

基礎實驗 新手指南

昶安生技

BASIC EXPERIMENT
NOVICE GUIDE



EXCEL
BIOMEDICAL

細胞活力分析

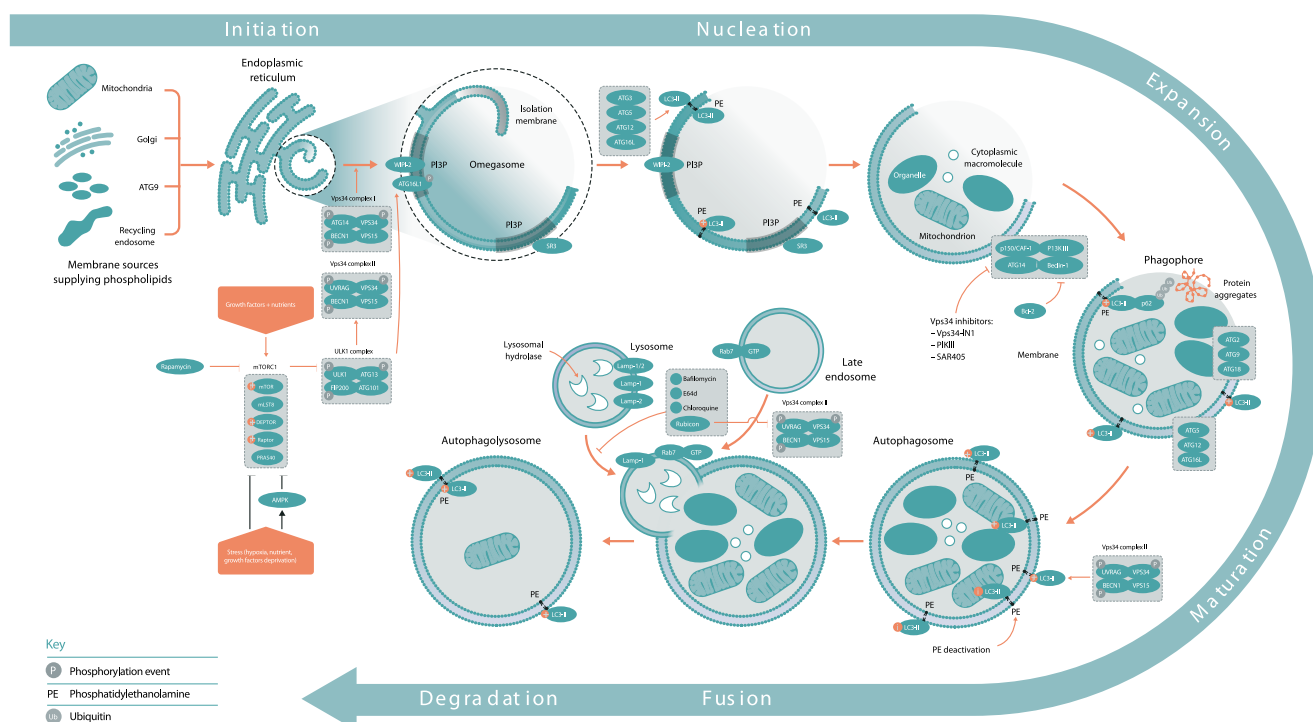
Cell Viability Assay

細胞活力是指一個細胞群體中健康的活性細胞所占的比例，細胞的活力可藉由檢測持續進行中的代謝活動和酵素活性等細胞生理活動來評估。

abcam多種測試細胞活力的試劑，包括CCK-8，Resazurin, TMRE, Calcein violet, 和 ATP luminescence 等。

Cell viability				
Measure	Item	Detection method	Brand	CAT#
MTT	MTT Assay Kit (Cell Proliferation)	Colorimetric	abcam	ab211091
	MTT Cell Proliferation Assay Kit		Cayman	10009365
	MTT			21795
XTT	XTT Assay Kit		abcam	ab232856
	XTT Cell Proliferation Assay Kit		Cayman	10010200
	XTT (sodium salt hydrate)			14919
MTS	MTS Assay Kit (Cell Proliferation)		abcam	ab197010
WST-1	WST-1 Assay Kit (Cell Proliferation)		Cayman	ab65473
	WST-1			31752
	WST-1 Cell Viability & Proliferation Assay		ScienCell	8038
WST-8	Cell Counting Kit 8 (WST-8 / CCK8)		abcam	ab228554
	WST-8		Cayman	18721
Others	Resazurin Assay Kit (Cell Viability)	Fluorescent	abcam	ab129732
	Deep Blue Cell Viability™ Kit		BioLegend	424701
	7-AAD Viability Staining Solution			420403
	DRAQ5™			424101
	DRAQ7™			424001
	SureLight™ Glow - Firefly Luciferase Cell Viability Assay	Luminescent	Cayman	34972
	Live Cell Multiplex Assay	Fluorescent		15766

