

HTRF Assays

免沖洗的生物分子檢測平台

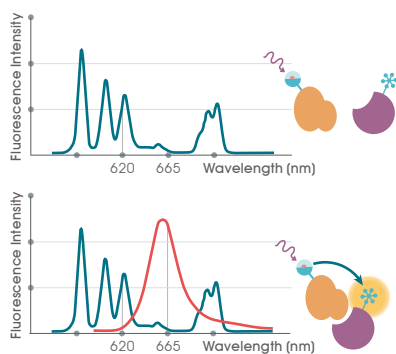


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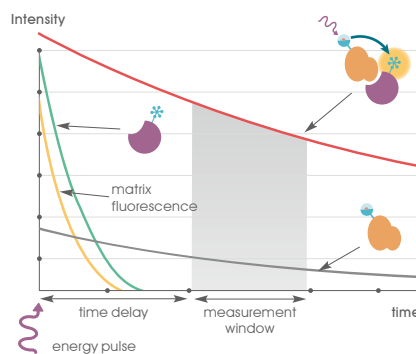
revvity | cisbio

About HTRF®

HTRF® 時差性螢光共振能量轉移技術 (Homogeneous time resolved fluorescence) 是 Revvity 公司旗下 Cisbio 研發團隊結合螢光共振能量轉移 (Fluorescence resonance energy transfer, FRET) 與時差性螢光 (Time-resolved fluorescence, TRF) 兩大技術所開發出來的生物分子檢測平台，具有上千篇文獻紀錄，可廣泛應用於 GPCRs research、Kinase assay、Biomarkers detection、Immuno-oncology research 等多種研究領域。完整產品資訊與技術應用指引，歡迎洽詢 Cisbio (part of Revvity) 台灣代理 [伯森生技](#)。



FRET 螢光共振能量轉移：為架構於兩個螢光分子 (Donor fluorophore 與 Acceptor fluorophore) 之間能量轉移的分析技術。當 Donor (Europium-cryptate or Terbium-cryptate) 與 Acceptor (XL665 or d2) 因為有專一性結合而拉近距離，此時以特定波長光源激發 Donor，即會藉由能量轉移激發 Acceptor 產生 665 nm 的螢光訊號。



TRF 時差性螢光：利用鐳系元素 (例如 Europium-cryptate、Terbium-cryptate) 作為 TRF 螢光分子，其獨特的螢光特性，使其較一般螢光擁有更長的發光時間。透過檢測儀設定 Time delay 延後訊號偵測時間，即可降低背景螢光訊號的干擾。

HTRF 技術優勢

- **高訊噪比**：具有 TRF 時差性螢光高靈敏度、低背景值特性，大幅加強訊噪比表現 (Signal-to-noise ratio)。
- **訊號穩定**：完成反應後，訊號可穩定維持數小時至數天，有利於彈性安排訊號偵測時間，亦適合進行 Kinetic 動態分析。
- **低干擾**：以 665/620 nm ratio 進行結果計算，可校正分析物質潛在的干擾現象。
- **操作便利**：全均質化 (Homogeneous) 步驟，過程中免沖洗和分離，適合高通量篩選 (High-throughput screening, HTS)。



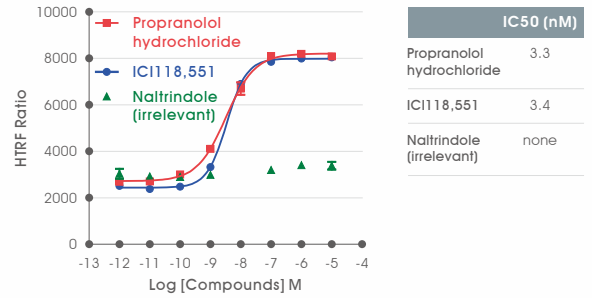
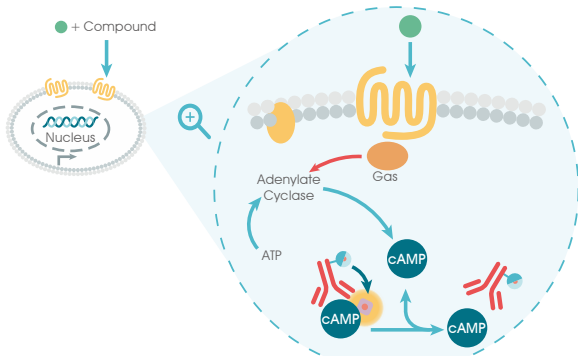
GPCRs assays

針對 GPCRs 研究，我們提供包含 Gs, Gi, Gq protein 2nd messengers、Receptor binding assays 等分析檢測試劑，全面滿足 GPCRs 研究領域需求。



cAMP Gs & Gi Assays

- **款式多元**：具有不同的靈敏度及偵測區間可選擇，以滿足各種 cAMP 定量需求。
- **快捷便利**：細胞裂解及偵測單一步驟即可完成。
- **高效彈性**：適合應用於 Gs & Gi 的 Agonists 與 Antagonists 分析。



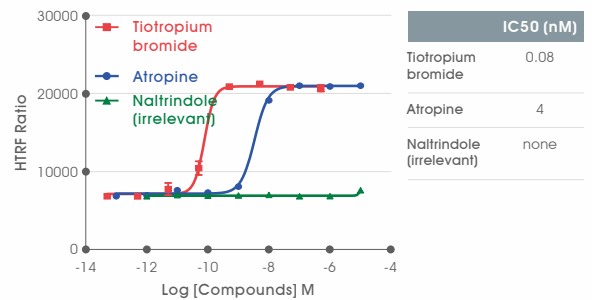
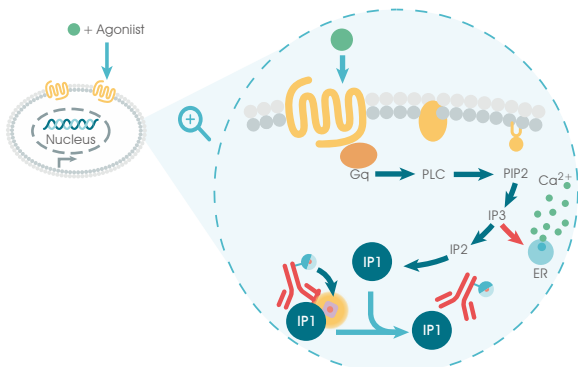
Gs Antagonist Dose Response - Antagonist screening in HEK293 cells (Beta2 AR receptor). An EC90 concentration of isoproterenol (80 nM) was used to stimulate cells pre-incubated with either Propranolol hydrochloride or IC118,551, 2 known antagonists of the Beta 2 adrenergic receptor, while naltrindole was used as a negative control.

Product	Size	Cat. No.	Note
cAMP - Gs Dynamic kit	1000 tests	62AM4PEB	Also available under 20000 tests.
cAMP - Gs HiRange kit	1000 tests	62AM6PEB	Also available under 20000 tests. Suitable for membrane preparations.
cAMP - Gi kit	1000 tests	62AM9PEB	Also available under 20000 tests.
IBMX - Phosphodiesterase inhibitor	40 µl	62AMXADA	Also available under 500 µl.
Forskolin - Adenyl cyclase activator	40 µl	62AMYADA	Also available under 800 µl.

