



沛泉菁華醇 Réserve™ CAP-e 檢測分析結果

此份報告最重要的部分是測試結果，請務必記得CAP-e

抗氧化分析檢測的目的是確定受測產品的抗氧化劑是否能順利進入細胞並保護細胞免於受到氧化性的損害。根據檢測結果，沛泉菁華醇Réserve™確實可產生抗氧化保護作用，而且也超越IC50的基準值，所以檢測分析實驗可證明該產品擁有非常明顯的抗氧化劑生物穿透性與保護作用。

對於此種具有抗氧化成分且擁有不同可溶性的複合物而言，若同時進行水溶性和非水溶性溶劑的檢測，將可證明對細胞能提供更高效的抗氧化作用。而且藉由兩種溶劑而不是只單做一種溶劑的檢測方法，我們可以對生物的活動性和抗氧化的保護作用獲得更多的了解。

我們都知道最主要的抗氧化成分之一是白藜蘆醇，此成分本身就比較無法溶於水。因此，它在CAP-e 分析檢測中也僅能產生部分作用；相對地它在酒精溶劑中卻能產生更大的抗氧化作用，而其他成分亦擁有不同的可溶性。

在CAP-e 分析檢測中，正向的結果可以讓我們再進行更多的生物分析，所以 NIS 實驗室建議我們可以考慮再進行抗氧化劑應用於人類的生物有效性的進階檢測，以獲得更多有效的分析數據。讓我們一起期待吧！



Report:

Cell-based Antioxidant Protection (CAP-e)_{peroxy}

紅血球抗氧化活性篩選分析技術

Client: Jeunesse Global

Report number: 77-0056-03

Date received: March 5, 2010

Date tested: March 24, 2010

CAP-e antioxidant capacity:

CAP-e 抗氧化劑的含量：

Sample	NIS code	Lot / Batch#	Type of product	Expiration date	CAP-e units ($\mu\text{M GA/mL}$ test product)
Jeunesse Reserve	JR PBS	E1	Liquid	N/A	25.3
Jeunesse Reserve	JR EtOH	E1	Liquid	N/A	37.1

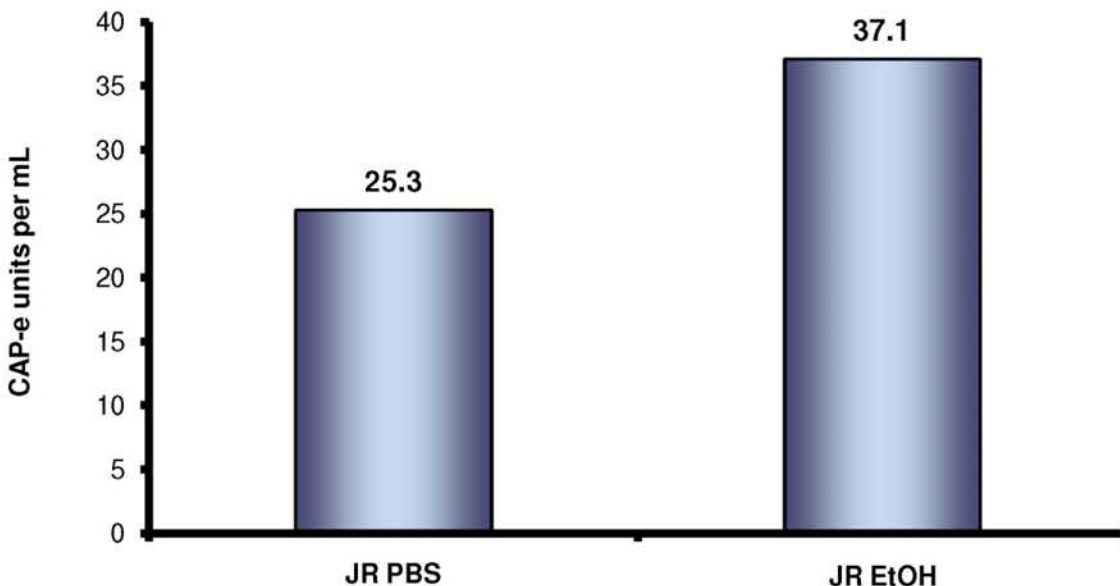
The CAP-e value is provided as μM Gallic Acid (GA) per mL liquid test product. This measurement reflects the relative antioxidant protection of cells by the test product per weight, compared to the known antioxidant, Gallic Acid.