粒線體膜電位高低可以反應細胞的活力狀態，因此可以利用會在粒線體中累積的染劑來識別活細胞。此外，粒線體膜電位喪失與染劑不染色通常用來檢測細胞凋亡。



西方墨點法

Western Blot

Western Blot 是生物化學技術，用於檢測蛋白質。透過電泳分離和抗體結合，可揭示蛋白質在生物樣本中的存在和量。在科研中，揭示細胞活動及疾病機制方面扮演關鍵角色。

原理：利用電泳根據蛋白質大小分離於凝膠中。

轉漬：將蛋白質轉移到膜上，固定在特定位置。

抗體結合：使用抗體辨識目標蛋白質。

檢測：化學反應產生訊號，表現蛋白質位置。

分析：量化蛋白質，針對蛋白質的表現進行後續分析。

Loading
Controls



Cell
lysates



Blocking proteins
and peptides



Western Blot			
實驗步驟	Item	Brand	CAT#
蛋白質萃取試劑 Protein extraction	Cell Fractionation Kit - Standard	abcam	ab109719
	Plasma Membrane Protein Extraction Kit		ab65400
	Nuclear Extraction Kit		ab113474
	Mitochondria Isolation Kit for Cultured Cells		ab110170
細胞/組織裂解緩衝液 Lysis buffer	Native lysis Buffer	abcam	ab156035
	Cell Lysis Buffer		ab152163
	1X Red Blood Cell Lysis Buffer		ab286858
	RBC Lysis Buffer (10X)	BioLegend	420301
樣本製備 Sample preparation	10X RIPA Buffer	abcam	ab156034
	RIPA Buffer		ab288006
	Bradford Reagent		ab119216
	Western-Ready™ Protein Sample Loading Buffer (5X)	BioLegend	426311
	Western-Ready™ Rapid Protein Extraction Buffer		426305
蛋白質分子量標準液 Protein ladder	Prestained Protein Ladder – Mid-range molecular weight (10 - 180 kDa)	abcam	ab116027
	Prestained Protein Ladder – Broad molecular weight (10-245 kDa)		ab116028
	Prestained Protein Ladder – Extra broad molecular weight (5 - 245 kDa)		ab116029
	Prime-Step™ Prestained Broad Range Protein Ladder	BioLegend	773301
	DNP-labeled Molecular weight standard proteins (21, 29, 43, 68 , and 97 kda) for Western blot	ADI	DNP45-C
跑膠 Running gel	20x TBS-T with Tween 20	abcam	ab64204
	Western Blot Marker Pen		ab166858
	Western-Ready™ MES SDS-PAGE Running Buffer (10X)	BioLegend	426307
	Western-Ready™ TBS Tween-20 Buffer (20X)		426309
蛋白質膠體染色 Protein stain	InstantBlue® Coomassie Protein Stain (ISB1L)	abcam	ab119211
	Ponceau S Solution		ab270042
轉漬 Transfer	Nitrocellulose Transfer Membrane- 0.22 µm	abcam	ab133413
	Low Fluorescence Western Membrane (PVDF)		ab133411
	Western-Ready™ Transfer Buffer (10X)	BioLegend	426313
染抗體 Antibody dilution	ChonBlock Western Blot Buffer 1 (PBS)	Chondrex	9069P
	ChonBlock Western Blot Buffer 1 (TBS)		9069T
	ChonBlock Western Blot Buffer 2 for Goat (PBS)		90691P
	ChonBlock Western Blot Buffer 2 for Goat (TBS)		90691T
	ChonBlock Western Blot Buffer 2 for Rabbit (PBS)		90692P
	ChonBlock Western Blot Buffer 2 for Rabbit (TBS)		90692T
蛋白標記 Protein marker	SureLight® PE-665	Cayman	17464
	SureLight™ PE-695		17465
	Streptavidin:SureLight™ B-PE		16633
顯影 ECL kit	Western-Ready™ ECL Substrate Plus Kit	BioLegend	426315
	Western-Ready™ ECL Substrate Premium Kit		426318
	NuGlo (luminol) ECL Substrate Kit for Western blot, 50 mls	ADI	80215-250-S
抗體脫離 Stripping buffer	Western Blot Stripping Buffer	abcam	ab282569
	Western blot recycling stripping buffer, 50 ml (10X)	ADI	90101

