Instrument	Applications
Organ-On-a-Chip	
Emulate Organ-on-chip Platform System	Micro-engineered organ-on-a-chip research platform consists of one control hub and two Zoes housed in two incubators, accommodating up to 24 chip/PODs. Animal alternative platform. Emulate human physiology and pathology by human cell sourcing, organ-specific environment and tissue-relevant mechanical forces. Applications include predictive toxicity, inflammation/immunology, infectious disease, tumor micro-environment, drug discovery and development. Available organ-on-chip kits: liver, lung, kidney, brain, intestine and customized models.
Sample Processing Instruments	
INTEGRA ASSIST PLUS Automated Pipet Robot	Electronic multi-channel pipettes (12.5 µL, 300 µL, and 1250 µL) along with automated liquid handling robot streamline pipetting to ensure superior accuracy, reproducibility without error. Pipetting modes include mixing, dilution, repeat or variable dispense, and multi aspirate for 96- or 384-well plates.
KingFisher Duo Prime	Automated purification system for DNA/RNA/protein from a variety of starting materials provides high yield, reproducibility and minimal hand-on time. Auto-decontamination with UV prevents cross-contamination. magMAX from Thermo Scientific™ or other compatible magnetic beads are applicable.
Qiagen TissueLyser II	TissueLyser II simultaneously disrupts multiple biological samples through high-speed shaking in plastic tubes with stainless steel, tungsten carbide, or glass beads.
ThermoMixer HC USA Scientific	Mixer HC is for heating, cooling, and mixing almost any of your lab vessels. Improve assay results by dry incubation and mixing of your samples simultaneously.
ThermoFisher Cell Cytospin 4	Concentrate cells from a suspension onto a circular area on a slide for cytology.
Autoclave (2)	Sterilize solid and liquid supplies.
UltraPure Water System	Generate ultrapure water for laboratory use.

Incubator Shaker (3)	Scientific temperature-controlled incubator shaker.
Sonicator- Misonix S-4000	Programmable sonicator with microtip to lyse/homogenize cells, disperse particles, shear DNA and create emulsions.
Sonicator-Branson Sonifier 150	Sonicator to lyse/homogenize cells, disperse particles, shear DNA and create emulsions.
Centrifuge-Beckman Coulter Allegra X-14R	Temperature-controlled benchtop centrifuge with swinging bucket rotor and 15ml & 50ml conical adaptors.
Centrifuge-ThermoFisher Sorvall Legend T plus	Temperature-controlled benchtop centrifuge for 96 & 384 well plates.
Shaker-VWR Rocking platform	Double-tiered platform shaker for blotted membrane and gels.
Centrifuge-Eppendorf 5430	Benchtop centrifuge for Eppendorf tubes.
Centrifuge - Sorvall RC-5B High Speed (2)	A refrigerated and high-speed floor model centrifuge in the family of Sorvall. This centrifuge offers quiet operation and has the capability to operate at a speed of 20,000 maximum rpm (48,300x g).
Centrifuge- Beckman J6B Low Speed	Floor low-speed centrifuge. This belt driven centrifuge has a performance speed of 6000 rpm, and offers a maximum force of 6835g.
Centrifuge - Beckman L80-XP Ultracentrifuge	Floor model ultracentrifuge with max speed: 80,000 rpm.
Centrifuge - Beckman Optima L-90K Ultracentrifuge	Floor model ultracentrifuge with max speed: 90,000 rpm.
Centrifuge - Beckman MAX130K Ultracentrifuge	Benchtop ultracentrifuge with maximum speed: 130,000rpm.
Analytical Instrumentation	
BioTek Epoch 2 Microplate Spectrophotometer	High-performance, flexible monochromator-based multi-mode microplate reader for absorbance with new incubator technology (up to 65 °C) with condensation control allows long-term kinetic analysis for cellular and microbial growth.
BioTek Synergy HTX Microplate Reader	High-performance, flexible monochromator-based, hybrid multi-mode microplate reader for absorbance (250nm - 900nm), and fluorescence intensity (ex/em = 360/460, 485/528). The new incubator technology (up to 50°C) with condensation control allows long-term kinetic analysis. Additional injectors allow for dynamic