IP-One - Gq Assay

偵測 Calcium-Flux 是用來評估 Gq coupled GPCR 是否被活化的常用指標，但細胞鈣離子濃度，通常是一瞬間短暫的變化，易有偵測上的困難，特別是緩效型的藥物 (Slow-acting drugs)。本產品透過偵測 IP1 來評估 Gq coupled GPCR 活性變化，具有以下優勢特點：

- **更精確**：取代瞬間變化且較難執行的 Calcium-Flux 分析，更能精準篩選出有效化合物。
- **快捷便利**：細胞裂解及偵測單一步驟即可完成。
- **高效彈性**：適合應用於 Gq 的 Agonists 與 Antagonists 分析。



Gq Antagonist Assay - Antagonist screening in CHO cells (Muscarinic M1 receptor). An EC90 concentration of acetylcholine (175 nM) was used to stimulate cells pre-incubated with either Tiotropium bromide or Atropine, 2 known antagonists of the Muscarinic M1 receptor, while naltrindole was used as a negative control.

Product	Size	Cat. No.
IP-One - Gq kit	1000 tests*	62IPAPEB
IP-One - Gq ELISA kit	96 tests**	72IP1PEA

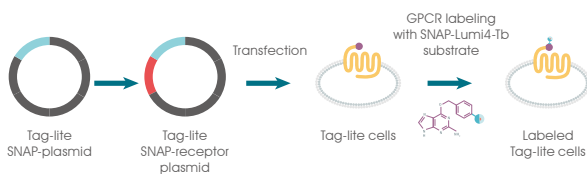
Also available under *20000 tests and **5 x 96 tests.

Cell-based Tag-lite® Receptor Binding Assays

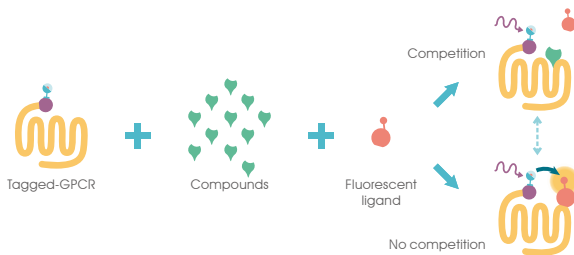
利用 Tag-lite® 技術架構出帶有螢光標定的特定 GPCRs 表現細胞，搭配螢光標定 Ligand，即可以 HTRF 方法學進行 Receptor-Ligand binding assay。Tag-lite® 系列產品具有以下優勢特點：

- **操作更安全**：可取代傳統放射線實驗方法分析 Kd 及 Ki 值。
- **結果可信賴**：與傳統放射線實驗結果具高度相關性。
- **彈性應用**：除了 Ready-to-use 的 Tag-lite® GPCR cells 之外，亦有 Plasmid 及螢光 Substrate 可供自行標定感興趣的細胞。
- **多元分析**：細胞功能不因螢光標定而受影響，可同步進行下游 Gs, Gi, Gq protein 等功能性分析。

Tag-lite® Technology



Tag-lite® Receptor Binding Assay Principle



Ligands & Labeled Cells

Family	Receptor	Ligand	Labeled Cells
Adenosine	A1	L0067RED	C1TT1A1
Adenosine	A2A	L0058RED	C1TT1A2A
Adenosine	A2B	L0068RED	C1TT1A2B
Adenosine	A3	L0069GRE	C1TT1A3
Adrenoceptor	Beta 1	L0023GRE	C1TT1BETA1
Adrenoceptor	Beta 2	L0011GRE	C1TT1BETA2
Angiotensin	AT2	L0007RED	C1TT1AT2
Chemokine	CXCR4	L0012RED	C1TT1CXCR4
Dopamine	D2	L0002RED	C1TT1D2
Glucagon	GIPR	L0018RED	C1TT1GIPR
Glucagon	GLP1	L0030RED	C1TT1GLP1
Opioid	Delta opioid	L0005RED	C1TT1DOP
Opioid	Kappa opioid	L0005RED	C1TT1KOP
Opioid	Mu opioid	L0005RED	C1TT1MOP
Orexin	OX2	L0025RED	C1TT1OX2
Serotonin	5HT1A	L0029RED	C1TT15HT1A
Serotonin	5HT4	L0043RED	C1TT15HT4
Vasopressin/Oxytocin	V2	L0063RED	C1TT1V2

Plasmids

Product	Size	Cat. No.
SNAP-Tag pT8-SNAP (Hygromycin)	10 µg	PT8SNAPHYG
SNAP-Tag pT8-SNAP (Neomycin)	10 µg	PT8SNAPNEO
SNAP-Tag pT8-SNAP (Zeocin)	10 µg	PT8SNAPZEO

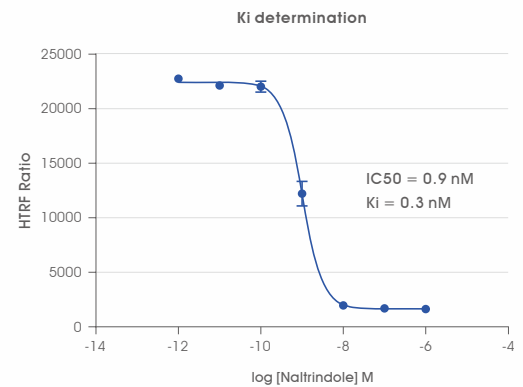
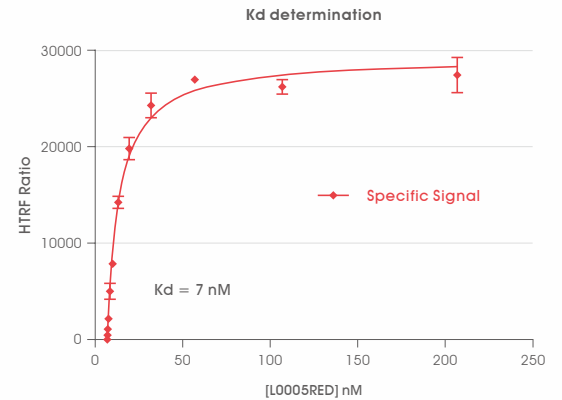
Substrates

Product	Size	Cat. No.
SNAP-Lumi4-Tb	2 nmoles*	SSNPBTC
SNAP-Green	5 nmoles**	SSNPGRNE
SNAP-Red	20 nmoles***	SSNPRED

Also available under *5 nmoles & 5 x 5 nmoles, **5 x 5 nmoles and ***5 x 20 nmoles.

Labeling Medium

Product	Size	Cat. No.
Tag-lite® labeling medium 5X	100 ml	LABMED



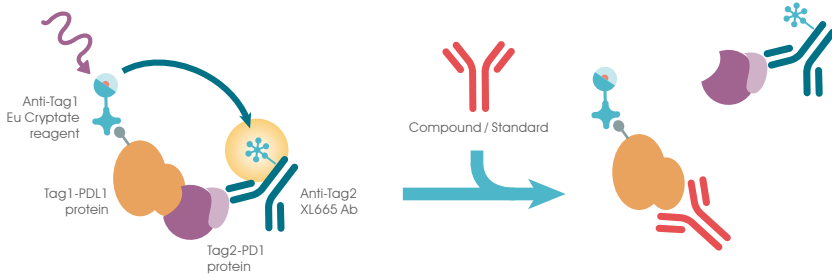
Delta opioid receptor ligand binding assays. Using delta opioid labeled cells and their matching fluorescent ligand (#L0005RED). (Top) saturation binding assays (Kd) and (Bottom) competitive binding assays (Ki). Naltrindole was used as reference ligand.

