drug conjugates and inorganic and targeted nanoparticles * Designing nanodrug delivery systems for wound healing and skin regeneration * Designing engineered exosomes * **Aptamer-based sensors** * Electrochemical Aptasensors * Optical Aptasensors   + - * **Therapeutic oligonucleotides**       * Crisper technology       * siRNA/MicroRNA, shRNA       * Therapeutic aptamers * **Immunotherapy**   + - **Immunomodulatory compounds** * Searching for new natural or synthetic compounds with the ability to modulate macrophage or lymphocyte phenotypes * Designing and evaluating of nanoparticles for improved immunotherapy * **Cancer chemotherapy and hormone therapy**   + - **Tamoxifen (TAM) resistance in ER+ breast cancers** * Investigating molecular mechanisms involved in TAM-resistance cells * Examining new strategies to overcome TAM-resistance in breast cancers   + - **Multidrug resistance (MDR) in cancers** * Exploring Gene expression regulation of MDR pumps * Searching for new natural or synthetic compounds with the ability to reverse MDR phenotype in cancer cells * **Fermentation**   + - **Production of active metabolite**       * Optimization of production       * Designing new system     - **Probiotics** * Searching microorganisms modifying microflora |