

TGT OsteoGen Bioreactor System

We supply the instrument, You design the experiment...

TGT's OsteoGen bioreactor is a perfusion system designed for bone tissue engineering. This system accommodates 1 to 12 chambers with a single mean flow pump to deliver user specified fluid flow and shear stress to cell seeded scaffolds.

The OsteoGen architecture provides a physiologic support system that enhances metabolic conditions for cell growth and maintenance in a 3-D environment. Physiologic parameters are feedback-controlled for culture reproducibility. The flexible hardware and computer control systems allow for the development of a wide variety of automated experimental protocols with varying levels of complexity (frequency, force magnitude and application profile) and can accommodate scaffolds up to 10 mm in length.

Chamber: The OsteoGen Bioreactor chamber for bone and mineral research was designed to perfuse media through cell seeded cylindrical scaffolds. This three piece bioreactor chamber provides a confined cylindrical space which allows media to perfuse through the scaffold. The chamber has 1 ml compartment volume and houses samples ranging in size up to 10 mm in diameter and 10 mm thick. This autoclavable chamber incorporates machined x-ray windows to allow mineral quantification by micro computed tomography.

DynaGen Stimulator Pump: The OsteoGen Bioreactor System includes the 6Ocr-83 pulsatile hydrostatic pressure stimulator. The 6Ocr-83 stimulator features either a 20 or 40 Newton linear motor that is lightweight, compact, corrosion resistant and compatible with most standard incubators. This stimulator employs pressure control to deliver user defined sine pressure wave forms of physiological magnitude, with a maximum pressure of 200 mmHg. The 6Ocr-83 is integrated with a computer controlled mean flow pump and is capable of low or high flow configurations.

GrowthWorks Control System: A fifth generation design, the GrowthWorks software and control platform includes advanced capabilities, such as multiple waveform control, data acquisition and multi-motor operation. The intuitive software runs on a laptop computer und Windows XP and profiles are controlled by the software and readily monitored using graphical displays. Integrated data acquisition routines capture and record data at user prescribed intervals.

Featuring a 32 bit Intel based CPU and integrated motor drives, the control hardware communicates with the laptop to run four stimulators and simultaneously monitor up to 8 transducers, allowing the researcher to customize the system functionality. The controller can be customized with additional modules for applications requiring automation features or addition axes of mechanical stimulation.

Contact Tissue Growth Technologies for more information