revvity

MIT-WPU
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SCHOOL OF SCIENCE AND ENVIRONMENTAL STUDIES









Revvity–MIT-WPU

Centre of Excellence

for **Bioimaging Technologies and Innovation**

The Revvity–MIT-WPU Centre of Excellence for Bioimaging Technologies and Innovation is built to carry work from bench-scale cell biology through to preclinical, whole-animal readouts on a single imaging-led pipeline. This booklet lists the facilities and tests as well as consultancy domains offered by Revvity-MITWPU Centre of Excellence.

Sample-to-Insight Workflow

From Samples To Insights - Enabling Better Science Faster



Sample Prep — **QC and Quantitation** — **Cell Analysis** — **Imaging and Phenotyping** — **Analytical Confirmation**

Supporting Facilities

Cross-Department Integration

The Centre's platforms do not operate in isolation: sample material and preparatory work for most consultancy tests and bundles originate in supporting facilities housed at MIT-WPU. Listing them here so a project's full path — from live sample to imaging data — is visible in one place.

State-of-the-Art Infrastructure

A synergistic ecosystem of advanced facilities enabling cutting-edge research, innovation and real-world impact.

Key Highlights

- Advanced Technologies
- Interdisciplinary Collaboration
- High Standards & Compliance
- Innovation & Excellence

Revvity–MIT-WPU Centre of Excellence
for Bioimaging Technologies and Innovation

Animal House | School of Health Science
Ethical & well-maintained animal care facility

Green House
Controlled environment for plant growth & experimentation

Bioinformatics Lab
Computational biology, data analysis & genomics

Microbial Technology Lab
Microbial research, fermentation & bioprocessing

MIT-WPU Central Research Facilities
Core instrumentation & shared research resources

Animal Tissue Culture Lab
Aseptic cell culture & tissue engineering facilities

Medicinal Garden
Cultivation of medicinal plants for research & conservation

Plant Biotechnology Lab
Plant tissue culture, transformation & molecular studies

About **The Centre**



Revvity – MITWPU Centre of Excellence for Bioimaging Technologies and Innovation is the result of a collaboration between industry and academia for fostering research, development, and innovation in the field of bioimaging and biophotonics. The CoE houses state-of-the-art imaging equipment such as confocal microscopes, cytometer, live animal imaging, microfluidics, gene extraction and advanced imaging software. Researchers from various disciplines such as life sciences, chemistry, physics, clinicians, pathologists, AI, engineering, and computer science would collaborate on projects aimed at developing novel imaging techniques and technologies. The entire preclinical study workflow from target discovery, lead development and preclinical is supported in this centre.

Consultancy, training, and research-partnership services built around the Centre's high-content and in vivo imaging platforms, image cytometry, microfluidics-based molecular QC, and analytical chromatography (HPLC/GC) — offered alongside skill-development workshops, faculty development programmes, and research-oriented internships.

Core Platforms

Operetta CLS System

(Confocal Imaging System)



The system is a high throughput imager for high-content analysis (HCA). It can acquire, analyze and manage fluorescence, brightfield and digital phase contrast images. The combination of high-power LED excitation with fast, precise mechanics and one large format sCMOS camera enables fast imaging. The instrument offers a seamless workflow, for reliable discrimination of phenotypes even in complex cellular models.

- The system has quoted with temperature and CO2 control, to run live-cell assays.
- The system with it advanced confocal technology minimizes photobleaching and phototoxicity, multiple points are collected simultaneously rather than by scanning a single point at a time.
- The system has the sCMOS camera delivers low noise, wide dynamic range, and high resolution – perfect for sensitive and quantitative measurements at short exposure times.
- Features: Live Cell Experiments | 3d Imaging | High-Content Imaging And Analysis | Workflow-Based Interface | Temperature And Co2 Control.