Immuno-Oncology assays

Immune Checkpoint Assays

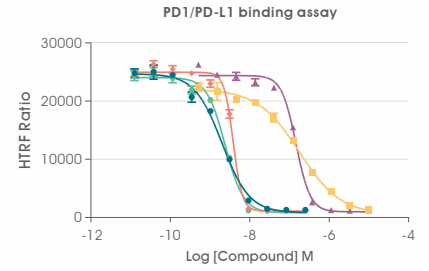
免疫檢查點阻斷 (Immune checkpoint blockade) 為癌症免疫療法中極受重視的一環。本系列產品可協助研究者快速篩選出具有潛力的免疫檢查點阻斷藥物。

Assay Principle (以 PD1/PD-L1 binding assay 為例)



Product	Size	Cat. No.
CD47/SIRP alpha binding kit	500 tests	64SIRPPEG
CTLA4/B7-1 binding assay kit	500 tests	64ICP04PEG
CTLA4/B7-2 binding assay kit	500 tests	64ICP05PEG
LAG3/MHC II binding assay kit	500 tests	64ICP03PEG
PD1/PD-L1 binding assay kit	500 tests	64PD1PEG

Also available under 10000 tests.



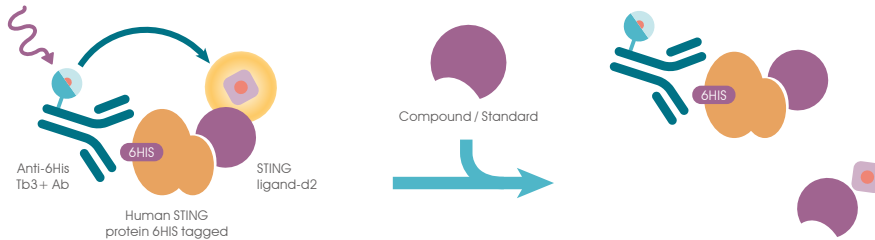
Compound	IC50 (M)
anti-PD1 Ab (pembrolizumab)	2.013e-009
anti-PD-L1 Ab (atezolizumab)	3.839e-009
anti-PD1 Ab (nivolumab)	2.408e-009
PD1/PD-L1 inhibitor 1 (S7911)	1.774e-007
PD1/PD-L1 inhibitor 3 (S8158)	1.460e-007

Inhibitory effect of blocking antibodies and small molecules. The inhibitory effects of three antibodies and two small molecules known to inhibit the PD1 / PD-L1 interaction were tested.

cGAS-STING Pathway Assays

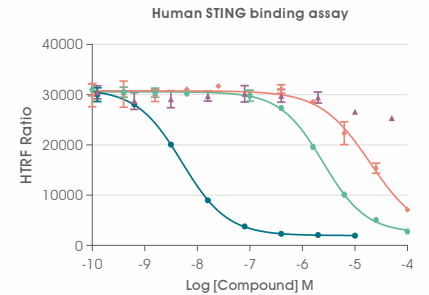
STING pathway 與感染性疾病、自體免疫疾病密切相關，當此路徑激活時可誘導下游產生 IFN- α/β ，引發細胞先天性免疫反應。近幾年更有研究指出 STING 的 Agonist，例如 cGAMP、cyclic di-GMP 等，可擔任免疫治療佐劑 (Adjuvant) 角色，參與諸如癌症疫苗、免疫檢查點抑制劑、嵌合抗原受體 T 細胞 (CAR-T) 療法，成為癌症免疫療法研究領域的新寵兒。本系列產品涵蓋多款 STING 結合分析與蛋白定量試劑，協助研究者快速篩選出具有潛力的 STING Agonist 藥物。

Assay Principle



Product	Size	Cat. No.
Human STING WT binding kit	500 tests	64BDSTGPEG
Human H232 STING binding kit	500 tests	64BDSTGHPEG
Human AQ STING binding kit	500 tests	64BDSTGQPEG
STING phospho-S366 kit	500 tests	64STGPEG
STING total kit	500 tests	64NTGPEG

Also available under 10000 tests.



Compound	Ki
2'-3' cGAMP	2.5 nM
cyclic di-AMP	~10 μ M
cyclic di-GMP	1.2 μ M
DMXAA	NS

Compound screening. Various compounds known as STING ligands were added to the assay. 2'-3' cGAMP (assay standard), cyclic di-AMP, and cyclic di-GMP display the right potency in good correlation with the literature. DMXAA, a non-specific compound, also well-known mouse STING binder, has no effect on the assay, confirming the human specificity of the kit.

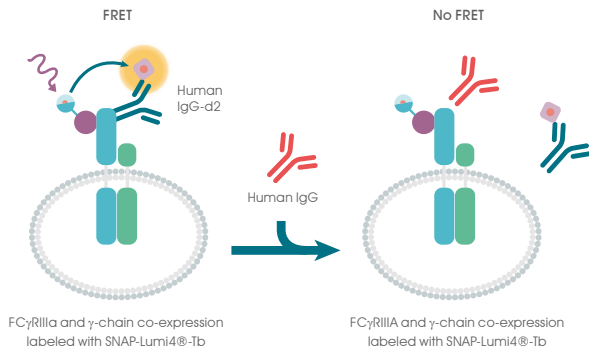
Biotherapeutics assays

Fc Gamma Receptor (FcγR) and Neonatal Fc (FcRn) Binding Assays

治療性抗體 Fc region 與免疫細胞表面 Fc receptor 的結合，可啟動免疫細胞的抗體依賴性細胞毒殺反應 (Antibody-dependent cell cytotoxicity, ADCC)。透過與 FcRn 的結合，亦可延長治療性抗體在體內循環的半衰期。

本系列產品採用 Tag-lite® 技術 (p. 3)，可協助研究者快速檢測抗體 ADCC 活性，或是評估抗體 Fc region 變異或岩藻醣基化 (Afuosylation) 修飾程度對於 FcγR 或 FcRn 結合能力的影響性。

Assay Principle (以 FcγRIIIa 為例)

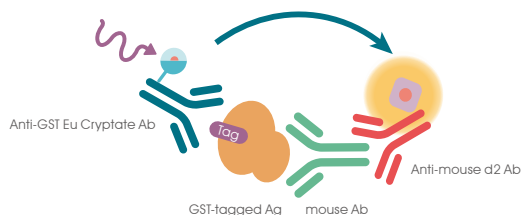


Product	Size	Cat. No.
CD16a (FcγRIIIa, F158) cellular kit	100 tests*	6FR3APAG
CD16a (FcγRIIIa, V158) cellular kit	100 tests*	62C16PAG
CD32a (FcγRIIa, H131) cellular kit	100 tests*	6FRAHPAG
CD32a (FcγRIIa, R131) cellular kit	100 tests*	6FRARPAG

IgG Detection Kits

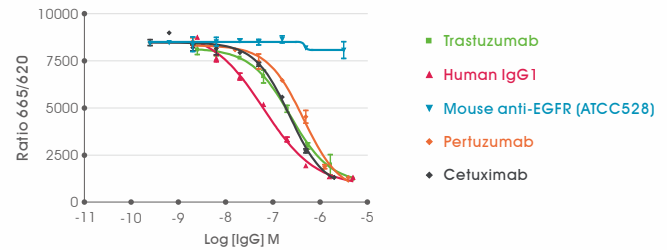
以 HTRF® 技術分析 Antibodies、Antibody fragments、Fc-containing proteins 或做 Hybridoma screening。

