techshot

Innovate. Integrate. Inspire.

ADvanced Space Experiment Processor

The ADvanced Space Experiment Processor (ADSEP) biotechnology facility contains three independent thermal zones, each accommodating one cassette, and an internal computer that controls the internal functions of all three cassettes. Cassettes can house bioseparation methods, diffusion-cell and mixing-cell capabilities, and cell-culturing equipment.

ADSEP is a fully automated multi-use processing facility for interface with SpaceX's Dragon, Orbital's Cygnus or the ISS EXPRESS Rack.

Space Experiment Cassettes

There are several applications for the unique Techshot ADSEP system:

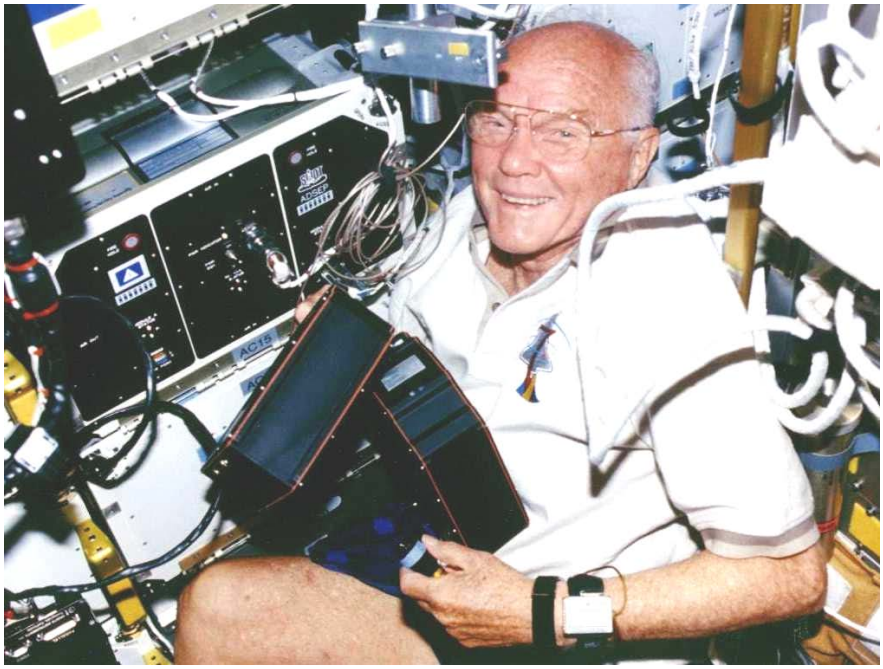
Cell Dynamics
1.Cell Culturing

Separations
2.Biphasic Separation
3.Microencapsulation
4.Protein Crystal Growth

Fluid Processing
5. *C-elegans* studies
6. Bacteria studies

ADSEP biotechnology facility

- Three independent processing modules can either be programmed for totally automated operation.
- Processing temperature can be independently monitored and controlled in each of three modules.
- Accommodates up to three cassettes, each capable of processing biological samples in space.
- From half-stepped mode, ADSEP is capable of conducting up to 44 separate experiments in each cassette assembly.
- Biological samples are loaded (preflight) into cassettes that provide appropriate levels of containment.
- Processing module doors are opened with two thumb screws, allowing cassettes to be installed in, and removed from, each processing module on orbit.
- Cassette interfaces with the processing module through blind-mating power/data connector on back side of cassette.



Payload Specialist John Glenn worked with Techshot's ADSEP hardware aboard space shuttle Discovery on STS-95

Services

Techshot serves the customer for the complete mission cycle of each cassette that is to be flown on an orbital flight. This covers the following elements:

- Providing flight-equivalent hardware to the investigator's laboratory months before launch.
- Performing all paperwork and meeting milestones to qualify the experiment for flight technically: meeting safety/containment requirements and attending all reviews.
- Working with the investigator(s) at the launch site to build up the payload and arranging hand over (usually late-loading) to launch officials.
- Collecting and returning the payload during post-landing recovery operations.
- Modifying the existing hardware or building new hardware to fit the experimenter's needs.