*Genomics & Cell Characterization Core Facility (GC3F):* supports scientific research at the University of Oregon by making a broad array of high-end, specialized instrumentation accessible to UO researchers for genomics & flow cytometry applications, as well as offering in-house sequencing sample prep services, for both internal and external users. Services include:

* Sequencing—GC3F has been providing Illumina sequencing services since 2008, and since then, has sequenced thousands of samples on multiple Illumina platforms. GC3F played a significant role in the development of the RAD-seq technique that was invented at UO, and still sequence “unconventional” libraries on the instruments. GC3F currently operates three Illumina DNA sequencers: MiSeq, HiSeq 4000, and NextSeq 500.
* Pacific Biosciences (PacBio) sequencing—single molecules of native DNA are sequenced in real time on the Sequel instrument utilizing devices called "SMRT cells". Each SMRT cell can yield between 5 and 10 Gb of sequence data, with a read length of greater than 10 kb on average.
* Sample Prep—full-service sample preps for many popular sequencing library types, including stranded mRNA-Seq, whole genome shotgun, 16S amplicon, 10X whole genome linked reads, single cell mRNA-Seq, PacBio, and many others, including custom projects by request. GC3F instruments applications include: Sample partitioning into emulsion droplets for 10X Genomics single cell mRNA and whole genome linked-read sequencing; Tissue homogenization for nucleic acid extraction; DNA shearing to short lengths for Illumina sequencing; DNA shearing to long lengths for 10X linked reads and PacBio long-read sequencing; Pulsed field electrophoretic analysis & selection of long fragments for 10X whole genome or PacBio long-read sequencing Centrifigution of 96-well plates and refrigerated microtubes; Controlled thermomixing of enzymatic reactions; Heat sealing of PCR plates; Concentration & drying of samples.
* Quantification Instruments—GC3F houses numerous instruments for DNA, RNA, and protein quantification, including: ABI StepOne Plus; ABI QuantStudio 3; BioRad CFX96; Molecular Devices Microplate Reader; Nanodrop; Qubit; Licor Odyssey Fc; GE Amersham Typhoon.
* Microscopy & Imagine Analysis—GC3F offers training and support for the following microscopes: Olympus Fluoview FV1000 Laser Scanning Confocal; Custom-built TIRF microscope; Leica SPE Laser Scanning Confocal + Widefield; GE DeltaVision Widefield with Deconvolution; Zeiss LSM with SIM and Airy Scan. Support and training will exist in the near future for: Nikon Super-Resolution Spinning Disk; Custom-built Light Sheet microscope. The facility also has 3 analysis workstations and include the following software: Imaris 9.2 with Cell and Filaments Modules; Imaris 9.2 Converter and Stitcher; Prism8; Matlab 2018a; Adobe Illustrator and Photoshop.
* Other services/ equipment—fragment size analysis, liquid handling, Flow Cytometry (Sony SH800 cell sorter and a first-generation Applied Biosystems Attune Cytometer).