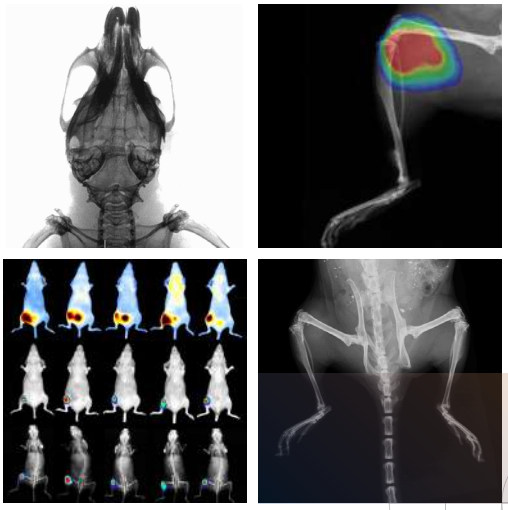


IVIS Lumina In Vivo Imaging System

IN VIVO OPTICAL IMAGING



The IVIS® Lumina Series III from PerkinElmer provides an expandable, sensitive imaging system that is easy to use for both fluorescent and bioluminescent imaging in vivo. The Lumina Series III platform offers a full spectrum of avelengths to perform almost any in vivo optical application with a tunability of 20 nm. The system includes a highly sensitive CCD camera, light-tight imaging chamber and complete automation and analysis capabilities.



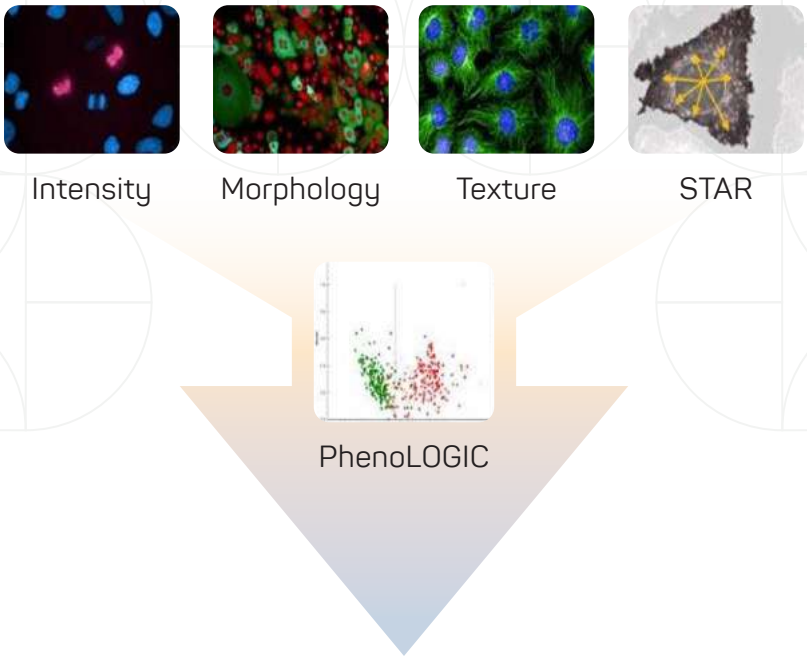
The instrument is equipped with full bioluminescence, radioscopic imaging capabilities for 2D imaging and standard fluorescence.

Features:

- Bioluminescence
- Fluorescence
- Radioisotopic Cerenkov Imaging
- Compute Pure Spectrum Spectral Unmixing
- Dynamic Contrast Enhancement Imaging
- Extended NIR Range
- Absolute Calibration to industry Standards

