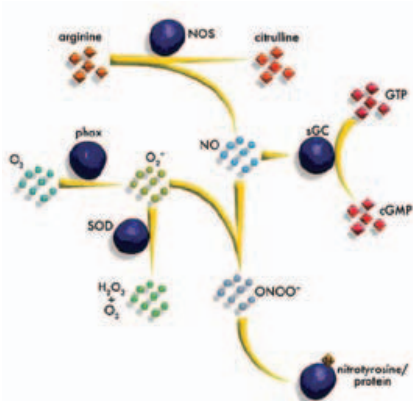




氧化 壓力

老化殺手

Oxidative Stress

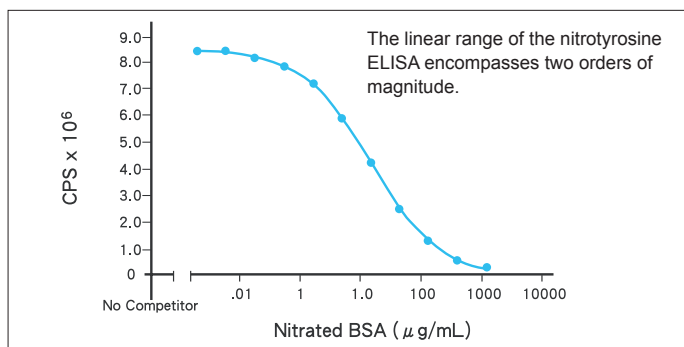


氧化壓力被指出和神經退化性疾病的發病機制、癌症、細胞凋亡、心血管疾病和衰老有關。氧化壓力的發生是由於氧化物的增加，和抗氧化物的降低，或修復氧化損傷能力的喪失所引起。活性氧 (Reactive Oxygen Species, ROS) 包括一氧化氮 (NO)，超氧離子 (O_2^-)，過氧亞硝基陰離子 ($ONOO^-$) 和氫氧自由基 (OH^\cdot)。ROS 可以被細胞裡的超氧化物歧化酶 (SOD) 和過氧化氫酶 (catalase) 及過氧化物酶 (peroxidases) 所清除。

生物體透過正常的細胞功能或不斷地接觸到環境因素，而產生自由基。平時生物體存在一個氧化物和抗氧化物微妙平衡的狀況，當氧化壓力處在一個失衡的階段時，自由基便會攻擊細胞的組成份包括核酸，脂類和蛋白質。在某些情況下，細胞會適應來自氧化物的刺激。

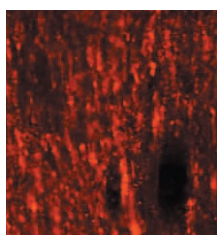
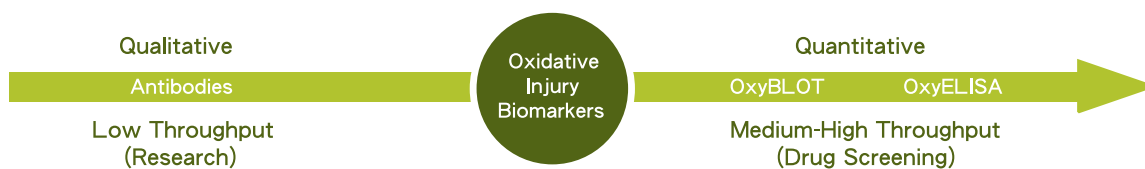
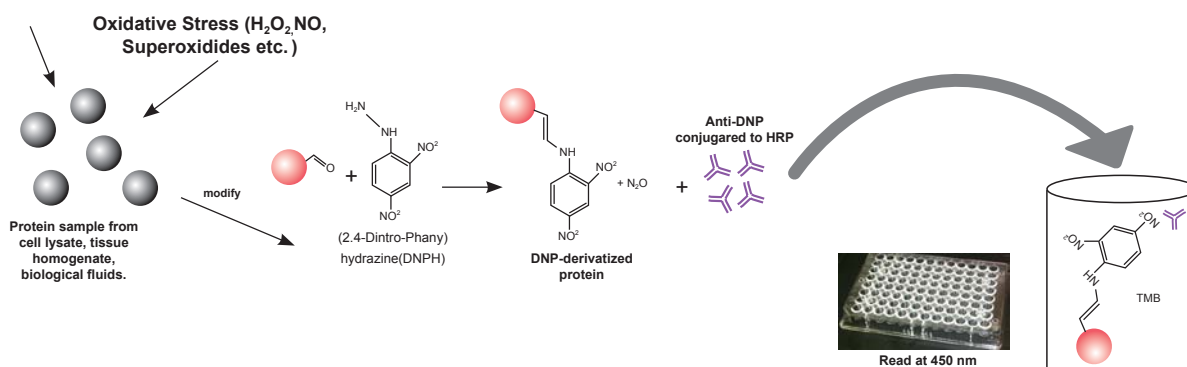
Nitrotyrosine ELISA : Cat No. 17-376

