

## Instrumentation

### Cell growth

**Fermentors.** BioEngineering NLF22 fermentors allow precise control of multiple experimental parameters (pH, dissolved oxygen, temperature, and nutrient feed). The NLF22 fermentors are suitable for volumes up to 12L and are sterilizable-in-place.



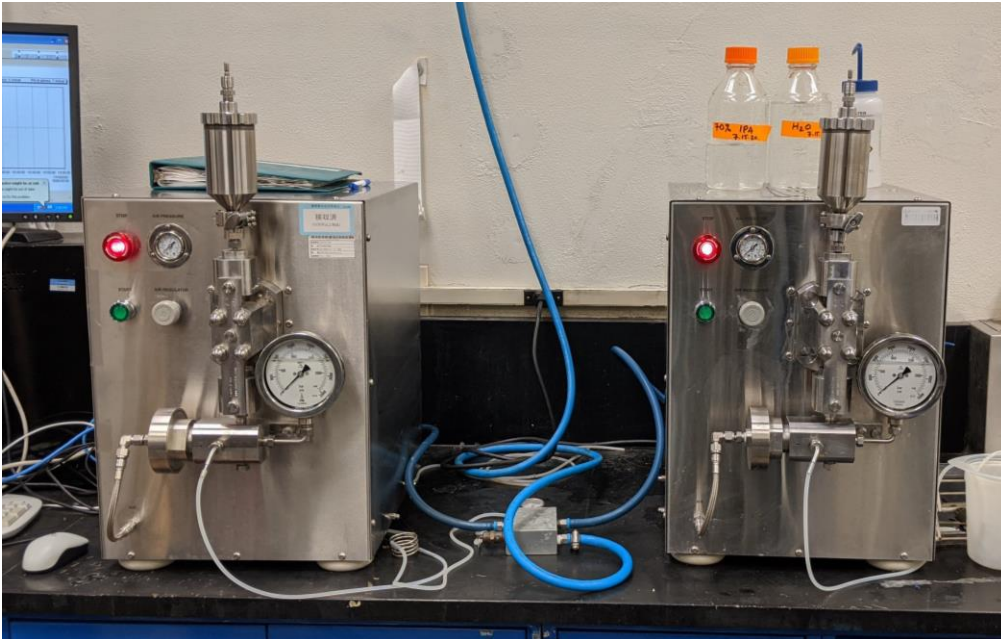
### Shaking incubators

**Large-volume:** The PETC has a variety of bench top (New Brunswick Innova 40 and Innova 4000) and floor shakers (New Brunswick Innova 44R and Innova 4300) including models allowing cell growth at low temperatures.

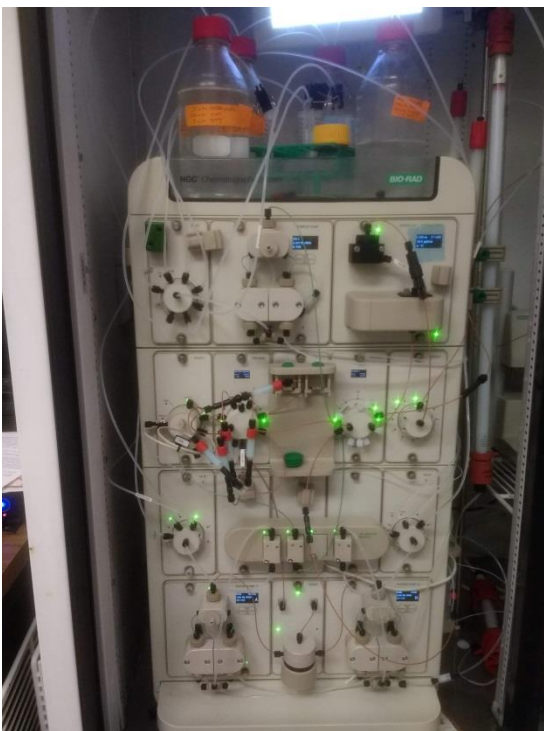
**Small-volume:** A Shel-Lab SI6R-HS refrigerated 96-well plate shaker holds 12 96-well plates and is ideal for small-scale protein expression screening. The combination of small orbit and high rpm (up to 1000) allows the growth of 1 ml bacterial or yeast cultures to high cell densities. Well-expressed proteins can be purified in 96-well format, often with yields in the 100-200 µg range.

