CELL CULTURE FACILITY

The Cell Culture facility is established in 2008 at Department of Materials Science and Engineering with financial contribution from Department of Biotechnology, India. This facility is used for in vitro testing of biomaterials, which includes the biomineralization, biocompatibility and cell viability test. The facility is currently available in the Laboratory for Biomaterials.

Current cell culture facilities accommodate many sophisticated instruments, like Laminar flow, CO₂ incubators, ELISA microplate reader, and phase contrast microscope. With the available facilities, the researchers are routinely carrying out cell culture experiments to study cell adhesion and cellular functionality on a large array of materials (polymers, ceramics, metals and composites), using various cell lines, including L929 mouse fibroblast cells and osteoblast like cells-Sarcoma Osteogenic Sarcoma (SaOS-2), human Fetal Osteoblast (hFOB), all procured from American Type Culture Collection (ATCC). We are also using different dyes like Hoeschet, Alexa Flour Phalodian, Rodamine, Mitotracker for fluorescence imaging of Osteoblast and Fibroblast cells. MTT assay is used to quantify the cell viability.



A researcher performing cell culture experiment



Schematic of cell-material interaction



L929 fibroblast cells proliferating on a biomaterial



MTT assay results: SaOS2 cell viability

Using an in-house fabricated electric field set up, the experiments can be conducted to study the electric field stimulated cell viability and proliferation on a number of materials.

Contact: Bikramjit Basu, Department of Materials Science and Engineering, IIT Kanpur. bikram@iitk.ac.in