



Biomedical and Obesity Research Core

Nebraska Center for the Prevention of Obesity Diseases through Dietary Molecules

Workshop Training Series

BORC Can Help.....

Yongjun Wang Ph.D.

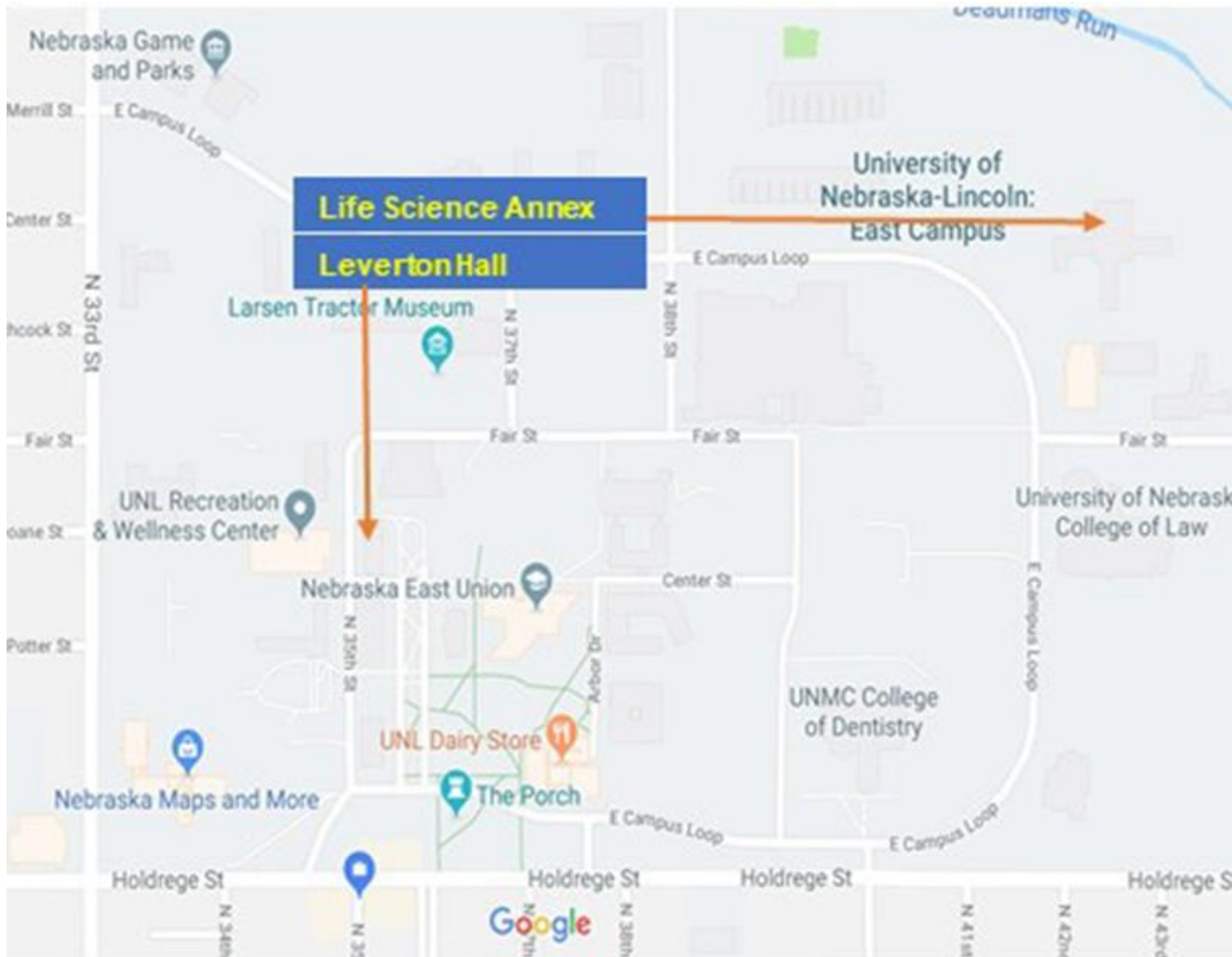
Director of Biomedical and Obesity Research Core

Nebraska Center for the Prevention of Obesity Diseases through Dietary Molecules

Who are we?

- The Biomedical and Obesity Research Core (BORC) is a research service center of the Nebraska Center for Prevention of Obesity Diseases (NPOD) that is supported by NIH COBRE grant.
- BORC team have one director, Dr. Yongjun Wang and two PhD level Research Technologists, Dr. Shuying Zhang and Dr. Umidjon Iskandarov.
- The BORC provides research services in two locations at Leverton Hall and Life Science Annex at east campus of University of Nebraska-Lincoln.
- Unlike other cores, BORC provide comprehensive research services from molecular biology, imaging services to animal study.

Where are we?



What can we do for you?

- BORC provides cutting-edge biomedical research services for investigators in the University of Nebraska system as well as external users.
- BORC Provides training for researchers on instrument operations and services provided in the BORC.
- BORC assist users to design and develop experiments for their research projects.
- BORC keep developing and expanding new services to meet researchers' need.

Our website

- <https://cehs.unl.edu/borc/>

The screenshot shows the website for the Biomedical and Obesity Research Core (BORC) at the University of Nebraska-Lincoln. The page features a dark red header with the university name and navigation links. Below the header, the BORC logo and name are displayed. The main content area is a grid of red boxes, each representing a category of services or information. A search bar is located in the top right corner. The bottom of the page includes a Windows taskbar with various application icons and system information.