Assay Principle (以 Hybridoma (mouse) binding - GST antigen kit 為例)



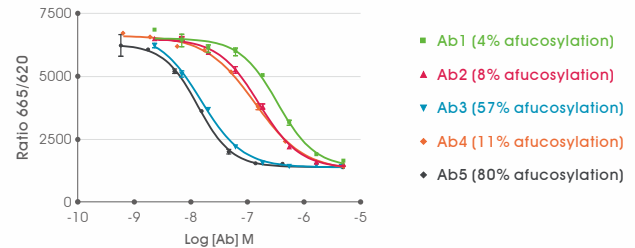
Affinity determination of therapeutic antibodies

Fc binding on CD16a with various IgGs



Therapeutic Ab	Trastuzumab	Human IgG1	Pertuzumab	Cetuximab
EC50 (M)	2.340e-007	6.312e-008	4.462e-007	2.275e-007

Effect of antibody afucosylation degree on CD16a affinity



Ab (% afucosylation)	Ab1 (4%)	Ab2 (8%)	Ab3 (57%)	Ab4 (11%)	Ab5 (80%)
EC50 (M)	3.409e-007	1.601e-007	1.523e-008	1.362e-007	1.331e-008

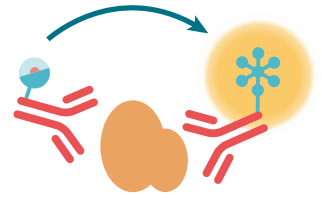
Product	Size	Cat. No.
CD32b (FcγRIIb) cellular kit	100 tests*	6FR2BPAG
CD64 (FcγRI) cellular kit	100 tests*	6FC64PAG
FcRn kit	100 tests	64FCRNPET

*Also available under 5 x 100 tests and 10 x 100 tests.

Product	Size	Cat. No.
Human Fc kit	500 tests	62HFCPEG
Mouse Fc kit	500 tests	6FMIGPEG
Rabbit Fc kit	500 tests	6FRIGPEG
Human IgG kit	500 tests	6FHIGPEG
Kappa MAb kit	500 tests	64KAPPEG
Lambda MAb kit	500 tests	64LAMPEG
Hybridoma (mouse) binding - GST antigen kit	500 tests	64HYGSTPEG
Hybridoma (mouse) binding - HIS antigen kit	500 tests	64HYHISPEG

Also available under 10000 tests.

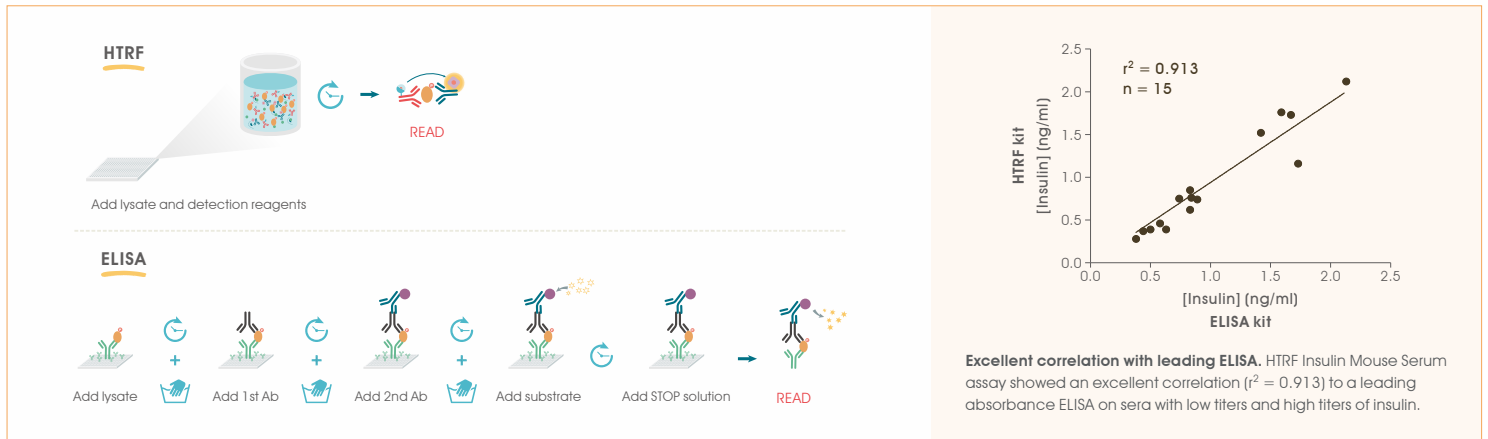
Biomarkers detection assays



Biomarkers Assays

使用 HTRF® 技術偵測 Biomarkers 具有以下優勢特點：

- **操作更簡單**：操作流程較傳統 ELISA 單純，僅需將樣本及試劑加入 Well 中，無須洗滌步驟，等待反應完畢後即可直接偵測。
- **實驗排程更靈活**：大幅減少人力操作所耗費的時間，可更有效率地安排其他實驗。
- **結果可信賴**：與 ELISA 實驗結果具有高度相關性。



Allergy

Product

Histamine - Dynamic kit

Cardiovascular

Product

cGMP kit
Human Apolipoprotein A1 kit
Human Apolipoprotein B kit
Human Apolipoprotein C3 kit
Human Apolipoprotein E kit
Human PCSK-9 kit

CNS

Product

Human Amyloid beta 1-40 kit
BDNF kit
GAD67 kit
Human MANF kit
A-Synuclein aggregation kit
Alpha-synuclein total kit
MAP-Tau kit
Tau aggregation kit
TDP-43 kit
Human TREM-2 kit

Cytokines

Product

Human CCL2 (MCP1) kit
Mouse CCL2 (MCP1) kit
Human CCL3 (MIP1a) kit

Cytokines (continued)

Product

Human CCL4 kit
Human CCL5 (RANTES) kit
Human CCL20 kit
Human CXCL1 (GROa) kit
Human CXCL10 (IP10) kit
Human G-CSF kit
Human GM-CSF kit
Human Granzyme B kit
Human IFN alpha kit
Human IFN beta kit
Mouse IFN beta kit
Human IFN gamma kit
Mouse IFN gamma kit
Human IL1 alpha kit
Mouse IL1 alpha kit
Human IL1 beta kit
Mouse IL1 beta kit
Human IL2 kit
Mouse IL2 kit
Human IL4 kit
Human IL5 kit
Human IL6 kit
Mouse IL6 kit
Human IL8 kit
Human IL10 kit
Human IL11 kit
Human IL12 kit

Cytokines (continued)

Product

Human IL13 kit
Human IL17 kit
Mouse IL17 kit
Human IL18 kit
Human IL22 kit
Human IL23 kit
Human IL31 kit
Human Perforin-1 kit
TGF beta 1 kit
Human TNF alpha kit
Mouse TNF alpha kit
Cynomolgus TNF alpha kit

Diabetes

Product

Glucagon Serum kit
Glucagon kit
Active GLP1 kit
Insulin Mouse Serum kit
Insulin Ultra Sensitive kit
Insulin High Range kit
Rat IGF1 kit
Human PCSK-9 kit

Hormones

Product

Aldosterone kit
Cortisol kit

Hormones (continued)