InstantBlue® Coomassie protein stain (ISBIL)([ab119211](#)), 1000ml



15分鐘快速得到染色結果！

InstantBlue® 為高效型蛋白質染色專用試劑，適用於 SDS-PAGE 的染色。

僅需一步驟，不需經過固定、清洗、脫色等步驟，15 分鐘內即可快速完成染色，得到清晰、高靈敏度 (5 ng) 且低背景的結果，是您蛋白質實驗的必備工具！

氧化壓力

Oxidative stress

正常細胞中僅會在體內產生少量活性氧物質 (Reactive oxygen species; ROS)，並且可以被體內的抗氧化物質中和，當發炎反應發生時，細胞會釋放出 ROS，如超氧游離基 (Superoxide anion; O_2^-) 與過氧化氫 (Hydrogen peroxide; H_2O_2)，正常情況下，ROS 充當細胞的信號分子，調節細胞生長、細胞與其他細胞的粘附、分化、衰老和細胞凋亡，一但氧化壓力的平衡被破壞後，即會造成蛋白質、DNA 和脂質等物質的破壞，進而造成疾病的發生。

氧化壓力除了直接檢測活性氧物質來測量之外，亦可透過檢測抗氧化劑 (Antioxidants)、DNA/RNA 損傷 (DNA/RNA damage)、脂質過氧化 (Lipid peroxidation) 和蛋白質羰基化/硝化 (Protein oxidation / nitration) 等方式間接測量，這些氧化應激標誌物比活性氧物質來的更持久。

活性氧化物 ROS		
Item	Brand	CAT#
Cellular Superoxide Detection Assay Kit	abcam	ab139477
ROS/Superoxide Detection Assay Kit		ab139476
Cellular reactive oxygen species		ab186027
Cellular ROS/RNS Assay Kit		ab139473
DCFDA / H2DCFDA - Cellular ROS Assay Kit		ab113851
Hydrogen peroxide Assay Kit		ab138874, ab102500
Mitochondrial hydroxyl radical Detection Assay Kit		ab219931
Mitochondrial superoxide Assay Kit		ab219943
Oxidative Stress Defense Western Blot Cocktail		ab179843
Superoxide dismutase		ab65354
Hydrogen Peroxide Cell-Based Assay Kit	Cayman	600050
Mitochondrial ROS Detection Assay Kit		701600
ROS Detection Cell-Based Assay Kit (DHE)		601290
Xanthine Oxidase Fluorometric Assay Kit		10010895
Total Antioxidant Capacity (PAO) Test Kit	Adipogen	JAI-KPA-050

活性氮化物 RNS		
Item	Brand	CAT#
Nitrate/Nitrite Colorimetric Assay Kit	Cayman	780001
Nitrate/Nitrite Colorimetric Assay Kit (LDH Method)		760871
Nitrate/Nitrite Fluorometric Assay Kit		780051
NOS Activity Assay Kit		781001

DNA/RNA 受損 DNA/RNA Damage Assays		
Item	Brand	CAT#
DNA Damage Assay Kit (AP sites, Colorimetric)	abcam	ab211154
8-hydroxy 2 deoxyguanosine ELISA Kit		ab201734
DNA/RNA Oxidative Damage (Clone 7E6.9) ELISA Kit	Cayman	501130
DNA/RNA Oxidative Damage (High Sensitivity) ELISA Kit		589320
8-OHdG Check ELISA Kit	Adipogen	JAI-KOG-200SE