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N College of Education and Human Sciences
BIOMEDICAL AND OBESITY RESEARCH CORE

How to	Equipment	Services	Training	News and Events	Contact
<ul style="list-style-type: none">Before you startReserve instruments and request servicesFeesAcknowledgements	<ul style="list-style-type: none">Index of InstrumentsMolecular and Cell BiologyMetabolic StudyAnimal PhenotypingImaging facilityBORC SOP	<ul style="list-style-type: none">Cell Based Assays and Biochemical AssaysDNA & RNA extractionGene Cloning and SubcloningGenotypingMetabolite Panel AnalysisReal Time PCR and Digital Droplet PCRBiostatistics and Computational Services	<ul style="list-style-type: none">BORC services can leverage your researchHow to Sign Up iLAB and Reserve InstrumentsTissue and Cell CultureReal-time PCR and Droplet Digital PCRCRISPR/Cas9-Theory and TechniqueMetabolic Research Services at BORCNanoSight NS300 Nanoparticle CharacterizationTSE Metabolic CagesAnimal behavior research services at BORC	<ul style="list-style-type: none">PublicationsResearch Tool Development ProgramCore Facility Grant Program for New Users	<ul style="list-style-type: none">Contact FormFeedback on instrumentBORC SurveyWorkshop RegistrationWorkshop Feedback

https://cehs.unl.edu/borc/contact/ EMAIL US

Type here to search 5°C Cloudy 2:51 PM 3/6/2023

What can you do at BORC

-User's perspective

- **Sample preparation and analysis:**
 - BSL-2 hood and mammalian cell culture incubator
 - Hood, shaking incubator for bacteria
 - Anaerobic Chamber for cultivation of gut bacteria
 - DIGITAL Sonifier® UNITS Models S-450D
 - FreeZone® 4.5 Liter Freeze Dry Systems
 - NanoSight NS300 Nano particle analyzer
 - BioTek Synergy™ H1m Plate Reader
- **RNA expression and third generation sequencing:**
 - CFX Connect™ Real-Time PCR Detection System
 - Bio-Rad QX200 ddPCR system
 - MinION MK1c nanopore sequencer

What assays can you perform at BORC

- **Protein expression:**
 - MAGPIX-Multiplexed Genomic and Proteomic Biomarker Analysis
 - BioTek Synergy™ H1m Plate Reader
 - LICOR ODYSSEY® CLx
- **Cell base assay and Biochemical assay:**
 - BioTek Synergy™ H1m Plate Reader
 - Cytation C10 Confocal Imaging reader
 - ImageStream®X MkII Image Flowcytometry
 - XFe-24 Extracellular Flux Analyzer (Seahorse Bioscience)
- **Cell imaging**
 - Cytation C10 Confocal Imaging reader
 - ImageStream®X MkII Image Flowcytometry

What assays can you perform at BORC

- **Small animal Imaging**

- UltraFocus DXA
- iBox[®] Scientia[™] Small Animal Imaging System
- LI-COR Odyssey[®] CLx

- **Animal Phenotyping**

- Barnes Maze, Morris Water Maze, The Radial Arm Maze
- ROTOR-ROD[™] System, Grip Strength System
- Place Conditioning Preference
- SR-LABTM Startle Response System
- Treadmill
- Metabolic cages (TSE Systems)

Experimental Services Provided at BORC

Cell Based Assays and Biochemical Assays

Chemistry Panel Analysis

DNA & RNA extraction

Gene Cloning and Subcloning

Genotyping

Real Time PCR and Digital Droplet PCR

Experimental services provided at BORC-Examples

- Gene Cloning: Dr. Jiujiu Yu, UNL-NHS**
- Genotyping: Dr. Ali Nawshad UNMC-Dentistry**
- Gene Expression: Dr. Aimin Peng, UNMC-Dentistry**
- Transcriptome analysis: Neil Shay, Oregon State Univ.**
- Gut microbiome metagenomic analysis: Dr. Qiuming Yao, UNL-Computer Sciences**
- Quantification of Epstein-Barr virus: Rebeca Brock, UNL-Psychology**
- Testing compound (seahorse): Vitti Labs, Kansas**
- Nano particle analysis: ABM nano Inc. Texas**

How to access BORC and use BORC facility

1. Finish all relative EHS training. You may find the training information at <https://ehs.unl.edu/web-based-training>.
2. Make sure your experiments are covered by your IBC and IRB protocol
3. If you plan to work on small animal using BORC facility, you also need to finish the training required by Life Science Annex and have the relevant IACUC protocol approved.
4. Have taken the proper online self-training and on-site personal training by BORC staff. Click [here](#) to find available instruments and primary responsible research technologist to schedule on-site training.
5. Have registered an account on iLAB system (https://my.ilabsolutions.com/service_center/show_external/3591). You may find the instruction by clicking How to Sign Up iLAB and Reserve Instruments.
6. Make sure you have a reservation before using the instruments.
7. For service request, the users need to fill the Service Request Intake Form and send it back to BORC director before submitting any samples.

Reservation and requesting services

- The first-time user needs to register an account on iLAB with their organization email address.
(https://my.ilabsolutions.com/service_center/show_external/3591).
- Please visit [How to Sign Up iLAB and Reserve Instruments](#) to learn how to register an iLab account, reserve instruments and request services.
- Users who have scheduled time may cancel up to 24 hours before the actual start time. If users arrive late for a scheduled appointment or cancel within 24 hours of the appointment, they will be billed for the scheduled amount of time.

User fees and billing

- The core is partially supported by National Institute of General Medical Sciences of the National Institutes of Health (P20GM104320).
- The user fees can be found at <https://cehs.unl.edu/borc/fee/>
- BORC provide subsidies to NPOD and University of Nebraska System (NU) investigators.

Users	Pay rate
NPOD directors and project leaders	10%
Pilot project and seed grant investigators	20%
Other NPOD members	50%
The rest of NU investigators	80%
Users from other institutes	100%

- BORC Bills users monthly

Thank you