



צמחי מרפא והטיפול האונקולוגי: סינרגיזם, אנטגוניזם, ומה שביניהם

**ד"ר נח סמואלס
מרכז טל לרפואה אינטגרטיבית
המכון האונקולוגי, מרכז רפואי שיבא**

**עיל"ם – העמותה הישראלית לצמחי מרפא
כנס סתיו 2016
מרכז דוהל, תל אביב 28.9.16**

פרשת חולה

- בת 69, רפלקסולוגית, לומדת לתואר שני במדעי הרוח
- אובחנה עם מלנומה ממאירה בכתף שמאל, עם פיזור לריאות
- מחלות רקע: אוסטיופורוזיס (מטופלת בביפוספונטים)
- תכנית טיפול אנטי-סרטני:

coBRIM Study (G028141)

Vemarufinib
(Zelboraf)

±

Cobimetinib
(GDC-0973)

* <http://clinicaltrials.gov/show/NCT01689519>

תאריך: ינואר 2006 שם הנוהל: נוהל לניסויים רפואיים בבני-אדם

טפסים

טופס 11 – עמוד 1 מתוך 1

מכתב לרופא המטפל בקופת חולים/שירותי בריאות¹ שבה/בהם מבוטח המשתתף בניסוי הרפואי

הוראה לרופא המטפל: יש להימנע מ...

- היפריקום (St. John's wort)
- מיץ אשכוליות
- חומרים המשרים/מעכבים את מע' הציטוכרום P450 (בעיקר CYP3A4)

פרשת חולה (המשך)

בתשאול מעמיק יותר, מתברר שלוקחת (באופן קבוע)...

- Mega-Gluflex
- Calcium + D
- Vitamin C (500mg/d)
- Gingko biloba
- B-Complex50
- Vitamin E-400
- Curcumin
- Hemp
- CoEnzyme Q10



מטרות הטיפול בתוספי המזון:

- מניעת תופעות לוואי (שטרם הופיעו)
- מניעת נשירת שיער (לומדת לתואר שני...)

• "לנצח את המחלה"

האם יש בעיה עם השימוש בתוספים בזמן טיפול פעיל?!?



גישת הרפואה האונקולוגית לשימוש בצמחי מרפא

1. יעילות
2. בטיחות (תופעות לוואי)
3. אינטרקציות עם הטיפול האונקולוגי



1. יעילות

2. בטיחות (תופעות לוואי)

3. אינטרקציות עם הטיפול האונקולוגי



1. יעילות – פעילות אנטי-סרטנית

צמחי מרפא שהשתלבו בטיפול האונקולוגי

Paclitaxel (Taxol)
Etoposide (VP-16)
Vincristine
etc.

צמחי מרפא שלא התקבלו כטיפול אונקולוגי

Amygdalin (Laetrile)
PC-SPES
etc.