Product

Estradiol kit
Progesterone kit
Prostaglandin E2 kit
Testosterone kit

Immunity

Product

Human Granzyme B kit
HMGB1 kit
MDA5 aggregation kit
MDA5 kit
Human Perforin-1 kit
Human STING binding kit

Inflammation

Product

Human Heme Oxygenase kit
LTB4 kit
LTC4 kit
Prostaglandin E2 kit

Intracellular Proteins

Product

Human c-Myc cell-based kit
Human Ki-67 kit
HIF-1 alpha kit
PARP cleaved-Asp214 kit
Alpha-Tubulin acetyl-K40 kit
Alpha-Tubulin kit

NASH

Product

Alpha-SMA kit
Hyaluronic acid kit
Hyaluronic Acid ELISA kit
Human MMP2 kit
Human MMP9 kit
Human TIMP1 kit
Procollagen-III-peptide (P3NP) ELISA Kit
Pro-collagen Type 1 (human) kit

Rare Diseases

Product

Human FMRP kit
Human Frataxin kit
Human MBNL1 kit
Myosin Heavy Chain kit
Human SMN kit
Human Utrophin kit
Mouse Utrophin kit

Virology

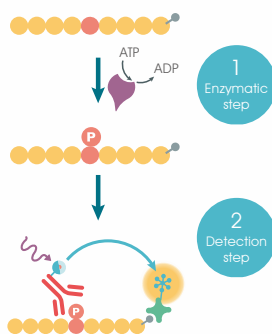
Product

HSA kit
Viral double-stranded RNA detection

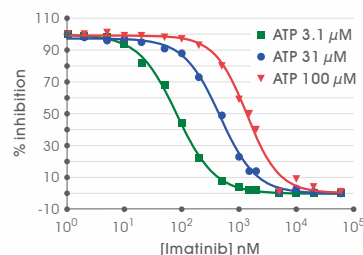
Kinase & Protein phosphorylation assays

Serine/Threonine and Tyrosine Kinases Activity Assays

- **高度驗證**：實際實驗測試驗證超過 200 種以上 Kinases，協助研究者更穩定可靠地篩選 Kinases 藥物。
- **結果可信賴**：不同於冷光間接偵測法，HTRF 是直接偵測被磷酸化的受質，能有效避免偽陽性與偽陰性的發生。
- **ATP 濃度耐受度更高**：偵測反應不受所使用的 ATP 濃度干擾 (up to mM)。
- **節省激酶用量**：使用低濃度酵素即可進行反應 (normally < 1 ng/well)。



Kinase activity assay principle. The assay is run in two main steps, the Enzymatic step (kinase reaction) followed by the Detection step with HTRF reagents. The assay is started by the addition of ATP and stopped by the addition of the HTRF detection reagents containing EDTA. The resulting TR-FRET is proportional to the phosphorylation level.



ATP (μM)	3.1	31	100
EC50 (nM)	43	460.7	1438

Imatinib (an ATP dependent Protein Kinase Inhibitors) IC50 is calculated with HTRF® KinEASE™ at increasing ATP concentrations. K_M (3.1 μM), 10 K_M (31 μM), an excess of ATP (100 μM), 1 μM TK substrate-biotin, 1 ng/well enzyme, 4/1 ratio biotin/ SaXL665, [SEB] = 5 nM and 20 min incubation for the enzymatic step.



Validated kinases list and assay conditions

Universal Kinase Assays

Serine/Threonine assays

Product	Size	Cat. No.
HTRF® KinEASE STK Discovery kit	1000 tests	62STOPEB
HTRF® KinEASE -STK S1 kit	1000 tests*	62ST1PEB
HTRF® KinEASE -STK S2 kit	1000 tests*	62ST2PEB
HTRF® KinEASE -STK S3 kit	1000 tests*	62ST3PEB

Also available under *20000 tests.

Tyrosine assays

Product	Size	Cat. No.
HTRF® KinEASE-TK kit	1000 tests	62TKOPEB

Also available under 20000 tests.

Specific Kinase Assays

Serine/Threonine assays

Product	Size	Cat. No.
MAb Anti-phospho AKT-Eu cryptate	500 tests	61P15KAE
PAb Anti-phospho AKT substrate-Eu cryptate	500 tests	61P02KAE
PAb Anti-phospho ATF2-Eu cryptate	500 tests	61P12KAE
PAb Anti-phospho C-JUN-Eu cryptate	500 tests	61P14KAE
MAb Anti-phospho CREB-Eu cryptate	500 tests	61P13KAE
MAb Anti-phospho ELK-1-Eu cryptate	500 tests	61P11KAE
MAb Anti-phospho histone H3-Eu cryptate	500 tests	61P07KAE
MAb Anti-phospho I kappa B alpha-Eu cryptate	500 tests	61P06KAE
PAb Anti-phospho MEK1/2-Eu cryptate	500 tests	61P17KAE
MAb Anti-phospho P38-Eu cryptate	500 tests	61P04KAE
MAb Anti-phospho p44/42-Eu cryptate	500 tests	61P10KAE
MAb Anti-phospho p53-Eu cryptate	500 tests	61P08KAE
PAb Anti-phospho PKA substrate-Eu cryptate	500 tests	61P01KAE
PAb Anti-phospho PKC substrate-Eu cryptate	500 tests	61P03KAE
MAb Anti-phospho SAP/JNK-Eu cryptate	500 tests	61P09KAE
PAb Antiphospho threonine-Eu cryptate	500 tests	61PTRKAE

Also available under 10000 tests.

Tyrosine assays

Product	Size	Cat. No.
MAb PT66-Eu cryptate	5000 tests	61T66KLA
MAb PY20-Eu cryptate	5000 tests	61Y20KLA

Also available under 20000 tests.

Substrate for Tyrosine assays

Product	Size	Cat. No.
PolyGT-Biotin	5000 tests	61GT0BLA

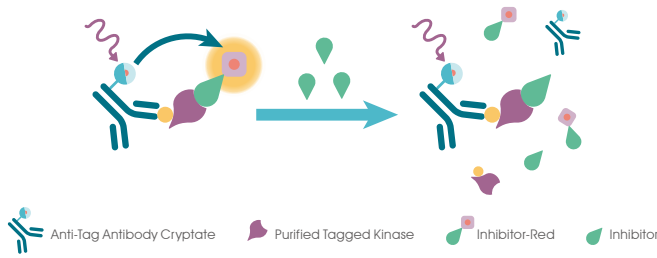
Also available under 100000 tests.

