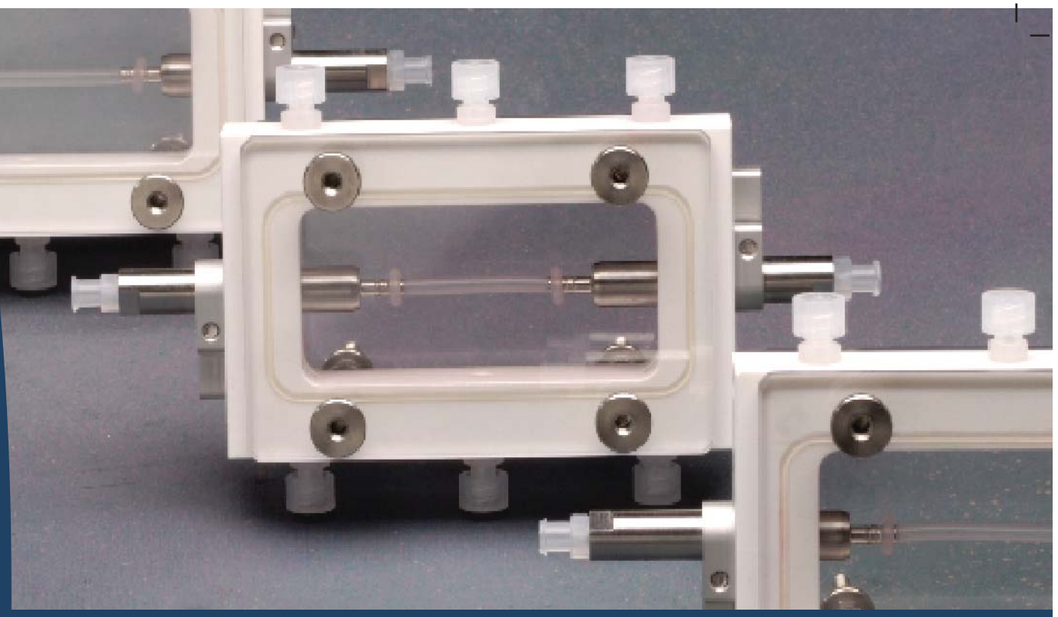
LumeGen



A Pressure Bioreactor System

TGT
tissue growth technologies

DynaGen® bioreactors provide a controllable, 3D environment for stimulating physiological conditions *in vitro*. The LumeGen system imparts mechanical pulsatile pressure to a 3D sample. Applications include investigating cell function, modulating the growth and development of engineered tissues, or acting as a test bed for drug and regenerative medicine technologies.

LumeGen Bioreactor System

Chambers: The LumeGen bioreactor chamber facilitates pulsatile and shear stress stimulation to a single vascular construct. Standard construct sizes may range from 2 - 6mm inner diameter and from 10 to 60mm long. The modular design allows installation of the scaffold and cell seeding independently of the stimulation system. Multiple ports are available for media access, catheter probe insertion, sample collection, or further customization. This autoclavable chamber has a volume of 60 mL.

Grip Options: LumeGen chambers use a stainless steel barb with an o-ring clamp to immobilize constructs or tissue explants. Standard barb sizes include 2, 3, 4, 5 and 6mm outside diameters and can be interchanged with a universal grip housing.

DynaGen® Stimulator: The LumeGen bioreactor system includes the 6Vr pulsatile pressure mechanical stimulator. The 6Vr 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 6Vr is integrated with a computer controlled mean flow pump and is capable of low or high-flow configurations. Low flow configurations (0-100ml/min) can accomodate up to six chambers with a single stimulator. Standard high-flow configurations (100 - 800 mL/min) can stimulate a single chamber. The standard high-flow configuration can be adapted to accommodate multiple chambers.

Stimulator Specifications:
6Vr: Footprint: 6” x 4” x 4” Weight: 4.6 lbs.

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 under Windows XP and features a simple user interface. User defined stimulation 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 using a network cable. GrowthWorks® can be configured 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 additional axes of mechanical stimulation.

Visit our website for the full line of TGT bioreactors and accessory products: www.tissuegrowth.com

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