Cellaca PLX Image Cytometry System

IMAGE CYTOMETRY



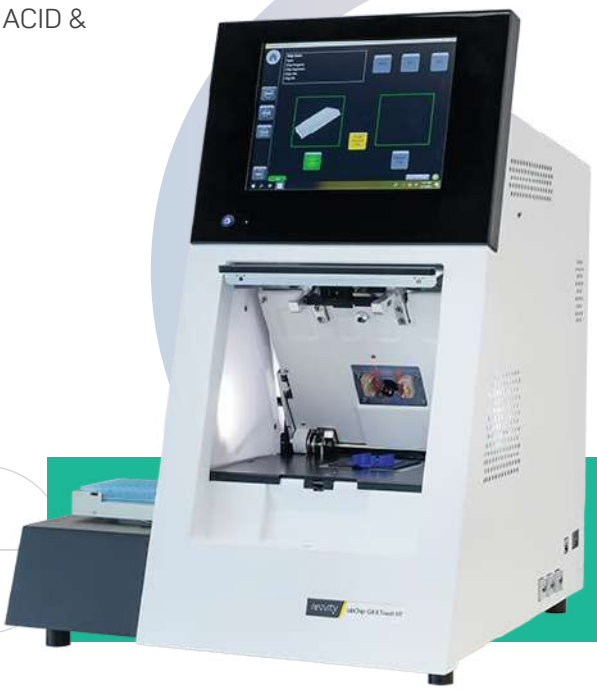
The Cellaca PLX can take image consistently, de-cluster, and report cell counts, viability, concentration, and phenotyping data makes it a versatile instrument during every stage of cell line development. It comes with the capability of multiplexing up to four channels to obtain critical viability readouts at one minute per sample with no warm-up time. Cell population data can then be viewed as a histogram, scatter plot, dot plot, or contour plot for easy data viewing and analysis. It is one of the excellent systems for Immunophenotyping, Cell Counts, and Viability Readouts in Seconds.

Features:

- Channels- Brightfield, Blue, Green, Orange, Red, Far Red
- Fluorescent Channels
- Excitation LED- 370, 475, 531, 628 nm
- Emission Filters- 452, 534, 605, 655, 692 nm
- Can perform with variety of Dyes and Assays
- Multiplexing
- Works with Small volumes (15-50 uL)
- High-speed and sensitive

Labchip GX Touch 24 system:
LabChip GX Touch Nucleic Acid Analyzer

CAPILLARY ELECTROPHORESIS · NUCLEIC ACID & PROTEIN QC



This is a comprehensive solution for genomic sizing and quantitation. It provides high-resolution analysis, exact sizing and quantitation of DNA fragments and smears down to 5 bp from samples as small as 2 pg/µL. The system offers a broad variety of DNA analysis options, including the NGS 3K assay, which provides unparalleled genomic data quality with minimal input requirements. This high degree of sensitivity also makes it the ideal instrument for gDNA, cfDNA, and PCR-free DNA quantitation, where concentrations are low, samples are precious, and their preservation is essential.

It can be used for RNA analysis and used to determine an RQS (RNA Quality Score) for each sample.

Analysis:

- Quantitate DNA and RNA sample integrity
- Accurate quantitation down to 25 pg/µL for DNA smears and .5 pg/µL for fragments
- Complete NGS library prep and QC
- Electropherogram, virtual gel
- Complete analysis of genomic material

Features:

- Fast, high-throughput QC analysis of NGS libraries for detection of mutations associated with SARS-CoV-2
- NGS library preparation (smear and fragment analysis) and quality control
- RNA and DNA fragment analysis (including cell-free DNA, DNA isolated from FFPE samples, and PCR-free libraries)
- Quantitation and qualification for CRISPR fragment analysis
- Screening nucleic acid source material for SARS-CoV-2 vaccine development
- Characterization and QC of small RNA molecules and CRISPR/Cas9 gRNA

Omni Homogenizer

SAMPLE PREPARATION



The Bead Ruptor 12 is the most powerful and economical bead mill homogenizer available today. It is an ideal solution for a variety of applications that require grinding, lysing, and homogenization of biological samples prior to molecular extraction.

Features:

- Simultaneously homogenize up to 12 x 0.5- or 2-mL tubes and 4 x 7 mL tubes
- Convenient front-loading tube holder position for ease of use and optimal bead/sample interactions
- Processing range is ideal for soft tissue samples.
- No cool-down required between runs = non-stop processing
- Disposable tubes ensure no threat of cross-contamination.
- No sample degradation due to quick processing
- Features and integrated lid lock.