Kinase Binding Assays

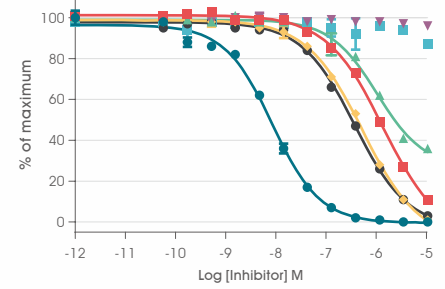
某些激酶抑制劑僅會作用在非活化態的激酶上 (Non-activated form kinase)，這類抑制劑很難透過激酶活性的測定去分析。HTRF® Kinase binding assay 則是透過偵測抑制劑與 Kinase 之間的結合進行分析，因此可以避免遺漏掉這類抑制劑，並具有以下優勢特點：

- 偵測反應無需使用到 ATP。
- 使用 GST、6HIS、或 Biotin 標定的目標激酶進行偵測。

Assay Principle



Binding assay for inhibitors of 6HIS-FGFR1



FGFR1-6HIS (STAUROSPORINE-RED)			
Inhibitor	IC50 (nM)	Ki (nM)	Literature Data
● Staurosporine	8.3	4.2	9.1*
■ Dasatinib	1291	645	870*
▲ PP2	987	494	
▼ Imatinib (Gleevec)	>10000		>20000*
◆ Tozasertib (VX680)	509	255	201*
● Sunitinib (Sutent)	356	178	147*
■ Gefitinib (Iressa)	>10000		>20000*

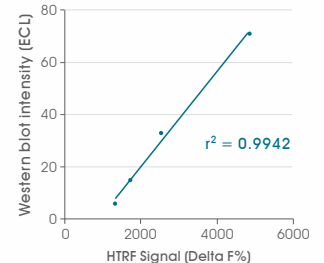
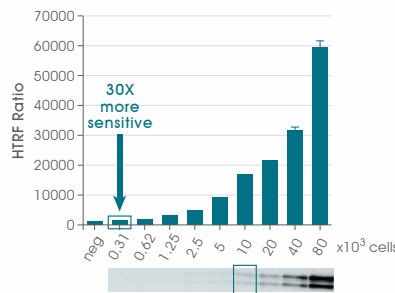
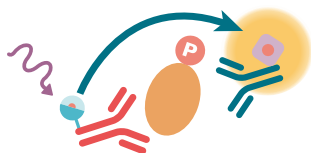
*Binding Kinetics Survey of the Drugged Kinome (K_D - E_q). PMID: 30362749

Product	Size	Cat. No.	Note
Kinase-GST Binding Discovery kit	1 kit	62KBD01PEA	Kit contents: (1) Tracers: Staurosporine-Red, Dasatinib-Red and Sunitinib-Red; (2) MAb Anti tag-Eu cryptate or Streptavidin-Eu cryptate; (3) Kinase Binding Buffer.
Kinase-6HIS Binding Discovery kit	1 kit	62KBD02PEA	
Kinase-Biotin Binding Discovery kit	1 kit	62KBD03PEA	
Staurosporine-Red	1 nmole	62KB01REDC	Also available under 20 nmole.
Dasatinib-Red	1 nmole	62KB02REDC	Also available under 20 nmole.
Sunitinib-Red	1 nmole	62KB03REDC	Also available under 20 nmole.
Mab Anti GST-Eu cryptate kinase Binding	1000 tests	62KBGSTKAF	Also available under 20000 tests.
Mab Anti 6His-Eu cryptate kinase Binding	1000 tests	62KBHISKAF	Also available under 20000 tests.
Streptavidin-Eu cryptate kinase Binding	1000 tests	62KBSAKAF	Also available under 20000 tests.
Kinase Binding Buffer	20 ml	62KBBRDD	Also available under 200 ml.

Phospho- and Total Protein Cell-based Assays

使用 HTRF® 技術偵測細胞或組織檢體中磷酸化態或非磷酸化態蛋白質表現量，具有以下優勢特點：

- **實驗排程更靈活：**操作流程較傳統 Western blot 簡單，可彈性安排其他實驗。
- **靈敏度更高：**比 Western blot 具有更高的偵測靈敏度。
- **高度再現性：**比 Western blot 更穩定，實驗結果具高度再現性。
- **更便利：**無需使用影像分析軟體，即可直接取得相對量化的結果。



Unique sensitivity of Advanced phospho-ERK compared to WB. HTRF Advanced phospho-ERK assay (Cat. No. 64ERKPEG) is at least 30-fold more sensitive than the Western Blot, and shows optimal correlation.

Phospho- and Total Protein Cell-based Assays (continued)

Product
Alpha-Tubulin Housekeeping kit
Alpha-synuclein phospho-S129 kit
Alpha-synuclein total kit
4EBP1 phospho-T37/46 kit
ACC phospho-S79 kit*
ACC total kit
AKT phospho-S473 kit*
AKT phospho-T308 kit
AKT total kit*
AKT1 phospho S473 kit
AKT1 total kit
AKT2 phospho S473 kit
AKT2 total kit
AKT3 phospho S473 kit
AKT3 total kit
AMPK phospho-T172 kit*
AMPK total kit
ATF2 phospho-T71 kit
BAD phospho-S112 kit*
Beta Catenin phospho-T41/ S33/37 kit
Beta Catenin total kit
BTK phospho-Y223 kit
BTK total kit
CDK2 phospho-Y15 kit
CDK2 total kit
CDK4 total kit
CDK6 total kit
cJun phospho-S63 kit
cRaf phospho-S338 kit
CREB phospho-S133 kit*
CREB total kit
c-Src phospho-Y419 kit
c-Src total kit
EGFR phospho-pan kit
EGFR phospho-Y1068 kit
EGFR total kit
EIF2 alpha phospho-S52 kit
EIF2 alpha total kit
EIF4E phospho-S209 kit
ERK phospho-T202/Y204 Advanced kit*
ERK phospho-T202/Y204 kit*
ERK total kit
FAK phospho-Y397 kit
FAK total kit
FGFR2 phospho-Y653/654 kit
FGFR2 total kit
FoxO1 phospho-S256 kit
FoxO1 total kit

Product
GSK3 alpha phospho-S21 kit
GSK3 alpha total kit
GSK3 beta phospho-S9 kit
GSK3 beta total kit
H2AX phospho-S139 kit
HER2 phospho-Y1221/1222 kit
HER2 total kit
HER3 phospho-Y1289 kit
HER3 total kit
Histone H3 phospho-S10 kit
Histone H3 phospho-T3 kit
Histone H3 total kit
IKKB phospho-S177/181 kit
IKKB total kit
IRAK3 total kit
IRAK4 total kit
IR beta phospho-Y1150/1151 kit
IR beta total kit
IRF3 phospho-S386 kit
IRS1 phospho-Ser312 kit
IRS1 total kit
IRS2 total kit
JNK phospho-T183/Y185 kit
LRRK2 phospho-S935 kit
LRRK2 total kit
MEK1 phospho-S218/222 kit
MEK1 phospho-S298 kit
MEK1 total kit
MEK1/2 phospho-S218/222 kit
MKK4 phospho-S257 kit
MKK4 total kit
MNK phospho-T197/202 kit
mTOR phospho-S2448 kit
NDRG1 phospho-S330 kit
NDRG1 phospho-T346 kit
NDRG1 total kit
NFkB phospho-S536 kit*
NFkB total kit
P38 phospho-T180/Y182 kit*
P53 phospho-S15 kit*
P53 total kit*
P62/SQSTM1 phospho-S403 kit
P62/SQSTM1 total kit*
p70S6K phospho-T389 kit
IPDGFR beta phospho-Y751 kit
Phospholamban phospho S16 kit
Phospholamban phospho T17 kit