- 競爭型 ELISA 的方式
- All in one : 包括實驗須要的所有試劑
- 定量：含標準品 (nitrated BSA standard) 方便定量
- 高準確度及 wide dynamic range
- 主要偵測氧化壓力時產生的 Nitrotyrosine

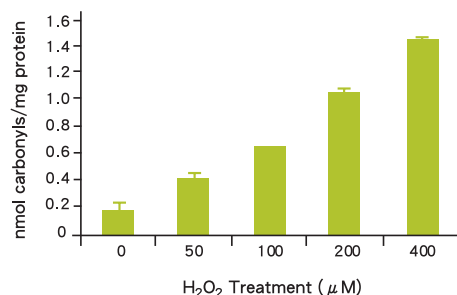


Protein Oxidation Detection system

當蛋白質被氧化物，氮氧化物或金屬物質氧化時，會產生碳醯化 (carbonyl group) 的現象，因此可利用 DNPH (2,4-dinitrophenylhydrazine) 衍生物之免疫法分析蛋白質之碳醯化 (carbonylation) 程度。Millipore 提供您一系列針對您不同的實驗需求所設計的試劑，方便您選擇。



Rabbit anti-degraded myelin basic protein (AB5864) staining of distal segment of ligated sciatic nerve.

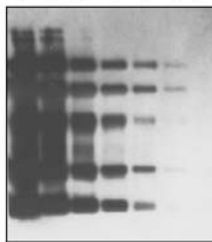


Protein carbonylation of HeLA cells in response to increasing H₂O₂ treatment detected by OxyELISA Kit.

方法 1 OxyBlot™**Protein Oxidation Detection Kit Cat No. S7150**

- **安全**：不使用放射性物質標定，安全不傷身
- **靈敏度高**：可偵測 **5 femtomoles** 的 **carbonyl residue**
- **簡單**：使用西方墨點法偵測
- **方便**：含有 **control** 方便觀察實驗結果
- **靈敏度超過放射線偵測法 100 倍**
- **省時又省樣品**

1 2 3 4 5 6 7



DNP in BSA Band (femtomoles)

lane 1: 100

lane 2: 30

lane 3: 10

lane 4: 3

lane 5: 1

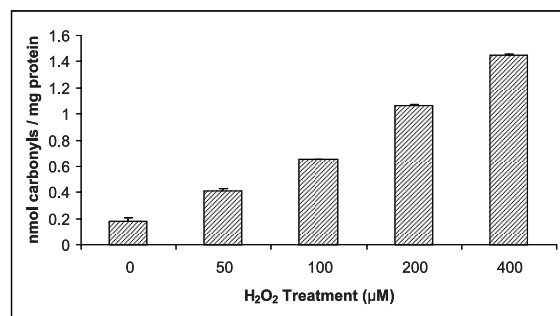
lane 6: 0.3

lane 7: 0.1

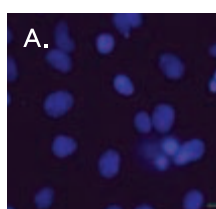
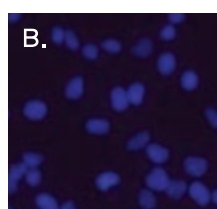
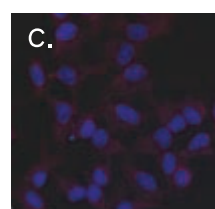
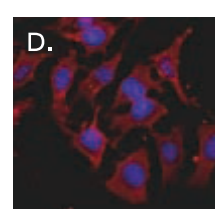
Serial dilutions of DNP-protein mixture provided in the kit. Exposure time was 1 minute.