VICTOR Nivo and Victor Kira Multimode Microplate Reader



The VICTOR Nivo system is a high-performance filter-based multimode microplate reader equipped with all major detection technologies:

Absorbance	**Luminescence**	**Fluorescence Intensity**
Time-Resolved Fluorescence	**Fluorescence Polarization**	

It's a compact, light-weight multimode plate reader designed for life science research laboratories performing routine low-throughput assays, or assay development work, with diverse application requirements. When combined with the stacker, throughput for the VICTOR Nivo is increased and productivity is enhanced by enabling users to set up walk away automation so they can focus on their research and not on managing plates.

Analytical Chromatography Suite

HPLC and GC are included here because they routinely sit downstream of the Centre's imaging and sample-prep workflows — confirming a compound, metabolite or biomarker that imaging or cytometry has flagged.

HPLC — High-Performance Liquid Chromatography

ANALYTICAL SEPARATION

Used for compound identification, purity checks, and quantitation of metabolites, drug candidates and phytochemicals recovered from cell, tissue or plant samples — a standard analytical-confirmation step after an imaging or cytometry-based screen.

GC — Gas Chromatography

ANALYTICAL SEPARATION · VOLATILE & SEMI-VOLATILE COMPOUNDS

Complements HPLC for volatile and semi-volatile analytes — fermentation off-gases, essential oils, short-chain fatty acids and similar metabolite classes referenced elsewhere in the department's consultancy areas (e.g. gut/fermented-food metabolite profiling).

COE Technical Consultancy Domains

Beyond individually bookable tests, the Centre supports sustained consultancy in diverse domains — drawn from current faculty consultancy expertise and mapped onto platform capability, so a project can be scoped against a domain rather than a single instrument.

Cancer Biomarker Discovery & Validation

Oncobiomarker identification and validation — IHC/immunofluorescence staining, high-content quantitation of marker expression across cell populations, and functional assays (migration, invasion, cytotoxicity) on cancer cell lines. Builds on the department's Cancer Biology & Oncodiagnostics consultancy area.

PLATFORMS: Operetta CLS · Cellaca PLX · HPLC (compound/metabolite confirmation)

Biosensor Development & Point-of-Care Diagnostics

Support for medtech and point-of-care diagnostic device development, including validating a biosensor's readout against gold-standard imaging or cytometry assays run in parallel — e.g. comparing device signal to Cellaca PLX cell counts or Operetta CLS fluorescence quantitation. Builds on the department's medtech/point-of-care device-development consultancy area.

PLATFORMS: Cellaca PLX · Operetta CLS · HPLC/GC (for chemical-sensor analyte confirmation)

Animal Tissue Culture, Primary Cell Models, Stem Cells, Organoid Development

Isolation, culture and characterisation of primary cells and animal-tissue-derived models (including stem-cell and bone/cartilage repair models), feeding directly into phenotypic and viability assays. Supported jointly by the Centre and the Animal Tissue Culture and Animal House facilities.

PLATFORMS: Operetta CLS · Cellaca PLX · Animal Tissue Culture Facility · Animal House Facility

Pharmacokinetics & Biodistribution (imaging-based)

Longitudinal, non-invasive tracking of a labelled compound's or reporter's distribution, accumulation and clearance in live animals using bioluminescence/fluorescence imaging — a widely used early-stage alternative or complement to classical serum-sampling pharmacokinetic studies, particularly for biodistribution screening ahead of a full PK study.

PLATFORMS: IVIS Lumina

Extended Consultancy Domains

01

Stem Cells & Regenerative Medicine

Stem cell isolation, expansion, characterisation and differentiation; in vitro and in vivo bone/cartilage repair models; adipogenesis, scaffold biocompatibility assays; cytotoxicity and compound-screening assays; would healing assay, cell migration assays

02

Gut Microbiome & Metagenomics

Gut microbiome metabolite profiling and metagenomics analysis; sample preparation and GC-FID analysis of stool and fermented-food samples for microbial and metabolite signatures.