צמחי מרפא עם פוטנציאל להשתלב בטיפול האונקולוגי

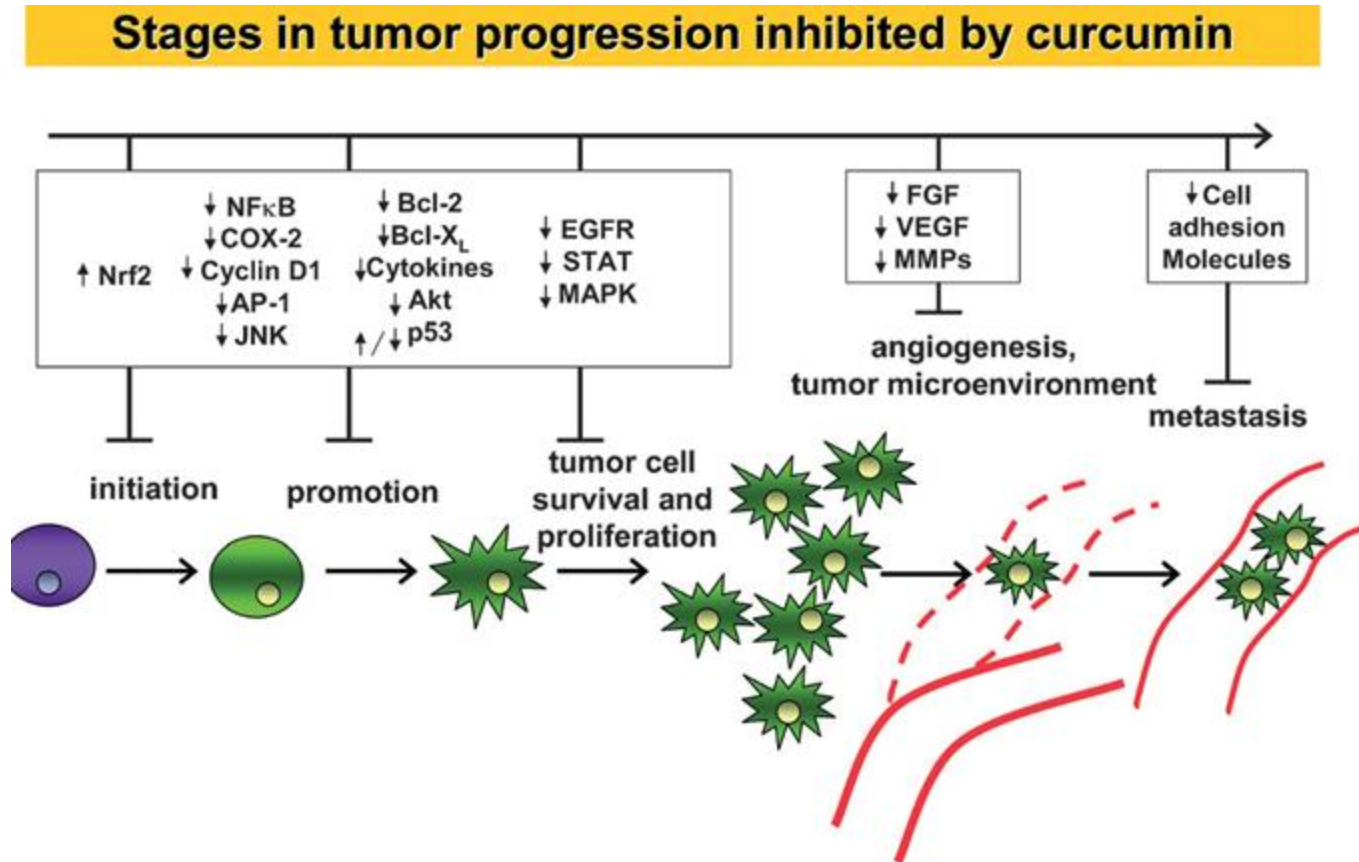
Curcumin
Astragalus
Viscum Album (mistletoe)
Chinese Herbal Formulas:
PHY906
LCS101



כורכום - Turmeric



Curcumin: Pre-clinical research



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Reader comments

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Filters: Manage

Search results

Items: 1 to 20 of 3551

<< First < Prev Page 1 of 178 Next > Last >>

- ☐ 1. [A combination of complexation and self-nanoemulsifying drug delivery system for enhancing oral bioavailability and anticancer efficacy of curcumin.](#)

Shukla M, Jaiswal S, Sharma A, Srivastava PK, Arya A, Dwivedi AK, Lal J. Drug Dev Ind Pharm. 2016 Sep 20:1-49. [Epub ahead of print]

PMID: 27648633

Results by year

Related searches



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1

of 3

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Filters activated: Clinical Trial. [Clear all](#) to show 3551 items.

1.

[The New Combination Docetaxel, Prednisone and Curcumin in Patients with Castration-Resistant Prostate Cancer: A Pilot Phase II Study.](#)

Mahammed H, Planchat E, Pouget M, Durando X, Curé H, Guy L, Van-Praagh I, Savareux L, Atger M, Bayet-Robert M, Gadea E, Abrial C, Thivat

Related s

curcumin

curcumin

curcumin

curcumin

curcumin

curcumin

Titles wit

אסטרגלוס - Astragalus



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Publication dates
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Other Animals

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Filters: [Manage Filters](#)

Search results

Items: 1 to 20 of 604

<< First < Prev Page 1 of 31 Next > Last >>

- ☐ [Suppressive effect of formononetin on platelet-derived growth factor-BB-stimulated proliferation and migration of vascular smooth muscle cells.](#)

1. Chen Z, Liu S, Cai Y, Xie K, Zhang W, Dong L, Liu Y, Zheng F, Dun Y, Li N.
Exp Ther Med. 2016 Sep;12(3):1901-1907. Epub 2016 Jul 13.
PMID: 27588108 [Free PMC Article](#)
[Similar articles](#)

- ☐ [SH003 suppresses breast cancer growth by accumulating p62 in autolysosomes.](#)

2. Choi YK, Cho SG, Choi YJ, Yun YJ, Lee KM, Lee K, Yoo HH, Shin YC, Ko SG.
Oncotarget. 2016 Aug 19. doi: 10.18632/oncotarget.11393. [Epub ahead of print]
PMID: 27556358 [Free Article](#)
[Similar articles](#)