Protocol reference: NIS/CAPE/AAPH/20090803.

CAP-e分析技術是一種專門檢測特定產品中每毫升「沒食子酸」的微米含量。此檢驗方法是以最常見的抗氧化劑「沒食子酸」為對照組，檢測出每單位重量的檢測產品中所內含的細胞抗氧化數值和能力。

The CAP-e assay is used to test whether natural products contain antioxidants capable of entering into and protecting live cells from oxidative damage. Thus, when any protective effect is seen in the CAP-e assay, it shows a biologically meaningful antioxidant protection by the product. In addition, the CAP-e assay is useful for comparing different production lots of the same product and for dose comparison between different test products or ingredients.

CAP-e分析技術常常被使用於檢測是否含有可有效進入細胞並保護細胞免於氧化傷害的抗氧化成分。因此，當在CAP-e分析檢測中發現有正向保護效果時，代表該產品對生物具有抗氧化的保護作用。除此之外，CAP-e分析技術也常被用於在同樣產品但不同產量中比對出其不同之處，亦可針對不同產品或成分做劑量比對分析。



The complex product JR contains both aqueous and non-aqueous antioxidant compounds. In this testing, extracts were prepared in aqueous solution and ethanol in parallel, to evaluate the antioxidant protection provided to live cells from either extraction method. This data serves to provide more detailed information about the product, and also helps planning of further testing in cell-based models.

美商婕斯環球公司的沛泉菁華醇 (Réserve™) 同時含有水溶性及非水溶性的抗氧化複合物。在進行化驗測定前，先將萃取物分別以水溶液(緩衝鹽液)和乙醇的溶劑保存，測試時再使用這兩種溶劑形式分別進行細胞抗氧化作用的檢測，此種檢測方式能對測試的產品提供更完整的資訊，同時更有助於進一步的活性篩選檢測。

The graphs below show the average of each duplicate set of data points for the serial dilutions of the product. For each data point, vertical bars show the standard deviation for each duplicate data set. When duplicate values are almost identical, the standard deviation bars may not be visible.

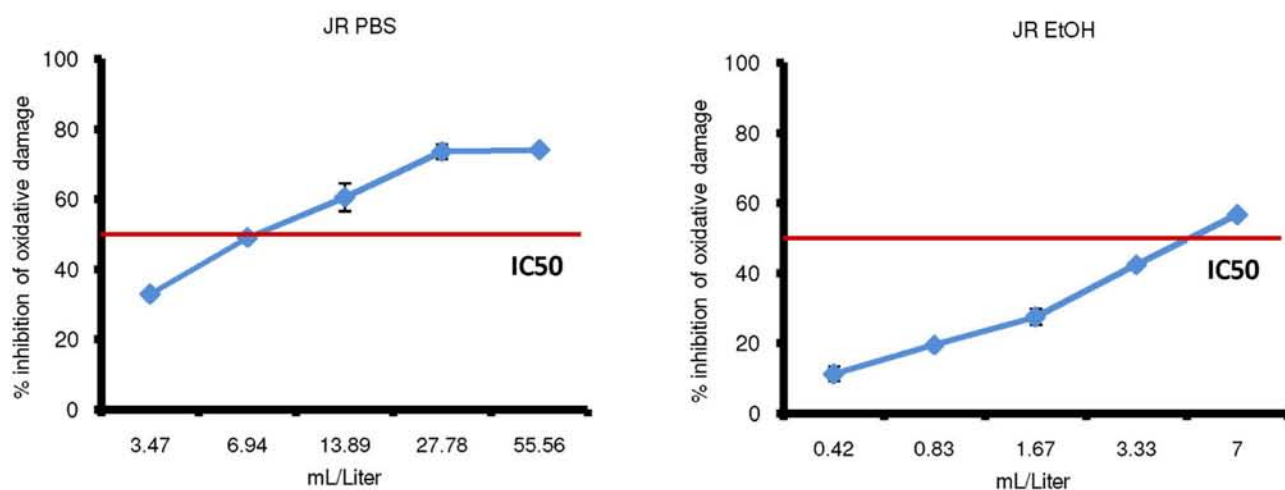
以下圖表中表示測試產品在不同稀釋濃度下的平均值。對於每一個數據點而言，可從對照的縱軸中顯示定量產品產生抗氧化作用的差異性。

The IC50 is a measure of the effectiveness of a compound in inhibiting (in the case of the CAP-e assay) oxidative damage. If the product is potent enough to show more than 50% inhibition within the dose range tested, then an IC50 can be calculated.