Product
Phospholamban total kit
PLCg2 phospho-Y1214 kit
PLCg2 total kit
RB phospho-S780 kit
RB phospho-S807/811 kit
RB total kit
S6RP phospho-S235/236 kit
SHP1 phospho-Y564 kit
SHP1 total kit
SHP2 phospho-Y542 kit
SHP2 total kit
SLP-76 phospho S376 kit*
SLP-76 total kit
SLP-76 mouse phospho S376 kit
SLP-76 mouse total kit
SMAD1 phospho-S463/465 kit*
SMAD1 total kit
SMAD2 phospho-S465/467 kit
SMAD2 total kit
SMAD3 phospho-S423/425 kit
SMAD3 total kit
STAT1 phospho-Y701 kit
STAT1 total kit
STAT3 phospho-Y705 kit*
STAT3 total kit
STAT5 phospho-Y694 kit
STAT6 phospho-Y641 kit
STING phospho-S366 kit
STING total kit
SYK phospho-Y525/526 kit
SYK total kit
Tau phospho-S202/T205 kit
Tau phospho-S356 kit
Tau phospho-S404 kit
Tau phospho-T181 kit
Tau total kit
TBK1 phospho-S172 kit
TBK1 total kit
ULK1 phospho-S758 kit
VASP phospho-S157 kit
VASP phospho-S239 kit
VASP total kit
VEGFR phospho-Y1175 kit
YAP phospho-S127 kit
YAP total kit
ZAP-70 phospho-Y319 kit
ZAP-70 total kit

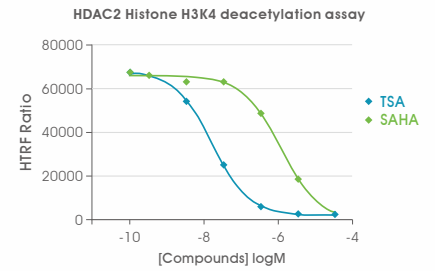
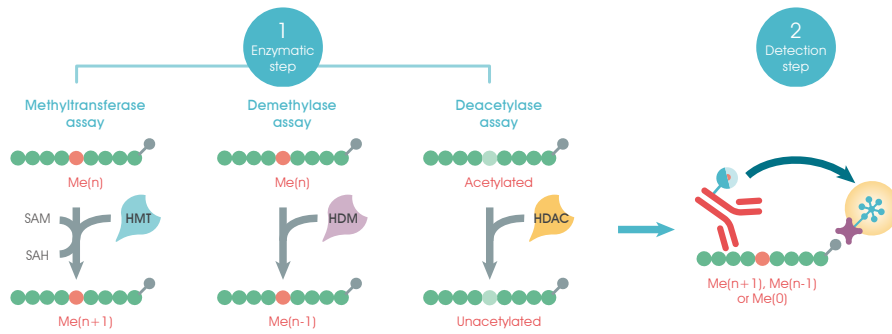
All kits are available under 500 tests and 10000 tests. *Also available under 96 tests. Control lysate for each kit are available separately.

Epigenetics assays

EPIgeneous® Biochemical Assays

利用 HTRF® 技術，搭配專一性的 Peptide 作為酵素反應受質，可用以評估甲基化或乙酰化酵素活性，協助研究者快速篩選出具有潛力的治療藥物。

Assay Principle



Inhibitor	TSA	SAHA
IC50 (nM)	16	1100

Enzyme inhibition. HDAC2 H3K4 deacetylation inhibitor assay was validated by measuring the activity of reference inhibitors.

Anti-Histone H3 Eu-cryptate Conjugates

Product	Size	Cat. No.
MAb Anti histone H3K4 Me0Eu(K)	500 tests	61KA0KAE
MAb Anti histone H3K4 Me1Eu(K)	500 tests	61KA1KAE
MAb Anti histone H3K4 Me2Eu(K)	500 tests	61KA2KAE
MAb Anti histone H3K4 Me3Eu(K)	500 tests	61KA3KAE
MAb Anti histone H3K9 Me0Eu(K)	500 tests	61KB0KAE
MAb Anti histone H3K9 Me1Eu(K)	500 tests	61KB1KAE
MAb Anti histone H3K9 Me2Eu(K)	500 tests	61KB2KAE
MAb Anti histone H3K27 Me1Eu(K)	500 tests	61KC1KAE
MAb Anti histone H3K27 Me2Eu(K)	500 tests	61KC2KAE
MAb Anti histone H3K27 Me3Eu(K)	500 tests	61KC3KAE
MAb Anti histone H3K36 Me1Eu(K)	500 tests	61KD1KAE
MAb Anti histone H3K36 Me2Eu(K)	500 tests	61KD2KAE

Also available under 10000 tests.

Enzyme Activity Assay Kits

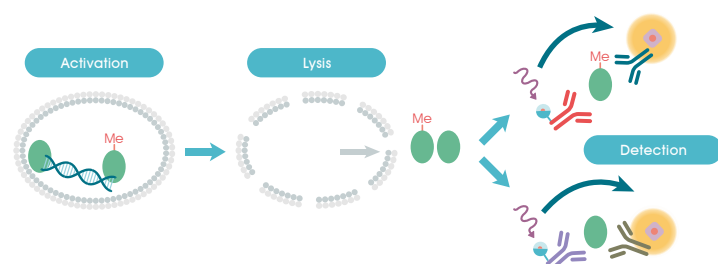
Product	Size	Cat. No.
Universal Methyltransferase assay kit	1000 tests*	62SAHPEB
SIRT 1 activity assay kit	1000 tests**	64SI1PEB

Also available under *10000 tests and **20000 tests.

EPIgeneous® Cellular Assays

特別為偵測組蛋白 H3 (total histone H3) 與甲基化修飾組蛋白 H3 (Histone H3 methylation) 所開發出來的 HTRF® 檢測试剂盒，隨附有 Control lysates 以利作為陽性對照組使用。

Assay Principle



Product	Size	Cat. No.
Total H3 cellular assay	500 tests	62NH3PAE
H3K27Me3 cellular assay	500 tests	62KC3PAE
H3K36Me2 cellular assay	500 tests	62KD2PAE
H3K4Me2 cellular assay	500 tests	62KA2PAE

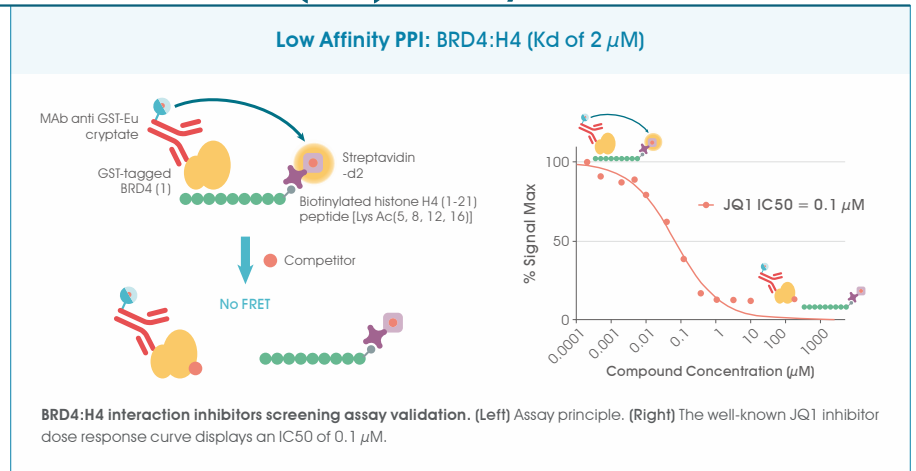
Also available under 10000 tests.

