

Cell-Free Assays	
Assay	Methodology
	Absorbance = Abs, Fluorescence = FI, Fluorescence Polarization = FP, Homogeneous Time Resolved Fluorescence = HTRF, Fluorescence Resonance Energy Transfer = FRET, Western Blot = WB, Immuno precipitation = IP
Enzymatic Assays	
Intended Purpose: Determination of kinetic parameters such as Km, Vmax, etc.; IC50; Low, Medium, and High throughput Screening.	
Enzymatic Assays for	ABS, FI, FP, HTRF
Kinases (PKC alpha)	
Proteases (HIV1 Protease, Cathepsin B)	
Phosphodiesterases (PDE V)	
Metabolic Enzymes	
ECM (Collagenase, Transglutaminase)	
G-Protein	
Adenylate Cyclase	
FAAH	
Biliverdin reductase FI	
Receptor Activities	
Intended purpose: Ligand, agonist and antagonist binding: Determination of Kd, Bmax, EC50 and IC50 for inhibitors.	
Receptors	FP, HTRF
Trimeric G-proteins	
Small G Proteins; Examples: Protein Gq, Rac	
Estrogen Receptors	
Immuno Assays	ELISA, FACS, FP
Detection of analytes/molecules though with the aid of antibodies (eg ELISA)	

hCGbeta, hFc, MCP1, Insulin	
Collegen	
<b>Proteomics</b>	
Intended purpose: establishing assays for protein-protein interactions, preparation of samples, antibodies characterization	
Cell extractions	RIPA
Protein detection	SDS-PAGE, WB
Protein quantification	Bradford, Lawry, BCA
Proteomic profiling	2-D gel
<b>Protein-Protein interactions</b>	<b>ELISA, HTRF, FP, Alpha-screen, SEC analysis</b>
<b>Phosphorylation &amp; De-Phosphorylation in vitro</b>	<b>W.B, HTRF, FACS</b>
<b>Detection of: cytoplasmic, nuclear, membrane, and cytoskeleton proteins</b>	<b>ELISA, W.B., FACS, IP</b>
<b>Ligand protein interaction</b>	
Binding assays	IP&W.B., FRET, HTRF, FP
Competition-based binding assays	IP&W.B., FRET, HTRF, FP
Inhibition in binding assays	FRET, HTRF, FP
<b>Fluorophore Labeling of Proteins and Peptides</b>	Fluorescein, Biotin, Alexa-flu
<b>Compound Characterization</b>	
Solubility	ABS, HPLC
Fluorescence Spectroscopy	3D FI
Protein - Peptide/Nucleic acids/Small molecule Interaction	FP
Nucleic acids quantification	
<b>Biophysical Assays</b>	
Protein-small molecule interaction	Thermal Shift
<b>Other</b>	
In-vitro transcription/translation	
FRET in confocal microscopy	

<b>Cell Based-Assay</b>	
<b>Assay</b>	<b>Methodology</b>
<b>Tissue Culture</b>	
BL2 facility enable diverse tissue culture activities	
Grow and Store Cells	Tissue culture methods
* Cell bank storage available	
Cell extractions for protein and small molecular detection.	ELISA, W.B, Profiling RA, LC-MS/MS
<b>Immune Response Assays</b>	
Analyzing blood cells' response to different agents	
Isolation of PBMCs from whole blood	Gravity Sedimentation
T Cell enrichment	Magnetic separation
T Cell Activation/Expansion	CD3+CD28 antibodies
Inflammation assays	
<b>Potency Assays</b>	
Proliferation/Activation/Apoptosis	WST1, WST3, IL2 (T cells), BRDU
Interleukins, TNF, growth factors...	
Induction of cell differentiation (Such as L1 Pre-Adipocytes to differentiated Adipocytes)	Induction methods
Glucose Uptake in 3T3-L1	
Proliferation of fibroblasts (CRL2522) and endothelial cells treated with recombinant human proteins	
Binding to folate receptor in KB cells	
Toxicity assays	WST1, MTT, XTT, Anexcin CY3, Cell titer glo...
Angiogenesis Assay	use ECM matrix gel
Autophagy-a lysosomal degradation pathway for cytoplasmic material and is activated during cellular stress	Two forms of LC3 may be seen by Western blot
Cell Adhesion and attachment	CytoSelect™ ECM Cell Adhesion Assays (Cell Biolabs)
* Example: Fibroblast attachment assay	

Cell Migration: Chemotaxis, Haptotaxis, Transmigration, Wound healing	Cell Biolabs kits
* Example: Transwell using mcp1 as chemo-attractent	Matrigel, Transwell + WST1
<b>Cell Signaling</b>	Cell Biolabs Kits, FACS, ELISA, Propidium Iodide (PI) read in FACS, Transfections, Transformations, mRNA, RNA, miRNA, siRNA, DNA and RNA-Plex, LC-MS/MS
Trimeric G protein via forskolin induced cAMP	
Detect cell surface receptors and antigens	
Cell cycle	
Ectopic expression of Proteins in Bacteria & mamalian cell lines	
Cell activation measured by Ca <sup>++</sup> influx	
Tgase activity	
Gene expression/quantification	
Targeted metabolomic	
<b>Protein-Protein Interaction</b>	
Mammalian two hybrid	
Binding Assays	IP-WB, ELISA
<b>Cell Permeability Assay</b>	
Kinetic of drugs internalization into cells	LC-MS/MS

<b>Bioassay</b>	
<b>Assay</b>	<b>Methodology</b>
<b>Detection of Peptides in Serum</b>	ELISA, LC-MS/MS
<b>Detection of Antibodies in Serum</b>	ELISA, FP, HTRF
<b>Detection of Cytokines in Serum</b>	HTRF, W.B,
<b>Penetration of Blood Brain Barrier</b>	LC-MS/MS
<b>Pharmacokinetic Analysis</b>	
Quantification of small molecules/peptide in biological fluids and tissue	LC-MS/MS

<b>Early in vitro ADMETox</b>	
<b>Assay</b>	<b>Methodology</b>
<b>Absorption</b>	
Intestinal absorption - Caco 2 cells	LC-MS/MS
<b>Distribution</b>	
Binding to plasma proteins	HPLC, LC-MS/MS
<b>Metabolism</b>	
Metabolic Stability - Microsomes	HPLC, LC-MS/MS
Esterases Metabolism - Microsomes	HPLC, LC-MS/MS
CYP-Inhibition	Recombinant CYP450 isozymes
CYP-Induction	mRNA
<b>Toxicity</b>	
Cytotoxicity	WST1-viability assay
Cardiotoxicity	Binding assay-FP