- ☐ [Improved Survival With Integration of Chinese Herbal Medicine Therapy in Patients With Acute Myeloid Leukemia: A Nationwide Population-Based Cohort Study.](#)

3. Fleischer T, Chang TT, Chiang JH, Sun MF, Yen HR.
Integr Cancer Ther. 2016 Aug 16. pii: 1534735416664171. [Epub ahead of print]
PMID: 27531548
[Similar articles](#)

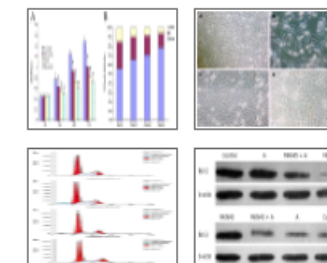
- ☐ [Oxaliplatin-based chemotherapy combined with traditional medicines for neutropenia in colorectal](#)

Results by year



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PMC Images search for astragalus cancer



[See more \(43\)...](#)

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clear

Format: Summary Sort by: Most Recent

Send to Filters: [Manage Filters](#)

Search results

Items: 16

Filters activated: Clinical Trial. [Clear all](#) to show 604 items.

- ☐ [\[Effects of Couplet Medicines \(Astragalus Membranaceus and Jiaozhen\) on Intestinal Barrier in Postoperative Colorectal Cancer Patients\].](#)

Wang QZ, Chen XP, Huang JP, Jiang XW.

Zhongguo Zhong Xi Yi Jie He Za Zhi. 2015 Nov;35(11):1307-12. Chinese.

PMID: 26775475

[Similar articles](#)

- ☐ [Fibular lengthening for the management of translational talus instability in hereditary multiple exostoses patients.](#)

Lee DY, Kim JI, Song MH, Choi ES, Park MS, Yoo WJ, Chung CY, Choi IH, Cho TJ.

J Pediatr Orthop. 2014 Oct-Nov;34(7):726-32. doi: 10.1097/BPO.0000000000000181.

PMID: 24705345

[Similar articles](#)

- ☐ [\[Effects of Huangqi injection on infection factors in children with acute lymphoblastic leukemia\].](#)

Zhang XJ, Yan M, Liu Y, Wang XM, Nuriding H.

Zhongguo Dang Dai Er Ke Za Zhi. 2014 Feb;16(2):147-51. Chinese.

PMID: 24568907

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[Astragalus-containing Traditional Chinese Medicine, with and without preoperative chemotherapy, in the treatment of colorectal cancer treated with preoperative chemotherapy](#)

[An in vivo molecular response of colorectal cancer treated with preoperative chemotherapy](#)

[\[Astragalus polysaccharides combined with cisplatin decelerates the growth of colorectal cancer cells\]](#)

Find related data

Database: [Find items](#)

Search details

((("talus"[MeSH Terms] OR "talus"[All Fields]) OR "astragalus"[All Fields]) OR "astragalus plant"[MeSH Terms] OR ("astragalus"[All Fields] OR "plant"[All Fields]) OR "astragalus plant")

[Search](#)

דבקון לבן – *Viscum Album* (mistletoe)



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Search results

Items: 1 to 20 of 335

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Sort by **Relevance** to quickly find articles that most closely match your query.

- ☐ [Multiple Active Compounds from *Viscum album* L. Synergistically Converge to Promote Apoptosis in Ewing Sarcoma.](#)

Twardziok M, Kleinsimon S, Rolff J, Jäger S, Eggert A, Seifert G, Delebinski CI.
PLoS One. 2016 Sep 2;11(9):e0159749. doi: 10.1371/journal.pone.0159749. eCollection 2016.
PMID: 27589063 **Free Article**
[Similar articles](#)

- ☐ [Parasitic Mistletoes of the Genera *Scurrula* and *Viscum*: From Bench to Bedside.](#)
- Lim YC, Rajabalaya R, Lee SH, Tennakoon KU, Le QV, Idris A, Zulkipli IN, Keasberry N, David SR.

Titles with your search

Adverse Drug Reaction Effects 1 [Evidence Based]

Viscum album [L.] extract patients with locally advanced

Five-year follow-up of stage breast cancer: [Breast Cancer]

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Database: Select

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Text availability

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Publication dates

5 years

10 years

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Species

clear

Format: Summary

Sort by: Most Recent

Send to

Filters: M

Search results

Items: 1 to 20 of 30

<< First < Prev Page 1 of 2 Next > Last >>

Filters activated: Clinical Trial. [Clear all](#) to show 335 items.