方法 2 OxyELISA™**Oxidized Protein Quantitation Kit Cat No. S7250**

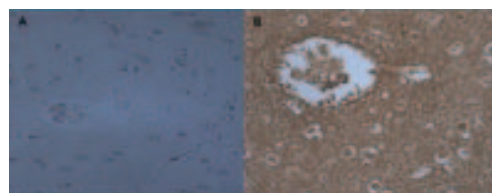
- **All in one**：包含實驗所需的溶液
- **定量**：含氧化及還原物的標準品，方便定量
- **省時**：一抗直接 label HRP，不需二抗，節省時間
- **省費用**：可偵測 **192 個 assays**
- **貼心設計**：含兩個 **High protein binding** 的 **plate**，讓樣品容易附著
- **靈敏度高**：可偵測到 **0.2 nmol** 的 **carbonyl residue**

**方法 3 OxyICC™****Oxidized Protein Detection Kit Cat No. S7350**

- **All in one**: 包含實驗所需的溶液
- **簡單**：使用免疫螢光染色法偵測
- **方便偵測**：包含兩種螢光染劑 (**PI, Cy₃**)，方便觀察

A: -H₂O₂ / -DNPHB: +H₂O₂ / -DNPHC: -H₂O₂ / +DNPHD: +H₂O₂ / +DNPH**方法 4 OxyIHC™****Oxidative Stress Detection Kit Cat No. S7450**

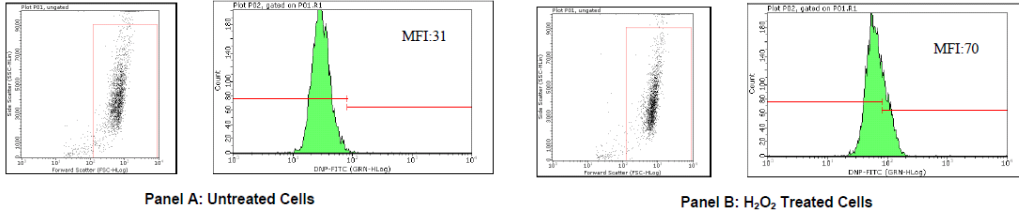
- **All in one**: 包含實驗所需的溶液
- **簡單**：使用免疫螢光染色法偵測
- **適用於 Methacarn Fixed / Paraffin** 的樣品



Negative control reactions were performed with the Derivatization Control Solution and showed minimal DAB reactivity with only Hematoxylin staining (panel A). Staining with DNP resulted in strong immunoreactivity (panel B).

Oxidative Stress Characterization Kit Cat No. FCCH025111

- All in one: 包含實驗所需的溶液
- 簡單
- 定量：使用流式細胞儀作偵測，可得知受到氧化壓力侵襲的細胞比例

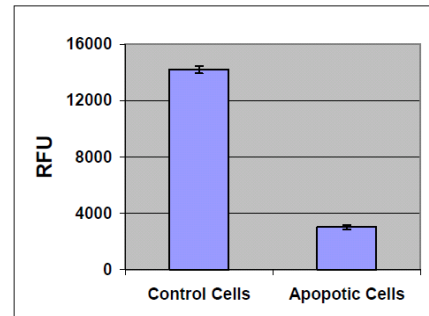


Detection of Oxidative Stress. HeLa cells treated with or without hydrogen peroxide were processed using the FlowCollect Oxidative Stress Characterization Kit then analyzed on a Guava EasyCyte Plus flow cytometer.

