

Chlorella sorokiniana W-87(CRYPTO)™ Extract Prevents Cisplatin-Induced Myelotoxicity in Vitro and in Vivo

引藻萃萃取物可預防化療藥物誘發之骨髓毒性

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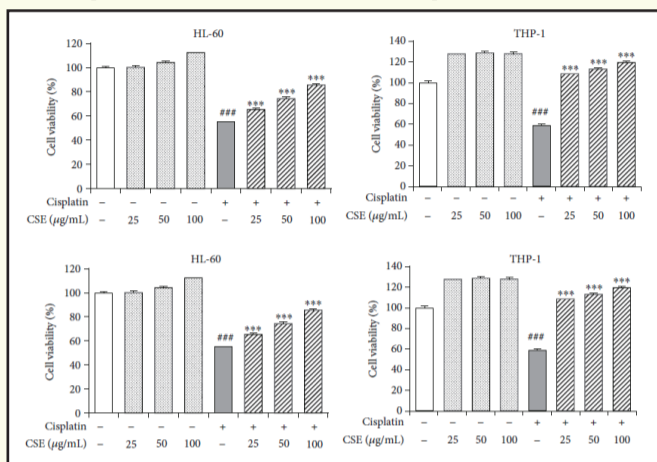
結論

引藻萃萃取物可以保護正常骨髓細胞和外周血單核細胞(PBMC)免受順鉑毒性的影響，藉由保留粒線體功能，抑制細胞色素C釋放到細胞質中以及抑制凋亡蛋白酶(caspase)和DNA修復酶(PARP)活化，可以挽救順鉑誘導的HL-60細胞凋亡。本研究發現了引藻萃萃取物對於骨髓保護的新作用機轉，並可支持引藻萃萃取物作為抗順鉑誘導的骨髓毒性的化療保護劑的用途。

Conclusions

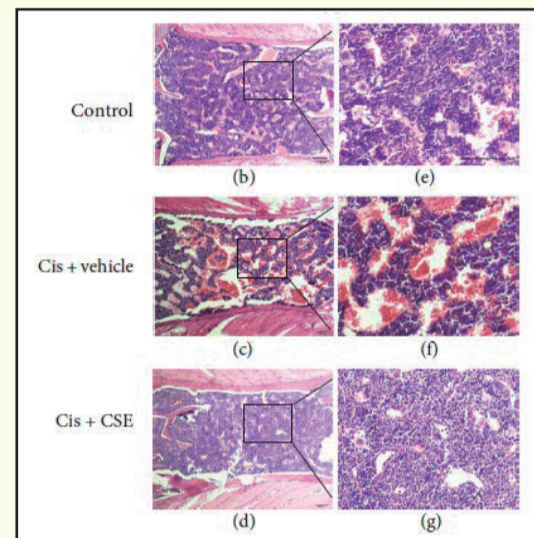
We report here, for the first time, that *Chlorella sorokiniana* W-87(CRYPTO)™ extract (CSE) could protect normal myeloid cells and PBMCs from cisplatin toxicity. Also, cisplatin-induced apoptosis in HL-60 cells was rescued through reservation of mitochondrial function, inhibition of cytochrome c release to cytosol, and suppression of caspase and PARP activation. In conclusion, we uncovered a novel mechanism of CSE on myeloprotection, whereby potentially supports the use of CSE as a chemoprotector against cisplatin-induced bone marrow toxicity.

◆ CSE protects cells from cisplatin-induced cytotoxicity



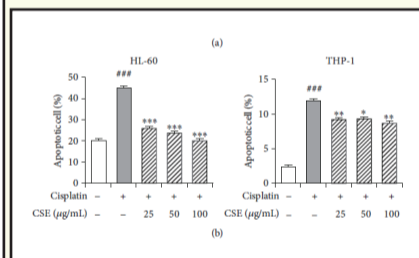
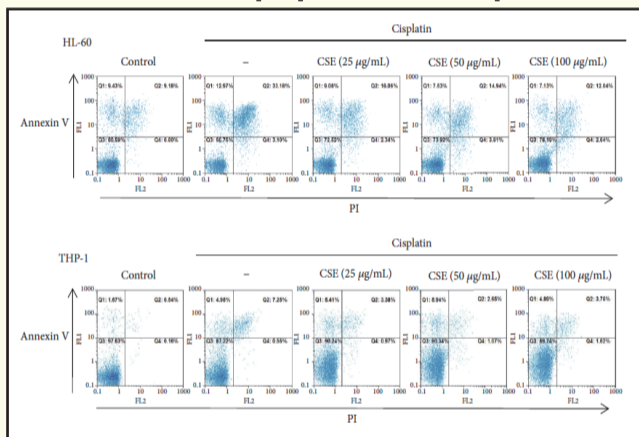
引藻萃萃取物可保護人類骨髓細胞(HL-60 & THP-1)免於受到cisplatin (4μM & 2μM)所造成的細胞毒殺作用。