1. [Viscum album \[L.\] extract therapy in patients with locally advanced or metastatic pancreatic cancer: a randomised clinical trial on overall survival.](#)

Tröger W, Galun D, Reif M, Schumann A, Stanković N, Milićević M.

Eur J Cancer. 2013 Dec;49(18):3788-97. doi: 10.1016/j.ejca.2013.06.043. Epub 2013 Jul 24.

PMID: 23890767

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2. [Quality of life, immunomodulation and safety of adjuvant mistletoe treatment in patients with gastric carcinoma - a randomized, controlled pilot study.](#)

Kim KC, Yook JH, Eisenbraun J, Kim BS, Huber R.

Titles with

Adjuvant C
Album Ex

Cancer Pa
Mistletoe (

High-Dose
Treatment

Find rela

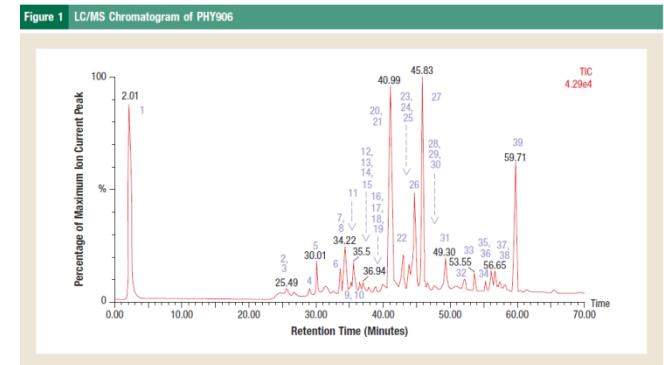
Database:

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PHY906 (Huang Qin Tang)

Yale SCHOOL OF MEDICINE

- Composed of four distinct herbs:
 - *Scutellaria baicalensis* Georgi
 - *Glycyrrhiza uralensis* Fisch.
 - *Ziziphus jujuba* Mill.
 - *Paeonia lactiflora* Pall
- Batch-to-Batch Consistency



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Search results

Items: 20

- ☐ [PHY906\(KD018\), an adjuvant based on a 1800-year-old Chinese medicine, enhanced the anti-tumor activity of Sorafenib by changing the tumor microenvironment.](#)
Lam W, Jiang Z, Guan F, Huang X, Hu R, Wang J, Bussom S, Liu SH, Zhao H, Yen Y, Cheng YC.
Sci Rep. 2015 Mar 30;5:9384. doi: 10.1038/srep09384.
PMID: 25819872 **Free PMC Article**
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- ☐ [The advantages of using traditional Chinese medicine as an adjunctive therapy in the whole course of cancer treatment instead of only terminal stage of cancer.](#)
Qi F, Zhao L, Zhou A, Zhang B, Li A, Wang Z, Han J.

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("PHY 906"
OR "PHY 906"
"phy906"[A]
("neoplasms"
"neoplasms"

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Species
Humans
Other Animals

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Filters activated: Clinical Trial. [Clear all](#) to show 20 items.

- ☐ [First-in-human phase II trial of the botanical formulation PHY906 with capecitabine as second-line therapy in patients with advanced pancreatic cancer.](#)

Saif MW, Li J, Lamb L, Kaley K, Elligers K, Jiang Z, Bussom S, Liu SH, Cheng YC.
Cancer Chemother Pharmacol. 2014 Feb;73(2):373-80. doi: 10.1007/s00280-013-2359-7. Epub 2013 Dec 3.
PMID: 24297682 [Free PMC Article](#)
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- ☐ [A phase I study of the chinese herbal medicine PHY906 as a modulator of irinotecan-based chemotherapy in patients with advanced colorectal cancer.](#)

Kummar S, Copur MS, Rose M, Wadler S, Stephenson J, O'Rourke M, Brenckman W, Tilton R, Liu SH, Jiang Z, Su T, Cheng YC, Chu E.
Clin Colorectal Cancer. 2011 Jun;10(2):85-96. doi: 10.1016/j.clcc.2011.03.003. Epub 2011 Apr 22.
PMID: 21859559
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- ☐ [Phase I study of the botanical formulation PHY906 with capecitabine in advanced pancreatic and other gastrointestinal malignancies.](#)

Saif MW, Lansigan F, Ruta S, Lamb L, Mezes M, Elligers K, Grant N, Jiang ZL, Liu SH, Cheng YC.
Phytomedicine. 2010 Mar;17(3-4):161-9. doi: 10.1016/j.phymed.2009.12.016. Epub 2010 Jan 22.
PMID: 20092990
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- ☐ [Phase I/II study of PHY906/capecitabine in advanced hepatocellular carcinoma.](#)

