

KSU Integrated Genomics Facility, IGF:

<http://www.k-state.edu/igenomics/>

The IGF is about 2000 ft² facility located at the Department of Plant Pathology (labs #4732, 4511, 4411, and 4716), Throckmorton Plant Sciences Center, Kansas State University.

The IGF is equipped with:

- 1) **Sequel IIe system (PacBio):** high throughput, cost effective, long-read sequencing.
- 2) **Chromium iX system (10X Genomics)** is compatible with the following solutions: Single Cell Gene Expression; Single Cell Immune Profiling; Single Cell Assay for Transposase-Accessible Chromatin (ATAC); Single Cell ATAC + Gene Expression.
- 3) **NextSeq 500 sequencing system (Illumina).** Supports 2x150bp sequencing. Maximum output is ~400 mln clusters, 120Gb.
- 4) **MiSeq Personal sequencing system (Illumina).** It is capable of generating more than 15Gb per one sequencing run and supports the 300 bases reads generation.
- 5) **Synergy H1 Hybrid Multi-Mode Microplate Reader (BioTek)** supports top and bottom fluorescence intensity, UV-visible absorbance and high performance luminescence detection.
- 6) **Qubit 2.0 Fluorometer** for precise nucleic acid quantification.
- 7) **Biomek FXP Laboratory Automation Workstation plus TRobot** allows every aspect of liquid handling, including pipetting, dilution, dispensing and integration. The platform is capable of walk-away automation of TruSeq RNA sample prep workflow with current throughput of 200 RNA-seq libraries a week.
- 8) **QIAgility** Liquid Handling System (QIAGEN) enables rapid, high-precision automated transfer of liquids, for as low as 1ul, into almost any tube or plate format, including 384 well plates.
- 9) **Covaris S220 Focused-ultrasonicator** for accurate and precise nucleic acid fragmentation.
- 10) **NanoDrop One Spectrophotometer** for quantification of nucleic acid, proteins and culture cells in the small volumes (1-2 ul).
- 11) **Agilent 2100 Bioanalyzer** combining a miniature of gel electrophoresis and scanning spectrophotometry to allow analysis of quality of RNA, DNA and protein samples using very small amounts of material.
- 12) **Agilent 2200 Tape Station system** automates RNA, DNA and protein sample QC, including sample loading, separation, and imaging.
- 13) **Qiagen TissueLyser II** is well-suited for high-throughput disruption of human, animal, and plant tissues, bacteria, and yeast.
- 14) **SpeedVac** for concentrating aqueous solution.
- 15) Two **Veriti** PCR machines with 96-well plate heads.
- 16) **Beckman Z2 Coulter Counter** provides an accurate cell / bead count, measuring average cell / bead size, accurate and precise population size distribution data, and high throughput.

- 17) **CFX 96 Real-Time PCR system (BioRad)** allows up to 5-target multiplexing and has a broad range of applications from gene expression analysis, diagnostic, allelic discrimination to Precision (High Resolution) Melt analysis.
- 18) **OPUS 96 Real-Time PCR system (BioRad)** allows up to 5-target multiplexing and has a broad range of applications from gene expression analysis, diagnostic, allelic discrimination to Precision (High Resolution) Melt analysis.
- 19) **Pippin Prep** (Sage Science) is a preparative electrophoresis platform that separates and extracts DNA fragments.
- 20) **Blue Pippin** (Sage Science) is a preparative electrophoresis platform that separates and extracts long DNA fragments.

Other equipment includes autoclaves, -80C freezer, -20C freezers, refrigerators, microcentrifuges, incubators, vacuum pump, drying oven, microwave oven, mini plate spinner, Barnstead's AquaWave ultrasonic cleaner, UV Stratalinker 1800 (Stratagene), Labquake Rotisserie shakers, sets of manual multi- and single-channel pipettes (RAININ), and standard magnetic stirrers, balances, vortexes, shakers, water baths, quick spin minifuges, dry bath incubators, heating plates, orbital shakers.