

A preliminary in-vitro study of the carbon mesh as a scaffold for growth of fibroblasts

Mamta Negi

Division of Surgery, Indian Veterinary Research Institute, India

Tissue engineering is the process of creating functional 3-D tissue combining cells with scaffolds that facilitate cell growth, organization and differentiation. The most important aspect of tissue engineering is the adhesion and proliferation of cells on scaffold material. The cells are grown on the scaffold that functions to provide mechanical support for cells and synchronize the functions of cells in a manner analogous to extracellular matrix. Carbon as an inert element has advantages over other materials because it is a basic constituent of tissues. The high proportion of the tissues of living organisms is composed of carbon compounds so it should be tolerated by the tissues. The fibroblasts are common cells present in the connective tissue that synthesizes and continuously secretes precursors of extra cellular matrix. Fibroblasts provide a structural framework for many tissues and play a critical role in wound healing. To develop a novel biomaterial for wound healing in-vitro biocompatibility of carbon mesh is tested. In the present study, carbon mesh is cut in desired size and after sterilization placed in six well cell culture plates. The mesh was co-cultured with mouse embryonic fibroblast (MEF) cells. At different time intervals the viability and proliferation of the MEF cells was evaluated using Phase contrast inverted microscopy, Light microscopy and Scanning electron microscopy. The results will be discussed in detail at the time of presentation.

Biography

Mamta Negi completed her Master in Biotechnology with specialization in Animal Biotechnology from Allahabad Agricultural Institute Deemed University, Allahabad, Uttar Pradesh and is pursuing PhD from the same Institute. She has published papers in reputed journals and some are under communication. Presently, she is working as JRF in the DBT sponsored project entitled "Development of the 3-D biodegradable matrices for reconstructive surgery" investigated by Dr Naveen Kumar in the Division of Surgery, Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh.

naveen@ivri.res.in

Regenerative nanomedicine 'dendrimer' in blood-brain barrier drug delivery and targeted therapy of cerebral palsy

Manasa Subbarao and Kousalya R

Department of Biotechnology, University of Mysore, India

Nanotechnology is the design and assembly of submicroscopic devices called nanoparticles. With a high burden of disease coming from neurological disorders, nanoneurotechnology, an application of nanoparticles in drug delivery, has provided promising answers to some pressing issues in recent years. Conventional therapeutics, although effective, remain critically below levels of optimum therapeutic efficacy due to presence of the tightly regulated blood-brain barrier and its unique ability to protect the brain from xenobiotics. Nanotechnology has fashioned colloidal drug delivery systems that penetrate the blood-brain barrier, which are similar to the lipophilic and less than 500 Da size molecules for which it generally allows passage. Here, we highlight the recent advances in the understanding of Cerebral palsy and particularly the applications of nanoparticles, nanotechnology-based methods and therapeutic modalities, to diagnose and treat it. Advances in nanoplatform, nano-imaging, and nano-drug delivery will drive the future development of nanomedicine, personalized medicine, and targeted therapy. In neurological diseases, advances in nanotechnology will require accelerated translation to the fields of brain mapping, CNS imaging, and nanoneurosurgery.

Cerebral Palsy is a term which encompasses the neurological disorders caused by some form of damage or injury to the brain, often occurring during development or the birthing process. CP can cause physical disability in human development. Delivery of therapeutic compounds by nanomedicine, called dendrimers, is one of the advanced discoveries in cerebral palsy treatment.

Biography

Manasa Subbarao is a Master of Science in Biotechnology student currently studying at the University of Mysore, Manasagangothri.

zenith.ms918@gmail.com