**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, Any-box behavior system, Cincinnati water maze, Phenomaster, Intellicage, tail suspension systems, sociability apparatus, automated radial 8-arm maze, and automated forced swim system.

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

**Genomics Core:** Illumina MiSeq short-read sequencer, Nanopore GridIon X5 long-read sequencing platform, 10X Chromium system (10X genomics) for single-cell transcriptomics, NanoString GeoMx Digital Spatial Profiler 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 Autostainer XL, Leica TS5015 Transfer Station, Leica CV5030 Cover slipper, Lynx II Tissue Processor, Leica Paraffin Microtome RM2125, Leica Cryostat CM 3050S, Leica Cryostat CM 1520 (BSL-2), Hammamatsu NanoZoomer 2.0HT Digital Slide Scanner, NAS Synology DS1819+R, Leica HistoCore Arcadia C & H Paraffin Embedding Station, Dako Autostainer IHC, Dako PT Link, Barnstead Smart2Pure Water Purification system, EPSO label Printer, Precision Compact Gravity Convection Oven, Leica HI 1220 water bath, Shel Lab Vacuum Oven, Retriever 2100, Leica HI 1210 water bath, VWR micro centrifuge.

**Imaging Core Facility:** Leica Stellaris 5 confocal microscope, a Leica Thunder Imager fluorescent microscope, and an Olympus IX83 microscope system with cellTIRF that are each equipped with a stage top incubator for live cell imaging. Other equipment include an Olympus FV1000MPE multiphoton/single photon microscope system for intravital imaging, a Nikon Eclipse 80i fluorescent microscope, and a Prusa 3D i3 MK3 printer.  The suite has a cell culture room available with a refrigerator, freezer, biosafety cabinet, and incubator 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. The 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 Synapt SX (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 (AB Siex), and a ThermoElectron TSQ 9000 GC-MS system. The ion sources include ESI, nano-ESI, APPI, APCI, solid probe, and DESI (for imaging) 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 with extended near-ir and live-cell capabilities, 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 a standalone workstation for image analysis.

**Computational Data Analysis Core**: Dell PowerEdge FC830 blade server for computational analysis. This advanced server features a 10Gb network capacity, 4x Intel Xeon E5-4669 v4 2.2GHz (174 HT Cores), 1 TB RAM, and 16 TB of SSD storage space. Further enhancing its capabilities, this server is seamlessly connected to the SMHS storage server, providing over 80 TB of additional storage capacity.

**BiPed Laboratory:** The BiPed lab hastwo Vicon Motion capture systems, employing eight MX10 Cameras and 10 Bonita cameras. Electromyography is integrated with the Vicon Systems. A large format research treadmill is housed with an offload system used with our motion capture.