Protein Oxidation Detection system

GSH 是 Glutathione 的簡稱，主要是由三個胺基酸連結而成的，基本上它存在於我們全身上下所有的細胞內。GSH 是一種強力的抗氧化劑，它能清除自由基，也是整個抗氧化系統的樞紐，其他的抗氧化劑如維生素 C、E、硫辛酸 (α -lipoic acid) 也都需要有足夠的 GSH，才能中和自由基。已有三萬多篇的研究報告證實很多的疾病都與 GSH 的缺乏有關。適當補充 GSH 可以預防多種疾病的發生，包括癌症、心血管疾病、過早的老化現象、自體免疫系統的疾病。

- 簡單、方便
- 專一性高：MCB (monochlorobimane) dye 和 GSH 有高親和力鍵結，和 thiols 則有低鍵結力
- 快速：能快速的偵測還原態的 GSH
- 含 GSH positive control，方便實驗定量和操作



GSH Level of apoptotic vs non-apoptotic Jurkat cells. 3×10^5 Jurkat cells were treated with $1 \mu\text{M}$ staurosporine overnight at 37°C .

其他相關試劑

Item Number	Item Description	Detection method	Size
427275-1KITCN	Lactoferrin ELISA Kit	Colorimetric	96 Tests
482655-1KITCN	Nitric Oxide Assay Kit	Fluorometric (365/450nm)	192-288 Tests
482702-1KITCN	Nitric Oxide Synthase Assay Kit	Colorimetric	96 Tests
574590-1KTTCN	Superoxide Anion Detection Kit	Luminescence	100 Tests
615700-1KITCN	Total Antioxidant Status Assay Kit	Colorimetric	50 Tests
HCS232	Manganese Superoxide Dismutase (MnSOD) Assay	Fluorescent (Cy3/Hoechst)	480 Tests

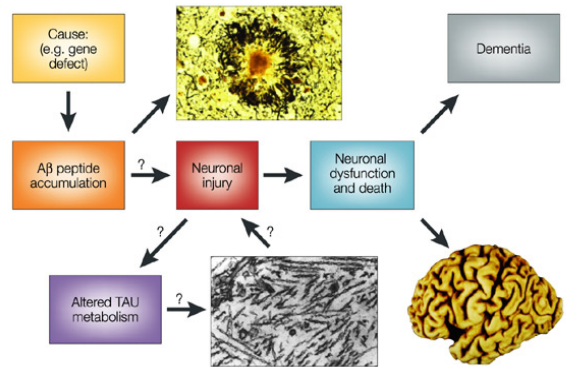
抗體

Item Number	Item Description	Item Number	Item Description
AB5864	Anti-Myelin Basic Protein (MBP)	AB1778	Anti-Calbindin D-28K
AB980	Anti-Myelin Basic Protein (MBP)	AB1554	Anti-Nerve Growth Factor Receptor, p75
AB5830	Anti-8-Hydroxydeoxyguanosine	AB5864	Anti-Myelin Basic Protein
06-284	Anti-Nitrotyrosine	AG400	BLACK-GOLD® II Stain
07-571	Anti-nNOS/NOS I	MAB360	Anti-GFAP, clone GA5
06-284	Anti-Nitrotyrosine	MABT78	Anti-H-CAM (CD44)
AB5384	Anti-Nitric Oxide Synthase II	AB9730	Anti-14-3-3-b
AB5484	Anti-RAGE	AB9734	Anti-14-3-3-e N-terminus
AB5611	Anti-Neuroketal	MAB342	Anti-Galactocerebroside (GalC)
AB5480	Anti-Superoxide Dismutase 1 (SOD1)	07-678	Anti-LINGO-1
AB10346	Anti-SOD2	AB15188	Anti-Neurofascin, NF186/NF155
06-984	Anti-Mn-SOD	MAB345	Anti-Oligodendrocyte O4
574596-1MLCN	Anti-Superoxide Dismutase (Mn Enzyme)	AB9610	Anti-Olig-2
07-403	Anti-Cu/Zn-SOD	AB9740	Anti-Phospho-14-3-3 (Ser185)
574597-1MLCN	Anti-Superoxide Dismutase (Cu/Zn Enzyme)	250308-100ULCN	Anti-Cytochrome P450 3A4 Rabbit pAb