### Cell Lysis

We have a Misonix sonicator, French Press, and two Avestin Emulsiflex C-3.



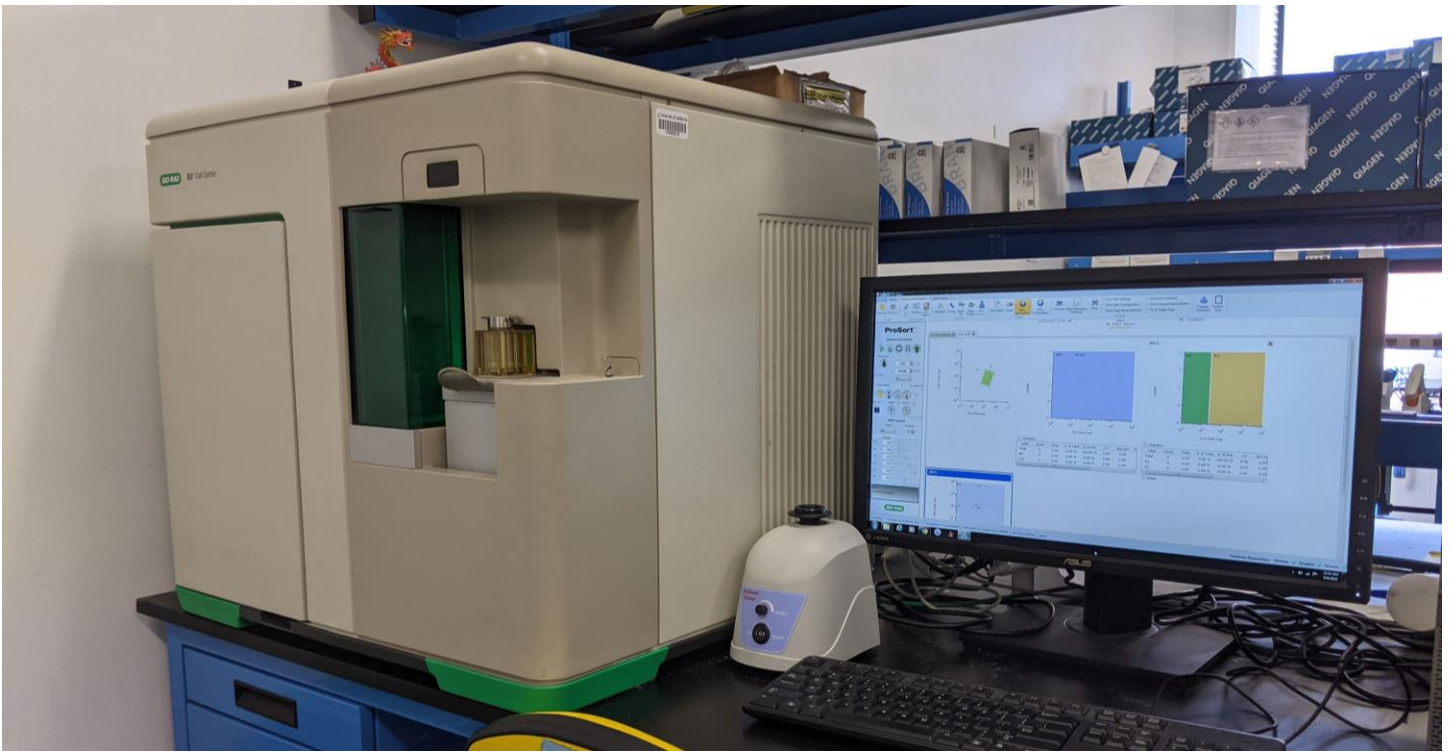
### Protein Purification



The PETC has a Bio-Rad NGC and Bio-Rad DuoFlow chromatography systems for low to medium pressure chromatography. Both are kept at 4°C.

## Fluorescence Activated Cell Sorting

Bio-Rad S3 cell sorter. The system is equipped with two lasers (488 and 561 nm) and four fluorescence detectors plus forward- and side-scatter detectors.



## Other Instruments

The PETC has a variety of centrifuges (Beckman J6M, Beckman J26xp, Sorvall Legend RT, microcentrifuges), PCR thermal cyclers, Bio-Rad Gel Doc XR, Bio-Rad Gene Pulser Xcell electroporator, and agarose and SDS-PAGE gel electrophoresis equipment.