了解更多



abcam



Cayman



樣本萃取與定量

Sample extract and quantification

破細胞 Cell lysis			
Sample	Item	Brand	CAT#
Cell	10X RIPA buffer	abcam	ab156034
	Cell lysis buffer		ab152163
	Mammalian cell lysis buffer 5X		ab179835
	NP-40		ab142227
	Native lysis buffer		ab156035
	RIPA lysis buffer kit for mammalian cell lysis (complete with protease inhibitor cocktail)	ADI	RIPA-50
RBC	10X Red blood cell (RBC) lysis buffer	abcam	ab204733
	RBC Lysis Buffer (10X)	BioLegend	420301
	RBC Lysis/Fixation Solution (10X)		422401
萃取 Extract			
Sample	Item	Brand	CAT#
Protein	Cell fractionation kit - standard	abcam	ab109719
	Plasma membrane protein extraction kit		ab65400
	Nuclear extraction kit		ab113474
	Protein Extraction Kit		ab270054
	Cell Surface Protein Isolation Kit		ab206998
	Western-Ready™ Rapid Protein Extraction Buffer	BioLegend	426305
DNA	Mitochondrial DNA Isolation Kit	abcam	ab65321
	Histone Extraction Kit		ab113476
抑制劑 Inhibitor			
Sample	Item	Brand	CAT#
蛋白酶/ 磷酸酶 抑制劑	Protease And Phosphatase Inhibitor Cocktail	abcam	ab201119
	Protease And Phosphatase Inhibitor Cocktail (Edta-Free)		ab201120
	Leupeptin (hemisulfate)	Cayman	14026
	Aprotinin		14716
	Bestatin		21217
	Phenylmethylsulfonyl fluoride(PMSF)		14333
	Sodium Orthovanadate		34328
	β-Glycerophosphate (sodium salt hydrate)		38367
	Pepstatin A		9000469
	AEBSF (hydrochloride)		14321
	E-64d		13533
	E-64		Adipogen
定量 Quantification			
Sample	Item	Brand	CAT#
Protein	Bradford Reagent	abcam	ab119216
	BCA Protein Assay Kit		ab102536
	Protein Determination (BCA) Kit	Cayman	701780
	Protein Determination Kit		704002
	Brilliant Blue G		14320

酵素免疫分析法

Enzyme-linked immunosorbent assay (ELISA)

酵素連結免疫吸附法 (Enzyme-Linked Immunosorbent Assay, ELISA), 又稱酵素免疫分析 (Enzyme immunoassay, EIA), 是一種靈敏、特異性高且廣泛應用於生化學和醫學研究中的分子生物學分析技術。其原理為在96孔盤上, 利用抗原及抗體間的專一性鍵結的原理, 使用體驗酵素標記的抗體或抗原檢測樣品中的目標蛋白結合, 定量樣本中蛋白的濃度。

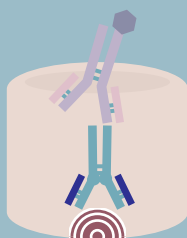


ELISA 分類

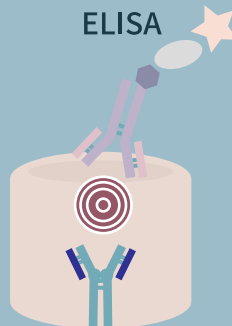
Direct ELISA



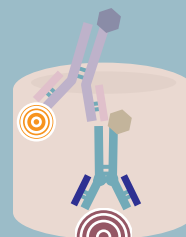
Indirect ELISA



Sandwich ELISA



Competitive ELISA



發炎常見指標

		Mouse	Human	Rat
IL-6	SimpleStep	ab222503	ab178013	ab234570
	Pre-coated	ab100713	ab46027	ab46027
		431307	430507	437107
	Self-coated	431304	430504	
IL-1B	SimpleStep	ab197742		ab255730
	Pre-coated	ab100704	ab46052	ab100768
			437007	
	Self-coated	432604	437004	
TNF-a	SimpleStep	ab208348	ab181421	ab236712
	Pre-coated	ab100747	ab46087	ab46070
		430907	430207	438207
	Self-coated	430904	430204	438204
IFN-gamma	SimpleStep	ab174443	ab282874	ab239425
	Pre-coated	ab100689	ab46025	ab113349
		430807	430107	439007
	Self-coated	430804	430104	
MCP1	SimpleStep	ab208979	ab179886	ab219045
	Pre-coated	ab100721	ab100586	ab100778
		446207	438807	
	Self-coated	432704	438804	