03

Immunology

Immunological assays: ELISA, ELISPOT, Immunohistochemistry, blood grouping, Western blot

04 Plant Biotechnology & Genome Editing

Plant tissue culture establishment and transgenics, plant genome editing, genetic engineering for crop improvement and molecular breeding, ISSR/RAPD/SNP marker analysis, and de-novo transcriptomics.

05 Analytical Chemistry & Metabolomics

Spectroscopy data analysis (UV–Vis, fluorescence, IR), phytochemical extraction and HPLC analysis, antioxidant activity measurement, and multivariate statistical analysis of chemical/biological datasets, Specialized metabolites including volatiles identification and characterization.

06 Molecular & Computational Biology

Agricultural biotechnology; recombinant protein expression, purification and characterisation; genomics, transcriptomics and differential gene expression; computational proteomics and large-scale sequence analysis.

07 Computational Biology, Bioinformatics & HPC

Structural bioinformatics and protein structure prediction/homology modelling; molecular docking and virtual screening for hit identification; molecular dynamics (MD) simulation of protein–ligand systems; genome and sequence analysis/annotation; and GPU-accelerated compute for large-scale omics and modelling workloads.

Testing Services & Indicative Pricing

Individually bookable services built on the Centre's platforms. Costs are placeholders — see the pricing note at the end of this section.

High-Content Imaging (Operetta CLS)

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
High-content phenotypic screening (fixed-cell)	Per Plate	₹ 590	₹ 1,770	₹ 2,950
Live-cell imaging assay	Per Plate	₹ 590	₹ 1,770	₹ 2,950
3D organoid / spheroid imaging & quantitation	Per Plate	₹ 590	₹ 1,770	₹ 2,950

In Vivo Imaging (IVIS Lumina)

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
Bioluminescence / fluorescence in vivo imaging session	Per Session	₹ 2,950	₹ 4,720	₹ 7,080
Longitudinal tumour / infection tracking study	Per Animal Cohort	₹ 2,950	₹ 4,720	₹ 7,080
Biodistribution / pharmacokinetic imaging study	Per Study	₹ 2,950	₹ 4,720	₹ 7,080

Image Cytometry (Cellaca PLX)

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
Cell counting & viability determination	Per Sample	₹ 236	₹ 590	₹ 1,180
Basic immunophenotyping	Per Sample	₹ 236	₹ 590	₹ 1,180

Microfluidics QC (LabChip)

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
Nucleic acid sizing & quantitation (DNA/RNA)	Per Sample	₹ 590	₹ 1,770	₹ 5,310
Protein sizing, concentration & purity check	Per Sample	₹ 590	₹ 1,770	₹ 5,310

Sample Preparation

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
Tissue / cell homogenisation service	Per Batch	₹ 295	₹ 590	₹ 1,180

Analytical Chromatography

Test	Unit	Academic – MIT-WPU	Academic – Other Institutions	Industry / Non-Academic
HPLC-based compound identification & quantitation	Per Sample	On Request	On Request	On Request
GC-based volatile / semi-volatile compound analysis	Per Sample	On Request	On Request	On Request

Project Bundles

Platform services packaged for common preclinical project types, priced as a bundle rather than individually — indicative discount range 10–20% versus buying each service separately, to be finalised as per the project demands.

