Donald Danforth Plant Science Center - Service List/Cores

1) Proteomics & Mass Spectrometry

Director: Bradley Evans, Ph.D.
Phone: 314-587-1464
Email: bevans@danforthcenter.org
Website: http://www.danforthcenter.org/scientists-research/core-technologies/proteomics-mass-spectrometry

Services available:
The Mission of the Proteomics & Mass Spectrometry Facility at the Danforth Center is four-fold:

- Provide Danforth Center scientists with access to state-of-the-art instrumentation and technology with which to expand and attain their research endeavors
- Offer high-quality services in biomolecule separation, identification and structural analysis to internal and external clients
- Provide training to internal and external scientists interested in developing knowledge and skills in the areas of proteomics and mass spectrometry
- Produce first-rate publication quality results for all clients

The Proteomics & Mass Spectrometry Facility has processed thousands of service samples submitted from research laboratories located at the Danforth Center as well as from academic and commercial institutions worldwide. In addition, the facility has initiated research activities designed to expand analytic capabilities and has established collaborations with many principal investigators at various institutions. These activities have produced exciting results and publications, which are a testament to the facility's high standards and growing reputation.

With highly-specialized capabilities and research initiatives, the facility is well-prepared and positioned to serve as a regional, national and international resource in the fast developing fields of proteomics and metabolomics. Browse our list of standard services, or contact us for consultation or method development.

2) Tissue Culture and Transformation

Manager: Kevin Lutke
Phone: 314-587-1634
Email: klutke@danforthcenter.org
Website: http://www.danforthcenter.org/scientists-research/core-technologies/tissue-culture-transformation

Services available:
The Tissue Culture and Transformation Facility is comprised of over 1,000 square feet of lab working space and about 1,000 square feet of culture growth space. The culture growth space includes four large computer controlled Conviron Walk-In culture rooms, ten Percival Scientific chamber units, and a Sanyo chamber/incubator. The 1,000 plus square feet of lab space contains a media preparation area, a media kitchen hosting a glass washer and autoclave, and a functional lab composed of bench space, lab equipment and laminar flow hoods.

The facility operates both as a full-service facility delivering transgenics and cell cultures to researchers and a self-service facility providing high quality space for researchers to use for their own specific project needs.

Services available include: full-service transformations and cell/tissue culture in many different plant species, project consultation, training workshops, self-service hood usage and offering high quality growth space. The transformation and tissue culture facility staff has developed a portfolio of transformation and tissue culture systems with an emphasis of transforming the core species: setaria, maize, rice, and soybean. Within the facility, researchers have also produced cassava, sweet potato and potato. Transformation systems will be added, developed, inherited, or modified as needed; to suit the researcher's project needs.

3) Integrated Microscopy

Director: Howard Berg, Ph.D.
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Email: rhberg@danforthcenter.org
Website: http://www.danforthcenter.org/scientists-research/core-technologies/integrated-microscopy

Services available:
The Integrated Microscopy Facility furnishes up-to-date instrumentation for cellular imaging.

The facility's premiere instrument for live cell imaging is a Leica SP8-X confocal microscope equipped with white light laser, resonance scanner and HyD detectors. In addition to this we have other fluorescence microscopes to meet our users' needs.

Confocal microscopy requires a solid background in understanding how to optimally acquire image data and prepare it for publication. To that end, the facility offers comprehensive five day confocal microscopy workshops in January and July.

The facility's electron microscopes include a LEO 912 AB energy-filter transmission electron microscope (TEM) and a Hitachi TM-1000 tabletop SEM. We have state-of-the-art specimen preparation for TEM: ultra-rapid freezing done using a Bal-Tec high pressure freezer. We also have the ancillary equipment required for transmission electron microscopy.

A prep lab and darkroom are included in the suite, as are computers for digital processing of images using Imaris software.

The facility director R.H. Berg has considerable experience in the study of plant cell structure and he serves as a resource for users in designing and implementing their imaging experiments.

Services are provided to any interested party and are designed with convenience in mind for the client. For those wanting to use the instrument themselves, qualifying for the self-service fee schedule, this can be done after training by IMF staff. On the other hand, full service is also available, putting the work in the hand of our experienced staff.

4) Integrated Plant Growth Facility

Manager: Kevin Reilly
Phone: 314-587-1482
Email: kreilly@danforthcenter.org
Website: http://www.danforthcenter.org/scientists-research/core-technologies/plant-growth

Services available:
The Plant Growth Facility (PGF) is a state-of-the-art facility built for research product development. The PGF provides plant growth space to Center scientists and early-stage companies located in BRDG Park and elsewhere in the region.

The facility consists of three greenhouses ranges providing 47,530 sq. ft. of space with 39 greenhouses of various sizes and functional capabilities. Greenhouse Range A is 12,400 sq. ft., with 14 individual houses including a propagation house and five air-conditioned houses that provide consistent year-round temperature control even on the hottest days. Greenhouse Range B is 15,300 sq. ft. consisting of 15 houses with specialty features such as six taller houses (14 ft. to eave) and high light intensity capability. Greenhouse Range C provides an additional 19,828 sq. ft. of growth space in ten large houses equipped with high intensity lighting, high ceilings (15 ft. to eave), auto-irrigation systems and adjustable light canopies for more precise lighting control.

The PGF also includes two growth chamber areas with a total of 84 Conviron controlled environment chambers and rooms, providing up to 5,795 total square feet of plant growth area. The reach-in growth chambers are four different sizes, ranging from 14 to 57 sq. ft of growth area. The walk-in growth rooms are of seven different sizes, with the largest being 150 sq. ft. Many of these units are capable of high light (500-1000 $\mu mol/m^2/s$), and all have light intensity, temperature and humidity control. A subset of chambers have specialty capabilities including low temperature (-10°C to 4°C), CO_2 addition to 3000 ppm and CO_2 removal down to ~100ppm, as well as light spectrum control via Heliospectra LED banks.
The Plant Growth Facility is staffed by expert horticulturists who provide general plant care services 365 days a year, consultation, facility maintenance as well as a variety of extended services by request. Common supplies and equipment such as pots/containers, soil mixes, stakes, ties, tags, transport carts, pruners, gloves and more are included in the growth space rental rate.