	assays. 6- to 384-well plate format, cuvettes and Take3™ Micro-Volume Plate.
BioTek Synergy H1 Hybrid Multi-mode Plate Reader	High-performance hybrid system features flexible monochromator-based multi-mode microplate reader for absorbance, fluorescence intensity, fluorescence polarization, time-resolved fluorescence, and luminescence-based applications. The new incubator technology (up to 65 °C) with condensation control allows long-term kinetic analysis. Additional injectors allow for dynamic assays.
Hidex 300 SL Scintillation Counter	Automatic Liquid Scintillation Counter with 3 PMT detectors enable triple-to-double coincidence ratio (TDCR) counting, which is an absolute counting method for obtaining counting efficiency of the samples without external or internal standard sources.
Jasco J-815 Circular Dichroism (CD) spectroscopy	Circular dichroism (CD) is dichroism involving circularly polarized light. CD spectroscopy has a wide range of applications in many different fields: Characterization of a protein's secondary structure (a-helix, ß-sheet); Detection of changes in structure upon mutagenesis; Studying conformational stability of proteins at various pH ranges or temperatures, or in the presence of denaturants, buffers, stabilizers, etc.
Perkin Elmer Differential Scanning Calorimetry (DSC) DS-8500	Thermal analysis technique used to detect transitions like melts, glass transitions, phase changes, and curing; Features double-furnace technology, which directly measures the heat flow difference between two independent furnaces.
Wyatt Dynamic Light Scattering (DLS) DynaPro Plate Reader II	Measurement of the hydrodynamic radius of particles, polymers, or proteins in solution in the size range of 2-1000 nm in diameter.
Spectrometer - Hitachi F-2500 Fluorescence	Fluorescence monochromator-based analysis (220-730 nm); Wavelength scanning speeds up to 3000 nm/min; 2 nm resolution. Cuvette format.
Cell and Immunobiology Applications	
Agilent Seahorse XFe96 Analyzer	XFe96 (96-well format) measures mitochondrial respiration and glycolysis to characterize cellular metabolic function in cultures cells and ex-vivo samples.
Agilent Seahorse XFp Analyzer	XFp (8-well format) measures mitochondrial respiration and glycolysis to characterize cellular metabolic function in cultures cells and ex-vivo samples.

Bio-Rad Bio-Plex Suspension Luminex 200 Array	Both magnetic and polystyrene-bead based Luminex multiplex analysis of up to 100 biomolecules (proteins, peptides or nucleic acids) in a single sample.
ThermoFisher Countess II FL Automated Cell Counter	Quickly and easily counts cells, monitors fluorescent protein expression, and measures cell viability.
Meso Scale Discovery (MSD) SQ120 Multiplexing Assay System	MSD features excellent sensitivity and dynamic range for multiplex assay capability using 96- well plates. Technical highlights: ECL based assay, positional multiplexing, no fluidics, low background interference, sample volume requirement as low as 25ul, femtyogram sensitivity, rapid protocol time (~4hr).
Flow Cytometry	
BD FACSAria Fusion	Comprehensive flow cytometry sorter with biosafety regulation provides exceptional multi-color performance and maximal sorting purity and recovery. Furthermore, Aria Fusion is cross-instrumented with our cell analyzers, Fortessa X20. Current 2 lasers are: 1) 488 nm (Em 530, 585, 616, 695, 780 nm and 2) 633 nm (Em 670, 780 nm).
BD Fortessa X20 Cell Analyzer	Flow cytometry analyzer for high-performance multi-color analysis up to 11 fluorochromes with 3 laser: 1) 405 nm (Em 450, 525, 610 nm), 2) 488 nm (Em 530, 575, 610, 695, 780 nm) and 3) 633 nm (Em 670, 730, 780 nm).
Data Analysis	
Computer- FlowJo	BD FlowJo software for flow cytometry data analysis.
Computer - Image Analysis	ZEN for LSM880; Gen5 for BioTek Cytation 5; Living Image for IVIS.
Imaging	
Bio-Rad ChemiDoc Touch Gel Imaging System	Gel imaging system that detects colorimetry, densitometry, chemiluminescence and fluorescence.
BioTek Cytation 5 HTS Cell Imaging Multi-Mode Reader	Cytation 5 combines automated, digital high-resolution microscopy and fast, conventional microplate detection in configurable, upgradable platform: 4X, 10X, 20X and 40X magnification in fluorescence (blue, green, red and far-red), brightfield, color-brightfield, and phase contrast, multi-mode detection modules, temperature control and shaker. 6- to 384-well plate, culture dish, flask, or histology slide can be used. Cytation 5 is also applicable with Seahorse for the imaging normalization.