4. Yen Y, So S, Rose M, Saif MW, Chu E, Liu SH, Foo A, Jiang Z, Su T, Cheng YC.
Anticancer Res. 2009 Oct;29(10):4083-92.
PMID: 19846955 [Free Article](#)
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Liquid chromatography/mass spectrometry analysis of PHY906 (Rapid Commun Mass Spectrom 2014;28:1000-1006)

Phase I/IIA randomized study of the efficacy and safety of a novel herbal agent, [Cancer Chemother Pharmacol 2014;73:373-380]

Find related data

Database:

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Search details

((("PHY 906"[Supplemental Publication] OR "PHY 906"[All Fields]) AND ("cancer"[All Fields]) AND ("neoplasms"[All Fields]) AND ("cancer"[All Fields])

[Search](#)

Recent Activity

[phy906 cancer AND](#)

[phy906 cancer \(20\)](#)

[viscum album cancer Trial\[ptyp\]\] \(30\)](#)

[viscum album cancer](#)

1. יעילות

LCS101 (Protectival)



*Astragalus
membranaceus*
Huang Qi



Poria cocos
Fu Ling



*Atractylodes
macrocephala*
Bai Zhu



*Lycium
chinense*
Gou Qi Zi



*Ligustrum
lucidum*
Nu Zhen Zi



*Paeonia
lactiflora*
Bai Shao



*Paeonia
obovata*
Chi Shao



*Citrus
reticulata*
Chen Pi



*Ophiopogon
japonicus*
Mai Men Dong



*Milletia
reticulata*
Ji Xue Teng



*Oldenlandia
diffusa*
Bai Hua She
She Cao



*Prunella
vulgaris*
Xia Ku Cao



*Scutellaria
barbata*
Ban Zhi Lian



*Glehnia
littoralis*
Bei Sha Shen

The Oncologist[®]

Breast Cancer

A Prospective, Controlled Study of the Botanical Compound Mixture LCS101 for Chemotherapy-Induced Hematological Complications in Breast Cancer

NEORA YAAL-HAHOSHEN,^a YAIR MAIMON,^{b,e} NAVA SIEGELMANN-DANIELI,^d SHAHAR LEV-ARI,^b
ILAN G. RON,^a FANI SPERBER,^c NOAH SAMUELS,^f JACOB SHOHAM,^g OFER MERIMSKY^a

^aDepartment of Oncology, Tel Aviv Sourasky Medical Center affiliated with the Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; ^bUnit of Complementary Medicine and ^cBreast Imaging Unit, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel; ^dMaccabi Healthcare Services, Tel Aviv, Israel; ^eRefuot Integrative Medical Center, Tel Aviv, Israel; ^fCenter for Integrative Complementary Medicine, Shaare Zedek Medical Center, Jerusalem, Israel; ^gFaculty of Life Sciences, Bar-Ilan University, Ramat Gan, Israel

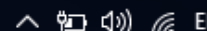
Key Words. Breast cancer • Chemotherapy • Hematological toxicity • Prevention • Botanical compounds

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INTERNATIONAL JOURNAL OF ONCOLOGY 46: 308-316, 2015

Selective anticancer effects and protection from chemotherapy by the botanical compound LCS101: Implications for cancer treatment

ZOYA COHEN^{1*}, YAIR MAIMON^{1*}, MERAV YOELI-LERNER¹,
PEIYING YANG², NOAH SAMUELS¹ and RAANAN BERGER³

¹Tal Center for Integrative Medicine, Institute of Oncology, Sheba Medical Center, Tel Hashomer, Israel;

²Department of General Oncology, The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA; ³Institute of Oncology, Sheba Medical Center, Tel Hashomer, Israel