Assay development tools

Toolbox for Protein-Protein Interaction (PPI) Assays

HTRF® 技術具有優越的應用彈性，透過 Toolbox 您可以輕鬆組合出符合自己實驗需求的專屬分析平台。

- **應用範圍廣：**不受所形成的 Molecular complex 大小及分子量限制。
- **高效能：**從低親和力至高親和力 (pM to μ M) 的交互作用皆可有效檢測與分析。



Anti-Tag Antibodies

Product	Size	Cat. No.
MAb Anti 6HIS-d2	1000 tests*	61HISDLF
MAb Anti 6HIS-Eu cryptate	5000 tests	61HISKLA
MAb Anti 6HIS-Eu cryptate Gold	5000 tests	61HI2KLA
MAb Anti 6HIS-Tb cryptate	1000 tests*	61HISTLF
MAb Anti 6HIS-Tb cryptate Gold	1000 tests*	61HI2TLF
MAb Anti 6HIS-XL665	1000 tests*	61HISXLF
MAb Anti cmcyc-d2	1000 tests*	61MYCDAF
MAb Anti cmcyc-Eu cryptate	5000 tests	61MYCKLA
MAb Anti cmcyc-Tb cryptate	1000 tests*	61MYCTAF
MAb Anti cmcyc-XL665	1000 tests*	61MYCXLF
MAb Anti DNP-Eu cryptate	5000 tests	61DNPKLA
MAb Anti DNP-XL665	5000 tests	61DNPXLA
MAb Anti FLAG M2-d2	1000 tests*	61FG2DLF
MAb Anti FLAG M2-Eu cryptate	5000 tests	61FG2KLA
MAb Anti FLAG M2-Tb cryptate	1000 tests*	61FG2TLF
MAb Anti FLAG M2-XL665	1000 tests*	61FG2XLF
MAb Anti GST-d2	1000 tests*	61GSTDLF
MAb Anti GST-Eu cryptate	5000 tests	61GSTKLA
MAb Anti GST-Tb cryptate	1000 tests*	61GSTTLF
MAb Anti GST-XL665	1000 tests*	61GSTXLF
MAb Anti HA-d2	1000 tests*	61OHADAF
MAb Anti HA-Eu cryptate	5000 tests	61OHAKLA
MAb Anti HA-Tb cryptate	1000 tests*	61OHATAF
MAb Anti HA-XL665	1000 tests*	61OHAXLF
MAb Anti MBP-d2	5000 tests	61MBPDAA
MAb Anti MBP-Eu cryptate	5000 tests	61MBPKAA
MAb Anti MBP-Tb cryptate	5000 tests	61MBPTAA

Streptavidin Reagents

Product	Size	Cat. No.
Streptavidin-Eu cryptate	5000 tests	61OSAKLA
Streptavidin-Tb cryptate	1000 tests*	61OSATLF
Streptavidin-d2	1000 tests*	61OSADLF
Streptavidin-XL665	1000 tests*	61OSAXLF
Streptavidin-XLent!	5000 tests	611SAXLA

Also available under 20000 tests and *5000 & 20000 tests.

Anti-Species Reagents

Product	Size	Cat. No.
PAb Anti Human IgG-Eu cryptate	5000 tests	61HFCKLA
PAb Anti Human IgG-Tb cryptate	1000 tests*	61HFCTAF
PAb Anti Human IgG-d2	1000 tests*	61HFCDAF
PAb Anti Human IgG-XL665	1000 tests*	61HFCXLF
MAb Anti Human Kappa-Eu cryptate	5000 tests	61KAPKAA
MAb Anti Human Kappa-d2	5000 tests	61KAPDAA
PAb Anti Mouse IgG-Eu cryptate	5000 tests	61PAMKLA
PAb Anti Mouse IgG-Tb cryptate	1000 tests*	61PAMTAF
PAb Anti Mouse d2	1000 tests*	61PAMDAF
PAb Anti Mouse IgG-XL665	1000 tests*	61PAMXLF
PAb Anti Rabbit IgG-Eu cryptate	5000 tests	61PARKLA
PAb Anti Rabbit IgG-Tb cryptate	1000 tests*	61PARTAF
PAb Anti Rabbit IgG-d2	1000 tests*	61PARDAF
PAb Anti Rabbit IgG-XL665	1000 tests*	61PARXLF
Protein A-Eu cryptate	5000 tests	61PRAKLA
Protein A-XL665	5000 tests	61PRAXLA

Also available under 20000 tests and *5000 & 20000 tests.

Dye Labeling Kits & Reagents

Product	Size	Cat. No.
d2 Labeling kit	1 kit	62D2DPEA
Europium Cryptate Labeling kit	1 kit	62EUSPEA
Terbium Cryptate Labeling kit	1 kit	62TBSPEA
Europium cryptate NH ₂	0,1 mg*	65EU2ABA
Europium cryptate TBP Maleimide	0,1 mg*	65EUMABA
Europium cryptate TBP NHS	0,1 mg*	65EUSABA
XL665 Maleimide	1 mg**	65XLMABB
XL665 NH ₂	1 mg**	65XL2ABB
DNP-NHS	0,2 mg*	65DNSABD


Also available under *1 mg and **10 mg.

Buffers

Product	Size	Cat. No.
PPI - Europium detection buffer	200 ml	61DB9RDF
PPI - Terbium detection buffer	200 ml	61DB10RDF

HTRF® Microplates

96-well Plate

Product	Size	Cat. No.
 HTRF® 96 well low volume plate	5 plates	66PL96005
	25 plates	66PL96025
	100 plates	66PL96100
CulturPlate-96, White Opaque 96-well Microplate	50 plates	6005680
CulturPlate-96, White Opaque 96-well Microplate	160 plates	6005688

384-well Plate

Product	Size	Cat. No.
CulturPlate-384, White Opaque 384-well Microplate	50 plates	6007680
CulturPlate-384, White Opaque 384-well Microplate	160 plates	6007688
ProxiPlate-384 Plus, White 384-shallow well Microplate	50 plates	6008280
ProxiPlate-384 Plus, White 384-shallow well Microplate	200 plates	6008289
OptiPlate-384, White Opaque 384-well Microplate	50 plates	6007290
OptiPlate-384, White Opaque 384-well Microplate	200 plates	6007299

HTRF® Certificated Microplate Readers

VICTOR® Nivo™

- 超輕巧，不佔空間。
- 光學輪盤式濾片自動轉換器，最多可放 32 組濾光片。
- 內建溫控系統，最高可達 65°C。
- 基於瀏覽器界面的操作軟體，用 Wifi 連線即可遠端操作。
- 雷射激發的 ALPHA 偵測模組，提供最高偵測效能。
- 最大可讀取至 1536 wells。



EnVision®

- 靈敏度高、檢測速度快，滿足高通量篩選需求。
- 雙重檢測器 (Dual detectors)，可同時進行雙波長檢測。
- 超靈敏冷光偵測模組，滿足微弱訊號偵測需求。
- 雷射激發的時差性螢光與 ALPHA 偵測模組，提供最高偵測效能。
- 最大可讀取至 1536 wells。



Summary of Modalities¹

	VICTOR® Nivo™	EnVision®
UV-Vis Absorbance	Filter or spectrometer	Filter and/or quad monochromators
Fluorescence Intensity	Filter	Filter and/or quad monochromators
Luminescence	● ²	● ²
Ultrasensitive Luminescence		●
TRF and TR-FRET	Lamp based ³	Lamp or laser based ³
Fluorescence Polarization	●	●
Alpha (Laser-Based)	Alpha Standard	Alpha Standard or Alpha HTS
AlphaPlex (Laser-Based)		Alpha Standard
Dual PMT Detector		●

¹ - All instruments are configurable. ² - Capable of BRET/BRET2 assays. ³ - HTRF® Certified.

HTRF® 產品與技術諮詢

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