**EQUIPMENT:**

**School of Medicine & Health Sciences/University of North Dakota**

**PI Lab**: The laboratory please fill in.

**Shared equipment in common space near lab:** Please fill in.

**Behavioral Research Core:** PAS-open field, grip strength, rotometer, roto-rod, water maze, Barnes maze, freeze monitor, place preference, Gemini, SR-Lab, T-Maze, Y-maze, Radial arm maze, elevated zero maze, elevated plus maze, forced swim, optogenetics, biosensors and sleep deprivation systems.

**Flow Cytometry and Cell Sorting (ND-FCCS) Core:** BD Symphony A3 (4 laser configuration), BD FACSAria III (3 laser configuration), Sony MA900 Cell Sorter with 488nm/638nm/405nm Laser and 96 well plate deposition system. The core also maintains both FACSDiva and FlowJo softwares for analysis.

**Genomics Core:** Illumina MiSeq short-read sequencer and Nanopore GridIon X5 long-read sequencing platform, 10X chromium system (10X genomics) for single-cell genomics and optimized protocol for spatial transcriptomics, Tapestation 4200, Agilent Bioanalyzer 2100, Maxwell RSC system (Promega), BravoA system, SureCycler thermal cycler (Agilent technologies) for automated NGS library preparation, AriaMx Real-Time PCR System (Agilent technologies) with five filters (SYBR/FAM, ROX, HEX, CY3, and CY5), BioRad QX200 Droplet Digital PCR system, Covaris S220 Focused-ultrasonicator, a Bio-Rad CFX384 Touch Real-Time PCR Detection System, a Li-Cor. Biosciences' Odyssey Fc Dual-Mode Imaging System, an Aplegen OmegaLum C imaging System, BioRad NGC Quest 10 Chromatography system, Thermo Scientific Sorvall MTX 150 micro Ultracentrifuge, and a BioRad Personal Molecular Imaging System, computing resources for analysis and storage of large data sets.

**Histology Core Facility:** Leica CM3050 S Research Cryostat, Leica CM1520 Cryostat (for BSL-2 tissue only), Leica VT1000S Vibrating blade microtome, Leica RM2125RTS Paraffin microtome with accessory water baths and flattening tables, Leica TP1020 automated tissue processor for paraffin preparations

Lynx II automated Tissue Processor for paraffin preparations, Leica Autostainer and CV5030 automated coverslipper for routine histological stains.

**Imaging Core Facility:** Zeiss LSM 510 META confocal and FCS system, an Olympus FV1000MPE multiphoton/single photon microscope system for intravital imaging, an Olympus IX83 microscope system with cellTIRF, a Nikon Eclipse TE300 fluorescent microscope, and a Nikon Eclipse 80i fluorescent microscope.  The suite has a cell culture room available for users to prepare their samples at a more convenient location to the microscopes.  The facility also has a stand alone workstation computer which has multiple softwares installed to perform image analysis; including FIJI, Imaris, and Huygens Essentials. Electron microscopy suite houses a Hitachi 7500 TEM and a Hitachi 4700 field emission SEM dedicated for biological samples. 

**Mass Spectrometry Core:** The high resolution analyzers include Q-TOF G2S (Waters) with UPLC inlet, and QExactive orbitrap (Thermo-Electron) with nano-UPLC inlet. A high sensitivity targeted analysis is performed on Xevo triple quad UPLC-MS system (Waters), API 3000 triple quad HPLC-MS system, and a ThermoElectron PolarisQ GC-MS system. The ion sources include ESI, nano-ESI, APPI, APCI, and solid probe ion sources. Waters UPLC and nano-UPLC, and Agilent and Backman HPLC systems connected to MS analyzers consist of binary pumps, autosamplers, column heaters, and DDA detectors. Processing workstations include MarketLynx, MetaboLynx, Progenesis for small molecules and proteins, Lipid Search, and PLGS processing software. In addition, the MS Core is equipped with Beckman 2-D HPLC system to allow for protein fractionation.

**Microscopy Core Facility:** Olympus FV3000 Laser Scanning Confocal Microscope which is alsoequipped for Live Cell Imaging, a Leica Personal Confocal TCS SPE Microscope, an Olympus BX63 Upright Motorized Fluorescence Microscope, an Olympus BX63 Upright Microscope Stereology System equipped with MBF Bioscience Stereo Investigator® and Neurolucida® software systems, and a Leica LMD6 Laser Microdissection Microscope System.  The facility also has two standalone workstations for image analysis.