其他常見指標

	Item	CAT#
Serotonin	Serotonin	ab133053
	Serotonin	BA E-5900R
Histamine	Histamine	ab213975
	Histamine	BA E-1000R
Collagen	Human Pro-Collagen Iα1	ab210966
	Human Type I Collagen	6021
	Mouse Type I Collagen	6012
Albumin	Human Albumin	ab227933
	Human Albumin	1200
	Mouse Albumin	ab108792
Lactoferrin	Human Lactoferrin	ab200015
	Human Lactoferrin	E-80LF
Lipocalin-2	Mouse Lipocalin-2 (NGAL)	ab199083
Cystatin C	Mouse Cystatin C	E-90CYS
	Mouse Cystatin C	ab201280
IgG	Mouse IgG	ab151276
	Mouse IgG	501240
Elastin	Human Elastin	ab239433
Prostaglandin	Prostaglandin E2	512031
	Prostaglandin F2α	516011

免疫組織化學染色法

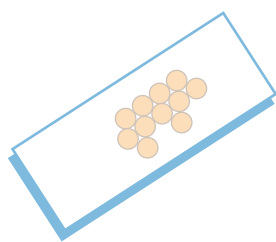
Immunohistochemistry (IHC)

IHC 代表免疫組織化學 (Immunohistochemistry)。免疫組織化學是一種在組織切片中使用抗體來檢測特定蛋白質的方法。這種技術結合了組織學和免疫學，可以用來研究組織中不同細胞類型的分布以及這些細胞中的特定蛋白質表達。

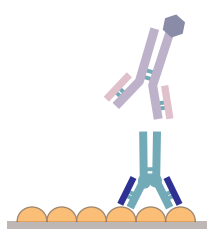
IHC protocol



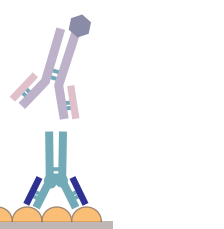
IHC 步驟



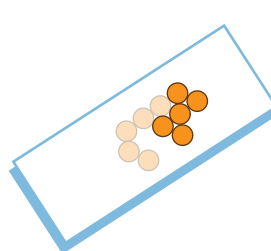
Fixation
組織包埋與固定



Antigen retrieval
抗原修復



Blocking
阻斷非特异性訊號



Detection & Amplification
訊號偵測與放大



Mounting
玻片固定

	Item	Brand	CAT#
阻斷非特异性訊號 Blocking	Avidin/Biotin Blocking System	BioLegend	927301
	Avidin/Biotin Blocking Kit	abcam	ab64212
	Peroxide Blocking Reagent	BioLegend	927402
	Hydrogen Peroxide Blocking Reagent	abcam	ab64218
	10X Blocking Buffer	abcam	ab126587
	Normal Goat Serum Block	BioLegend	927501
	Normal Goat Serum	abcam	ab7481
抗原修復 Antigen retrieval	Antigen Retrieval Buffer (100X Tris- EDTA Buffer, pH 9.0)	abcam	ab93684
	Antigen Retrieval Buffer (100X Citrate Buffer)	abcam	ab93678
	Antigen Retrieval Buffer (100X EDTA Buffer, pH 8.0)	abcam	ab93680
	Antigen Retrieval Buffer (100X Tris Buffer, pH 10.0)	abcam	ab93682
	10x Citrate Buffer pH 6.0	abcam	ab64214
	10x EDTA Buffer pH 8.0	abcam	ab64216
訊號偵測與放大 Detection & Amplification	Rabbit specific HRP/DAB (ABC) Detection IHC Kit	abcam	ab64261
	Mouse and Rabbit Specific HRP/DAB (ABC) Detection IHC kit	abcam	ab64264
	Mouse specific HRP/DAB (ABC) Detection IHC Kit	abcam	ab64259
	Rabbit specific HRP/DAB Detection IHC Detection Kit - Micro-polymer	abcam	ab236469
	Mouse and Rabbit Specific HRP/DAB IHC Detection Kit - Micro-polymer	abcam	ab236466
	Rabbit specific IHC polymer detection kit HRP/DAB	abcam	ab209101
玻片固定 Mounting	Aqueous Mounting Medium	abcam	ab128982
	Mounting Medium for IHC - Aqueous	abcam	ab64230



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www.exbio.com.tw

台北:(02)8751-5851 台南:(06)311-0133 客服:0800-012-310

台中:(04)2422-0117 新竹:(03)621-0429 信箱:service@exbio.com.tw



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