Received August 10, 2014; Accepted September 25, 2014

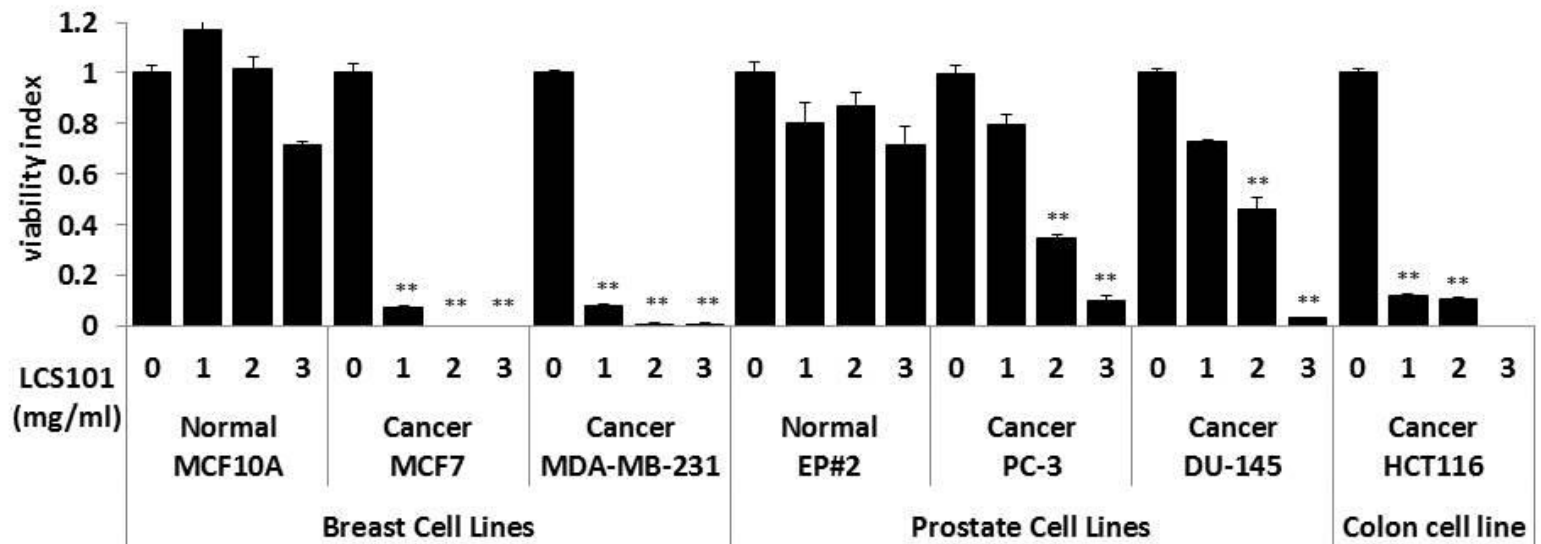
DOI: 10.3892/ijo.2014.2711

Abstract. There is a need for new options for reducing the side effects of cancer treatment, without compromising efficacy, enabling patients to complete treatment regimens. The botanical compound LCS101 exhibits inhibitory effects on cancer cell growth, and reduces chemotherapy-induced hematological toxicities. The aim of the present study is to examine the selec-

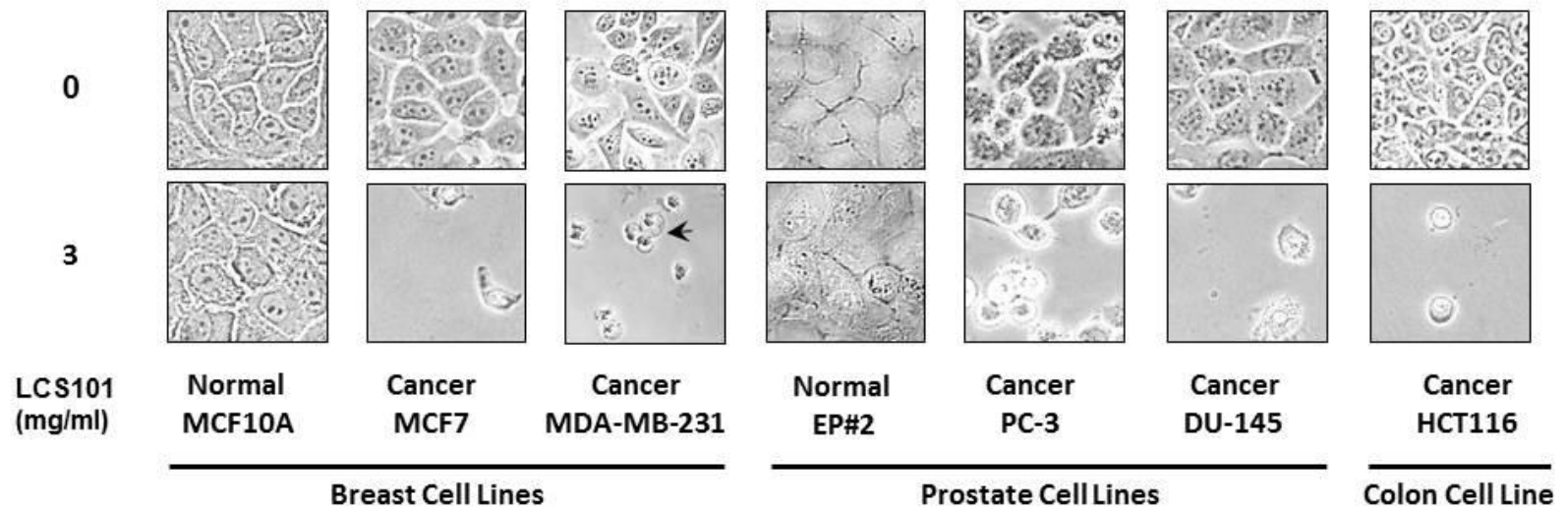
exhibited by the botanical compound LCS101 are selective to cancer cells, and offer protection to non-tumorigenic normal epithelial cells from chemotherapy agents.

