LIQUID HANDLING EQUIPMENT

Tecan Evo® 200

The core of HTS facility's automation is a versatile robotic platform equipped with a robotic arm, an 8-independent-channel liquid handler and a 96-channel arm with disposable tips. The instrument is currently able to transfer samples and reagents in 1-384 well formats. The workstation include a barcode reader, an incubator, a plate shaker, and a microplate reader (Tecan F200) that operates any UV-Vis absorbance, fluorescence or luminescence detection technology. The entire platform is contained within a laminar flow hood that enables to work in a sterile environment.

Biotek EL406™

The Microplate Washer Dispenser enables fast and gentle multiwell plate (96-well and 384-well format) washing together with accurate dispensation of cells or reagents, with both peristaltic or syringe pump technologies.

AUTOMATED DETECTION EQUIPMENT

PerkinElmer Operetta® High Content Imaging System

The facility includes an automated fluorescent microscope for High Content Screening. Images are captured either in widefield mode or using a confocal spinning disk. The software Harmony (version 4.1) allows fully unsupervised automated image acquisition and autofocus for reliable high content imaging from slides to multiple plates and perform complex quantitative and multi-parametric data analysis. The system is equipped live cell chamber option to maintain environmental conditions (temperature, CO2) and can perform a wide range of fluorescence-based kinetic and endpoint biological assays. The presence of Digital Phase contrast channel allows imaging and segmentation of cells that have not been fluorescently labeled. An integrated browser-based image analysis system (Columbus™ Image Data
Storage and Analysis System, PerkinElmer) supports a wide range of file formats, allowing visualization of images, regardless of their origin.

**Tecan Infinite™ M200 and M200pro**

The Infinite M200 and M200 PRO provide a full range of leading detection methods: UV-Vis absorbance, fluorescence or luminescence. The Quad4 monochromators provide high sensitivity, and allows the user to select any wavelength from UV to NIR, and to perform absorbance, excitation and emission scans for sample measurements in 6- to 384- well plates, PCR plates or cuvettes. They include temperature control and are compatible with the NanoQuant Plate which can measure up to 16 samples with volumes as low as 2 µl simultaneously.

They can be used for a wide range of biological assays and measurements including: DNA/RNA quantification, protein quantification, ion channel studies ion flux studies, calcium ion detection, reporter gene and gene expression assays, cell viability and toxicity assays, cell-based assays, binding studies, enzyme assays, ELISA, immunoassays, fluorescence and luminescence applications.

**PerkinElmer EnSight® and EnSpire®**

The EnSight’s modular design offers multiple detection options including well-imaging for a rapid and low-magnification scan of the plate and Corning® Epic® label-free technology for both cellular and biochemical assays where a change in mass redistribution is expected (GPCR, Ion channel, biomolecular interactions, protein-small molecule interactions).

It also supports labeled detection technologies, such as: Alpha technology; LANCE® TR-FRET and DELFIA® TRF; absorbance; fluorescence (top- and bottom- reading) and luminescence.

EnSpire® Multimode Plate Reader includes AlphaLISA®/AlphaScreen® detection capability with high power laser excitation for measuring protein:biomolecule (protein, DNA, RNA) interactions in 96-384 well plate homogeneous assays.

**ACEA xCELLigence® Real-Time Cell Analysis (RTCA) systems**

This label-free, real-time cell analyzer allows for monitoring cellular events (proliferation, cell size/morphology, cell attachment, quality migration) without the incorporation of labels. It quantifies the noninvasive electrical impedance (cell index value) due to gold microelectrode biosensors in each well.
of ACEA’s electronic microtiter plates (E-Plates®). The RTCA DP Analyzer has three integrated stations for 16-well microtiter plates located inside a tissue culture incubator. Each of the three 16-well plate holders can be used independently under the RTCA Software which continuously displayed cell index values on friendly user interface.

**NUCLEIC ACID ANALYSIS EQUIPMENT**

**Bio-Rad ddPCR QX200™ System**

The QX200™ Droplet Digital PCR (ddPCR™) System provides absolute quantification of target DNA or RNA molecules for EvaGreen or probe-based digital PCR application such as copy number variation analysis, rare mutation and sequence detection, gene expression, next-generation sequencing library analysis. The Qx200™ Droplet Generator uses microfluidics to combine oil and water (sample) to create the droplets. Following droplet generation the droplets are transferred to a standard 96-well PCR plate, sealed with PX1™ PCR Plate Sealer (Bio-Rad) and thermal cycled. Following PCR amplification of the nucleic acid target in the droplets, QX200™ Droplet Reader analyzes each droplet individually using a two-color detection system (set to detect FAM and either VIC, HEX). PCR-positive and PCR-negative droplets are counted to provide absolute quantification of target DNA in digital form using QuantaSoft software.

The facility include also the Automated Droplet Generator which prepare droplets for up to 96 samples at time with minimal hands-on-time requirements, in HEPA-filter environment.

**Real-time PCR**

Four Biorad CFX 96™ Touch real-time PCR detection system and one CFX 384™ real-time PCR detection system are available for qPCR. These PCR instruments combine advanced optical technology with precise temperature control to deliver sensitive, reliable detection for single or multiplex reactions. The devices allow to minimize sample and reagent use and optimize reactions in a single run with thermal gradient feature, and advanced data analysis using CFX Manager™ Software.
Agilent Microarray Scanner

Agilent’s platform provides the analysis of expression profiles (mRNA and microRNA levels) and structural variation (DNA copy number) on a genome-wide level. Agilent’s High-Resolution C Scanner allows to perform high-density microarray analysis with a 2 µm resolution in two colours (Cy3 and Cy5).

Agilent’s Feature Extraction software generates high-quality image analysis results.

Agilent 2100 Bioanalyzer and other quantitative systems

The Agilent Bioanalyzer uses a microchannel-based electrophoretic cell that allows rapid and sensitive investigation of nucleic acid samples ( sizing, quantitation and quality control). Many sample types can be analyzed on the Bioanalyzer, including total RNA, labeled RNA, small and micro RNAs, as well as small and large DNA fragments.

Thermo Scientific NanoDrop 2000 spectrophotometer (190-840nm) is available to measure the concentration and purity of DNA, RNA or protein samples, using only 1 µL sample and obtaining results in less than 15 seconds from sample pipetting to wiping the pedestal clean.

Thermo Scientific Qubit™ 2.0 Fluorometer accurately measures DNA, RNA, and protein using the highly sensitive Qubit quantitation assays. The concentration of the target molecule in the sample is reported by a fluorescent dye that emits a signal only when bound to the target, which minimizes the effects of contaminants—including degraded DNA or RNA—on the result.