Alzheimer's disease

隨著醫療的進步，人口老化問題日趨嚴重，有一些老年相關的疾病您不可不知。其中阿滋海默症 (Alzheimer's disease, AD) 即為神經退化性的疾病之一。AD 由阿滋海默醫生在 1907 年所發現的。這種疾病會引起記憶的喪失，認知的失調，還有一些不正常的行為產生。目前 AD 的致病原因尚不清楚，主要好發在老年時期 (約 50~ 60 歲左右)，而病程則會有 10~20 年之久。只有 5~10% 的 AD 是遺傳性的，其餘是自發性的，而在自發性的族群中，最大的風險因子，就是老化。

不管是遺傳性的或自發性的都會在病患的腦切片中，發現有 senile plaque 的現象，這是一個主要由 Aβ peptide 和其他蛋白質糾結而成的細胞外的沈澱；因此如何將 Aβ peptide 的蓄積減少，降低 senile plaque 這個病理現象，成為研究 AD 很重要的方向。和 AD 有關的因子，包含：(1) Glutamate (2) Oxidative stress (3) Tau (4) The amyloid cascade (5) APP (Amyloid β precursor protein) and Aβ (6) Familial AD 等。Millipore 提供您一系列完整的相關產品，包含抗體及試劑。



Anti-b-Amyloid (AB5078P) staining of Alzheimer's disease brain.

Anti-Tau (Cat. No. AB9668) staining of Alzheimer's hippocampal neuron. Immunoreactivity is not nuclear and it follows the length of the neuron, down the axon. Note lack of vascular involvement (vessel on the left of neuron).

Analyze all or any combination of the analytes in this panel in serum, plasma, CSF (cerebrospinal fluid), cell/ tissue extract, or culture samples. This is a 3.5 hour assay using 25 μL or less of sample.

抗體

Item Number	Item Description
15-202	Alzheimer's Disease I - Tauopathy Components : Anti-WWOX, AB9560SP Anti-Phospho Tau (Thr231), AB9668SP Anti-Tau-1, clone PC1C6, MAB3420SP
15-203	Alzheimer's Disease II - Amyloidosis Components: Anti-Amyloid Precursor Protein, clone A4 MAB348SP Anti-14-3-3-e C-terminus, AB9732SP Anti-AGE, AB9890SP
15-205	Amyloid Beta Precursor Proteins Components : Anti-Amyloid Precursor Protein, clone A4 MAB348SP Anti-Amyloid Precursor Protein (643-695) MAB343SP Anti-Amyloid Precursor Protein, C-Terminus AB5352SP
15-208	TAU Proteins Components : Anti-Tau-1, clone PC1C6, MAB361SP Anti-Phospho Tau (Thr231), AB9668SP Anti-Tau, Caspase Cleaved, clone Tau-C3 MAB5430SP

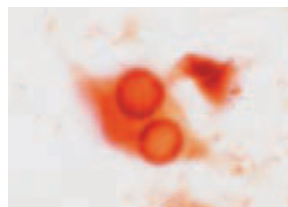
試劑

	Item Number	Item Description
ELISA	EZHS42	High Sensitivity Human Amyloid β 42 ELISA
	EZHS40	High Sensitivity Human Amyloid β 40 ELISA
	EZBRAIN42	Human Amyloid β 42 Brain ELISA
	EZBRAIN40	Human Amyloid β 40 Brain ELISA
	EZHS-SET	High Sensitivity Human Amyloid β 40 and Amyloid β 42 ELISA
	EZBRAIN-SET	Human Amyloid β 40 and Amyloid β 42 Brain ELISA
Luminex	HNDG1-36K	MILLIPLEX map Human Neurodegenerative Disease Panel I
	HNDG2-36K	MILLIPLEX map Human Neurodegenerative Disease Panel II
	HNDG3-36K	MILLIPLEX MAP Human Neurodegenerative Disease Panel III