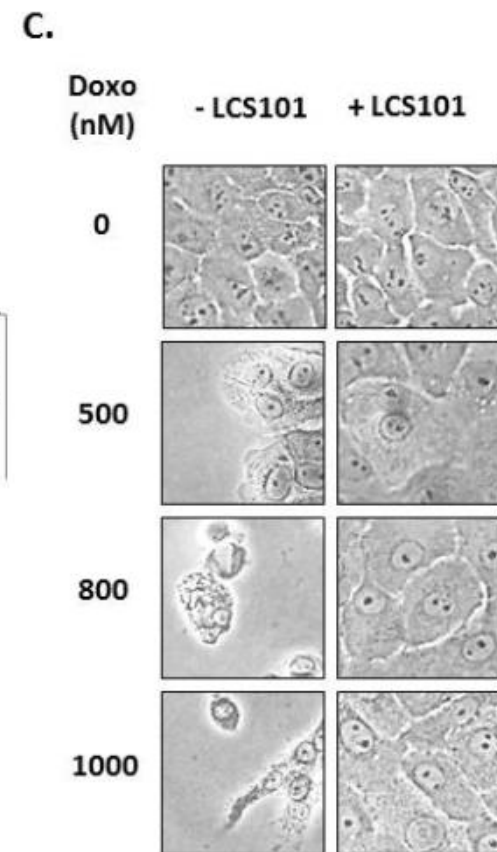
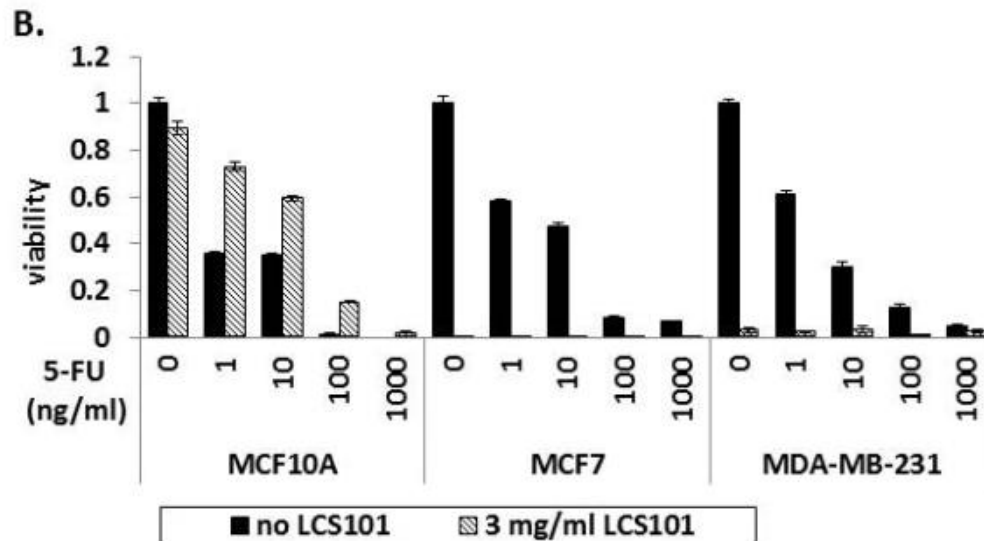
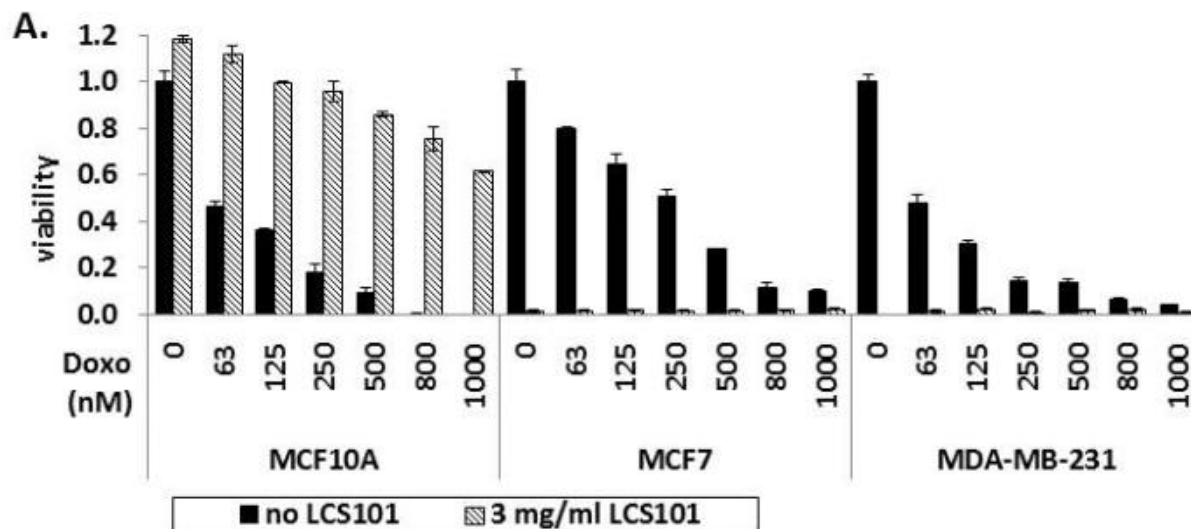
Introduction