在CAP-e分析檢測中，IC50代表抗氧化複合物抑制氧化性損害能力的基準數值，如果抗氧化複合物在該產品固定劑量內的抗氧化能力超過50%的抑制效果，其數據點就會在IC50上方。

The point on the graph where the red IC50 line intersects the curve reflects the IC50 dose of the test product, i.e. the dose that provided 50% inhibition of oxidative damage. This IC50 dose is compared to the IC50 dose of the known antioxidant Gallic Acid (which is used as a control in the assay), resulting in a CAP-e value reported in Gallic Acid equivalent units.

圖表上IC50紅線與曲線交叉點即表示該測試產品IC50的劑量，也就是代表該劑量可達到50%的抑制氧化性損害。再將此IC50的劑量與知名的抗氧化劑「沒食子酸」的IC50劑量做比較，可獲得與「沒食子酸」相同的CAP-e抗氧化劑含量數值。



PROTOCOL:

檢測方式：

For each solvent, a 5 mL sample of the test product is used. Each test product is added to the solvent and mixed by inversion and then vortexed. Solids are removed by centrifugation at 2400rpm for 10 minutes. The supernatant of the products is removed and then filtered for use in the CAP-e assay. Serial dilutions are prepared from each filtered supernatant in 0.9% saline at physiological pH.

不論是何種溶劑形式，都僅使用5毫升的檢測產品進行測試。在測試產品加入溶劑後，將以逆旋反轉方式進行混合，再輔以2400rpm的離心旋轉10分鐘後，固體懸浮物質將會被分離移除，經過過濾後的上清液再以0.9%生理酸鹼液配置成各種濃度的稀釋液，作為CAP-e分析使用。

Red blood cells were treated in duplicate with serial dilutions of a test product. Samples of untreated red blood cells (negative controls) and samples of red blood cells treated with oxidizing agent but not with an antioxidant-containing test product (positive controls) are prepared in hexaplicate. The antioxidants not able to enter the cells are removed by centrifugation and aspiration of supernatant above the cell pellet.

檢驗方式為以各種不同濃度的產品稀釋液對紅血球重複進行抗氧化的修復測試。將尚未氧化的正常紅血球樣本(為陰性對照組)和已氧化但尚未經過含抗氧化劑的檢測產品測試過的紅血球樣本(為陽性對照組)透過hexaplicate進行抗氧化作用的比對分析，對於無法進入細胞的抗氧化劑及懸浮物質都會被分離移除。

The cells are exposed to oxidative damage by addition of the peroxy free-radical generator AAPH. Using the indicator dye DCF-DA, which becomes fluorescent as a result of oxidative damage, the degree of antioxidant damage is recorded by measuring the fluorescence intensity of each test sample. The inhibition of oxidative damage is calculated as the reduced fluorescence intensity of product-treated cells, compared to cells treated only with the oxidizing agent. The CAP-e value reflects the IC50 dose of the test products, i.e. the dose that provided 50% inhibition of oxidative damage. This is then compared to the IC50 dose of the known antioxidant Gallic Acid.

透過AAPH過氧化氫自由基產生者讓受測細胞產生氧化性的損害，再經過抗氧化修復測試後，使用DCF-DA探測感應器偵測受測細胞被修復的氧化性損害程度，並以螢光色變化的深淺程度來記錄抗氧化劑作用的指數。透過細胞對螢光色變化的情況，並與已氧化的細胞做比較，可計算出抑制氧化性損害的程度。CAP-e分析檢測可測得產品的IC50劑量，亦即該產品可產生50%抑制氧化性損害的劑量，再與知名的抗氧化劑「沒食子酸」的IC50劑量做比較，若CAP-e抗氧化劑含量越高，代表可獲得更高的細胞穿透率和吸收率而使細胞獲得更佳的抗氧化保護作用。

Reviewed by:



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