



Biotechnology Specimen Temperature Controller (BSTC)



Science Hardware Objective:

The BSTC is a static bulk incubator bioreactor designed to maintain a homeostatic environment for cell growth. Multiple cell lines are grown within individual teflon bags called Tissue Culture Modules. It is designed to support multiple cell culture experiments simultaneously.

Past Flight History:

Sep 1997	STS-86/Mir 6
Apr 1998	STS-90 Neurolab
Aug 2001	STS-105/ISS 7A.1
Dec 2001	STS-108/ISS UF-1
Apr 2002	STS-110/ISS 8A
June 2002	STS-111/ISS UF-2
Oct 2002	STS-112/ISS 9A

Operational Description:

The BSTC is a thermally controlled, single-locker module that functions to preserve and incubate multiple small cell cultures in order to investigate the impact of microgravity on cell structure and function. The unit consists of a single chamber in which temperature is maintained within the range of one degree of 36°C for passive cultures. The BSTC is computer controlled, provides custom balanced air/ CO_2 mixtures to the cells, and has the capability to operate continuously for at least 150 days.