Parkinson's Disease

帕金森症 (Parkinson's disease, PD) 是一種慢性腦神經組織衰退疾病；它是 1817 年英國一位詹姆士帕金森醫生 (Dr. James Parkinson) 所發表的。由腦幹內稱作「黑質」的部位出現退化，不能產生足夠的神經傳導物質「多巴胺」 (Dopamine)，運動信號就不能傳遞，大腦中的另一種稱為乙醯膽鹼的化學物質也受多巴胺的調控。當多巴胺數量不足時，乙醯膽鹼數量就會過多，因而引起帕金森病人出現震顫和肌肉僵直。

Dopamine (DA) neurons 逐漸退化會使得 DA neurons 喪失，伴隨神經細胞喪失的是 inclusion 的形成，包括 Lewy bodies 與 Lewy neurites，這些沉澱體主要由 α -synuclein (α -syn) 所組成。目前對於 PD 的致病因素，家族遺傳性 PD 約佔 5-10%，其他則多屬於 sporadic PD，其影響因子包括氧化壓力、粒線體功能障礙 excitotoxicity 與鈣離子平衡失調有關，而這些因子彼此之間又會互相作用而放大其影響，導致惡性循環，並造成神經細胞功能不良，萎縮退化進而死亡。Millipore 提供您一系列 PD 相關的抗體，方便您的實驗進行。



Rabbit anti-Synphilin-1 (Cat. No.AB5388). Synphilin-1 positive Lewy bodies in Dorsal raphe nucleus in case of Parkinson's Disease.

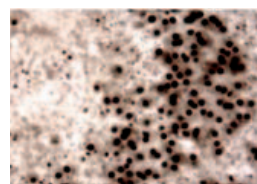


Rabbit anti-LRRK2 (AB9682) Western blot on mouse brain extract.

method	Item Number	Item Description
anti-body	AB5038	Anti- α -Synuclein
	AB5084P	Anti-Dopamine Receptor D2 (D2S and D2L)
	AB9682	Anti-Leucine-Rich Repeat Kinase 2 (LRRK2)
	07-678	Anti-LINGO-1
	AB9245	Anti-PAEL Receptor (GPR37)
	AB9570	Anti-PTEN-Induced Kinase 1 (PINK1)
	AB15346	Anti-Tubulin Polymerization Promoting Protein (TPPP)
	AB152	Anti-Tyrosine Hydroxylase (TH)
	MAB318	Anti-Tyrosine Hydroxylase (TH)
	AB9244	Anti-Parkin
ELISA	NS400	α -Synuclein ELISA Kit

Huntington's Disease

亨廷頓舞蹈症 (Huntington's Disease, HD) 是一種家族顯性遺傳疾病，肇因於第四對染色體內 DNA (去氧核糖核酸) 基質之 CAG 三核酸重複序列過度擴張，造成腦部神經細胞持續退化，這種退化會造成不能控制的運動，特別是影響到控制協調動作神經節，所以患者會有不自主動作，末期則會智能減退、身體僵硬。Millipore 提供您一系列 HD 相關的抗體，方便您的實驗進行。



Mouse anti-Huntingtin (Cat. No.MAB5374 immunohistochemistry). Brain sections containing the hippocampus from HD transgenic mouse (R6/2) (Davis et al., 1997) and wild type mouse (WT) at the age of 12 weeks were stained with MAB5374. Note that the antibody specifically reacts with intranuclear mutant huntingtin aggregates and smaller neuropil aggregates outside the nucleus. For immunohistochemistry, MAB5374 was used at 1:400 dilution.

Item Number	Item Description
AB5872	Anti-Huntingtin Associated Protein 40 (HAP40)
AB15417	Anti-Becn1
MAB5516	Anti-Huntingtin Associated Protein-1 (HAP-1)
AB15085	Anti-Huntingtin Associated Protein-1B (HAP-1B)
AB9880	Anti-Huntingtin Interacting Protein 1 (HIP1)
AB9882	Anti-Huntingtin Interacting Protein 1 related (HIP1R)
MAB5374	Anti-Huntingtin Protein
MAB1574	Anti-Polyglutamine-Expansion Diseases Marker