Preclinical Imaging Package

FOR: labs/companies needing cell-to-animal imaging evidence for a candidate compound or model

- High-content phenotypic screening (Operetta CLS)
- In vivo bioluminescence/fluorescence imaging (IVIS)
- Cell counting & viability QC (Cellaca PLX)

Biosensor & POC Diagnostic Validation Package

FOR: medtech / biosensor developers benchmarking a device readout against gold-standard assays

- Cell counting & viability reference assay (Cellaca PLX)
- Fluorescence quantitation reference assay (Operetta CLS)
- HPLC/GC-based analyte confirmation

Molecular QC & Confirmation Package

FOR: labs preparing samples for sequencing, cloning, or compound confirmation

- Nucleic acid / protein sizing & QC (LabChip)
- HPLC-based compound confirmation
- Sample homogenisation

3D Model & Organoid Screening Package

FOR: groups developing organoid, spheroid or 3D tissue models

- Sample homogenisation / dissociation
- 3D organoid/spheroid high-content imaging
- Image cytometry viability check

Skill Development Workshops

STUDENTS · RESEARCH SCHOLARS · INDUSTRY PARTICIPANTS

Short, hands-on sessions run on the Centre's own instruments, aimed at researchers who need working proficiency on a specific platform rather than a full course.

High-Content Imaging & Analysis

Hands-on session on the Operetta CLS — assay setup, image acquisition, and phenotypic analysis in Harmony software.

In Vivo Imaging Techniques

Bioluminescence/fluorescence imaging on IVIS Lumina, covering animal handling, acquisition settings, and longitudinal study design.

Nucleic Acid & Protein QC by Capillary Electrophoresis

Running and interpreting LabChip-based sizing, quantitation and purity assays.

Applied HPLC / GC for Life Sciences

Sample preparation, run setup, and result interpretation for compound and metabolite analysis.

Format, duration, batch size, and fees per workshop are to be finalised with the Centre coordinator; typical short-course format is 1–3 days, small-batch, instrument-time-limited.

Executive Certifications and Workshops

FOR PARTNER INSTITUTIONS & EXTERNAL FACULTY

Structured programmes for faculty from other colleges/universities to build teaching and research capacity in modern imaging and analytical methods, typically run as an AICTE/UGC-recognised FDP where required.

- Advanced Bioimaging & High-Content Screening for Life Science Educators
- Preclinical In Vivo Imaging: Principles, Ethics & Practice
- Modern Analytical Techniques in the Life Sciences Curriculum (HPLC/GC/Capillary Electrophoresis)

Content, certification, and scheduling to be finalised with the Centre coordinator and the university's Faculty Development Cell.

Research-Oriented Internships

STUDENTS & EARLY-CAREER RESEARCHERS

Project-based internships giving hands-on exposure to the Centre's imaging and analytical platforms as part of an active research or consultancy project, rather than observation-only lab visits.

Track	What it involves
Short-term (4–8 weeks)	Platform-focused: training on one instrument (e.g. Operetta CLS or IVIS) plus a defined mini-project
Semester-length	Embedded in an ongoing consultancy or research project; co-authorship / project report on completion
Dissertation / thesis-linked	For students requiring a research-internship component for their degree; scoped jointly with the student's home institution

Eligibility, intake cycles, and application process are to be confirmed with the Centre coordinator before this section is circulated externally.

Work With Us For Research Excellence

Contact Us	Facility Booking	For Bookings & Consultation	coebiti@mitwpu.edu.in
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Ms. Amrita Sinhary	Laboratory Officer	Facility usage & user queries	amrita.sinha@mitwpu.edu.in
Ms. Madhu Choubey	Laboratory Officer	Facility usage & user queries	madhu.kumari@mitwpu.edu.in

Engagements range from a single test or a one-day workshop to multi-month sponsored studies and semester-long internships. Each request is scoped with the Centre before commercial or academic terms are discussed.

01

Share the brief

Write in with your requirement — a test, a bundle, a workshop, or an internship placement — and your timeline.

02

Platform scoping call

The Centre reviews feasibility against current instrument availability and flags any gaps upfront.

03

Terms & approvals

Scope, cost, IP/confidentiality (for consultancy) or academic terms (for training / internships) are agreed as per norms.

04

Delivery

Work, training, or internship proceeds on schedule, concluding in a data package, certificate, or project report as agreed.



Start A Conversation With The Centre

Reach the Centre's coordination point for consultancy, workshops, or internships — contact details are shared on request.

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