◆ Effect of CSE on mice receiving cisplatin



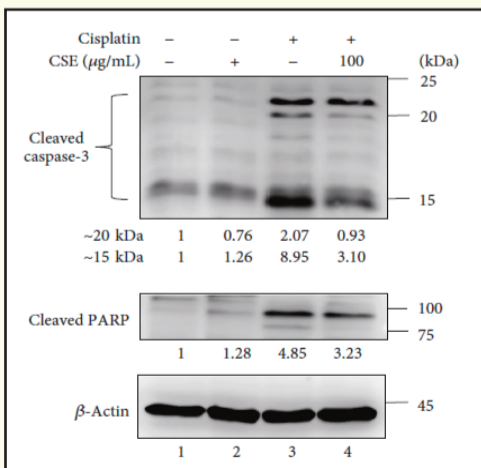
引藻萃萃取物可減緩cisplatin誘發的小鼠骨髓毒性

◆ CSE reduces apoptosis in cisplatin-treated cells



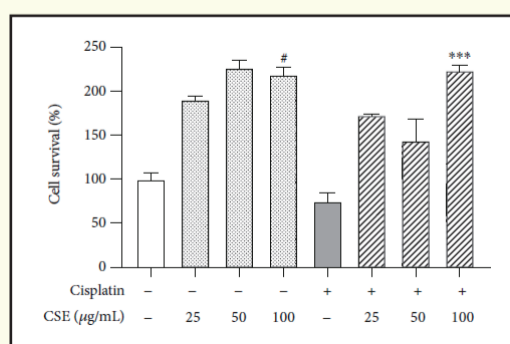
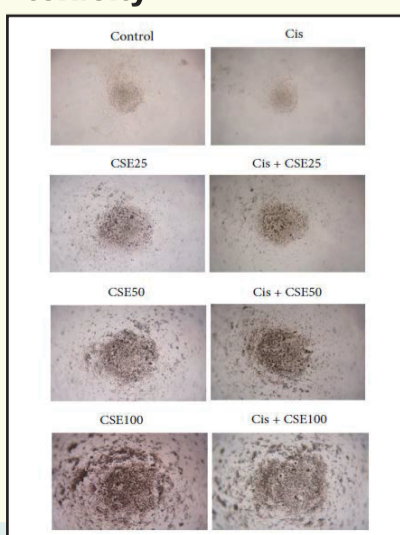
引藻萃萃取物可降低cisplatin(4μM & 2μM)對人類骨髓細胞(HL-60 & THP-1)所造成的細胞凋亡作用。

◆ CSE diminishes cisplatin-induced caspase-3 and PARP activation



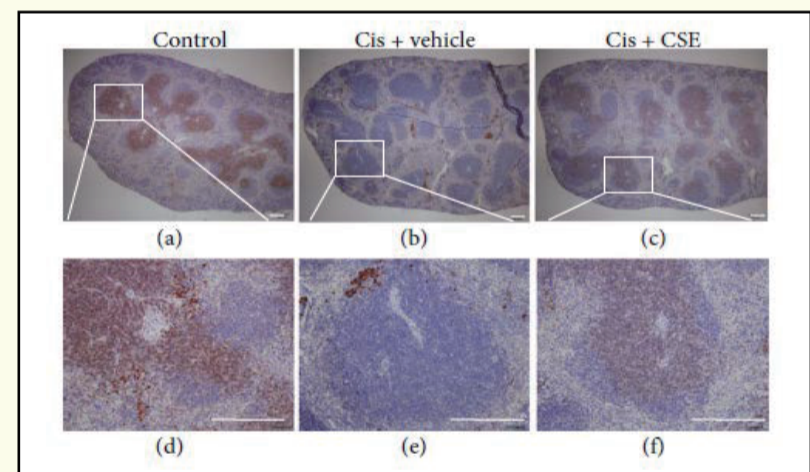
引藻萃萃取物可降低cisplatin所誘發的人類骨髓細胞(HL-60)凋亡蛋白酶3(caspase-3)與DNA修復酶(PARP)活化。

◆ CSE protects normal myeloid cells from cisplatin-induced toxicity



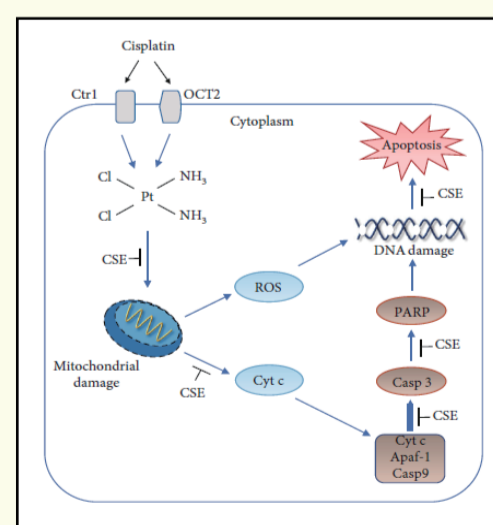
引藻萃萃取物可以保護cisplatin引起的小鼠周邊血液單核球細胞(PBMC)毒殺作用

◆ CSE recovers CD11b levels in cisplatin-treated mice



引藻萃萃取物可回復cisplatin造成的小鼠顆粒球與吞噬細胞標記CD11b表現減少的現象。

◆ Proposed molecular mechanism for the action of CSE on cisplatin toxicity in human promyelocytic cells



以cisplatin處理人類骨髓細胞會造成粒線體損傷、細胞色素C釋放到細胞質中、凋亡蛋白酶3(caspase-3)和DNA修復酶(PARP)活化，並造成細胞凋亡。然而，加入引藻萃萃取物則可以保留細胞之粒線體質量、降低細胞色素C釋放到細胞質中、抑制凋亡蛋白酶3與PARP活化，進而促進骨髓細胞存活。

Acknowledgment

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