iBright FL1000 Gel/ Cell Imager	High-performance imaging system for gels, blots and plates can capture images of color-bright field, violet to far-red fluorescence and luminescence. The fluorescence mode can detect up to 4 colors simultaneously at UV to far-red range.
Perkin Elmer IVIS Lumina Series III Small Animal Imager	Images both fluorescent and bioluminescent reporters; The system is equipped with filter sets to image reporters that emit from green to near-infrared, an XGI-8 Gas Anesthesia System, and can image up to 5 mice at a time.
Zeiss AxioScope A1 Fluorescent Microscope	Fluorescent microscope that scans color bright field, blue, green and red fluorescence images.
Zeiss LSM880 + Airyscan Fast Confocal Microscope	Confocal microscope with Airyscan Fast module (fast, super-resolution scan): 9 lasers (355, 405, 458, 488, 514, 561, 594, 633 and 690-1040 nm); up to 32 fluorescence colors; long-term live scan with temperature and CO_2 controlled incubator.
Keyence BZ-X800 All-In-One	Compact all-in-one high resolution microscope with motorized stage, lens and filter turret. Full digital control and built-in dark room. Imaging for brightfield, phase contrast and fluorescence (DAPI, GFP, CY3 and CY5 filter cubes) on plates, slides, dishes and flasks.
Molecular Biology	
ABI 7900HT Fast Real-Time qPCR	Flexible-throughput quantitative real-time PCR capabilities for target discovery through confirmation and screening. Uses 96- or 384-well plate.
ABI QuantStudio K12 Flex Real-Time PCR with Open Array module	Performs and analyzes PCR experiments for accurate and sensitive quantitation of nucleic acid targets. Uses 96- or 384-well plate, or array card.
ABI OpenArray Autofiller	OpenArray™ technology is an affordable real-time PCR–based solution for high-throughput gene expression analysis, genotyping, microRNA (miRNA) analysis, and digital PCR applications. This unique technology minimizes reagent use and helps greatly decrease the price per data point, so more samples can be run within the same budget.
Bio-Rad Gene Pulser MXcell Electroporation (96-well format)	Microplate-based electroporation of mammalian cells - especially useful for primary and hard-to-transfect cell types.

Bio-Rad Gene Pulser Xcell Electroporation (cuvette format)	Cuvette-based Electroporation of mammalian, bacterial, and fungal cell types.
Bio-Rad MyCycler PCR	Bio-Rad 96-well PCR Thermocycler features regular PCR programs with thermal gradients.
Bio-Rad SmarSpec Plus Spectrometer	The UV/visible SmartSpec Plus spectrophotometer has a working wavelength range of 200–800 nm to quantify DNA, RNA and protein and perform simple kinetics assays.
Bio-Rad TransBlot Turbo System	Semi-dry membrane transblot system.
NanoDrop One	Quantifies DNA, RNA and protein samples with 1-2 µL volumes; 190-850 nm spectral range.
qPCR - Open Array Accufill (Microarray)	OpenArray™ technology is an affordable real-time PCR–based solution for high-throughput gene expression analysis, genotyping, microRNA (miRNA) analysis, and digital PCR applications. This unique technology minimizes reagent use and helps greatly decrease the price per data point, so more samples can be run within the same budget.
Qubit 3.0 Fluorometer	Portable benchtop fluorometer designed to accurately measure DNA, RNA, and protein quantity.
RNA/DNA Sequencing	
Agilent 4200 Tape Station	Automated microfluidic chip-based electrophoresis analyzer to quantify and qualify DNA/RNA samples (up to 96) for Next Generation Sequencing (NGS), microarray (aCGH) or quantitative PCR (qPCR) workflow.
BD Rhapsody Express Single-Cell Assay	BD Rhapsody Express and its cartridge enable single-cell capture and molecular indexing of mRNA transcripts to prepare single cell mRNA sequencing libraries. Proprietary BD™ Molecular Indexing technology is used to count individual mRNA molecules.
Bio-Rad Experion Automated Electrophoresis System	Automated microfluidic chip-based electrophoresis analysis of DNA, RNA and protein size and quantity.
Illumina NGS MiSeq	MiSeq can read up to 15 Gb/run, delivering over 600 bases of sequence data per read, allowing a variety of next-generation sequencing applications, including targeted gene, small genome, and amplicon sequencing, 16S metagenomics, and more.

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