A.



B.





גישת הרפואה האונקולוגית לשימוש בצמחי מרפא

1. יעילות
2. **בטיחות (תופעות לוואי)**
3. אינטרקציות עם הטיפול האונקולוגי



Int J Emerg Med (2009) 2:69–76

DOI 10.1007/s12245-009-0105-z

REVIEW ARTICLE

Dietary supplements and herbal medicine toxicities—when to anticipate them and how to manage them

D. H. Phua · A. Zosel · K. Heard

Received: 6 June 2008 / Accepted: 17 April 2009 / Published online: 10 June 2009

© Springer-Verlag London Ltd 2009

Abstract

Background Dietary supplements and herbal medicines are gaining popularity in many developed countries.

Aims Although most can be used without any problem, serious toxicities do occur.

Methods Problems can be anticipated when they are used for non-traditional indications, at excessive dose, for prolonged duration, or by patients who are also on multiple modern pharmaceuticals. Problems should also be anticipated when these products claim to be able to relieve symptoms rapidly or when herbs with pronounced pharmacological effects or toxic components are used.

Results Resuscitation, symptomatic and supportive care are the most important aspects of management of toxicities

Introduction

Dietary supplements and herbal medicines play important roles in health care. Vitamins and minerals are important, as they are necessary for enzymatic reactions and bodily functions; lack of these compounds can lead to deficiency-related diseases. Herbal medicine was the predominant form of health care for the world's population before the advent of modern medicine and still is the predominant form of health care in many underserved populations. Herbal medicine continues to infuse new ideas and treatments into modern medicine for the benefit of our patients.

According to the 2006 American Association of Poison

Table 2

Organ toxicities and toxidromes, and common dietary supplements or herbal medicines that can cause them

Clinical features	Xenobiotics
Cardiac	Sodium channel effects— <i>Aconitum</i> species (widen QRS, shock) Digoxin-like effects— <i>Digitalis</i> species, bufo toads
Central nervous system	Seizures—strychnine, thujone, essential oils (camphor, eucalyptus) Sedation— <i>Valeriana</i> species, kava kava
Dermatological	Blistering—cantharidin (Chinese blister beetle)
Hematological	Coagulopathies—G-herbs (ginger, garlic, ginkgo) Agranulocytosis—anti-mitotic agents (colchicine, podophyllotoxin)
Hepatotoxic	Hepatitis—multiple agents, germander commonly reported Veno-occlusive disease—pyrrolizidine alkaloids (comfrey, <i>Senecio</i> species, <i>Heliotropium</i> species)
Nephrotoxic	Renal failure— <i>Aristolochia</i> species Hypertension, hyperkalemia—licorice
Anticholinergic	<i>Datura metel</i> commonly used in TCM Hexing herbs (<i>Atropa</i> species, <i>Hyoscyamus</i> species, <i>Mandrago officinarum</i>) common in Western herbal practice
Sympathomimetic	<i>Ephedra</i> species, <i>Citrus aurantium</i> (bitter orange)
Salicylate poisoning	Willow bark, checkerberry

גישת הרפואה האונקולוגית לשימוש בצמחי מרפא

1. יעילות
2. בטיחות (תופעות לוואי)
3. אינטרקציות עם הטיפול האונקולוגי

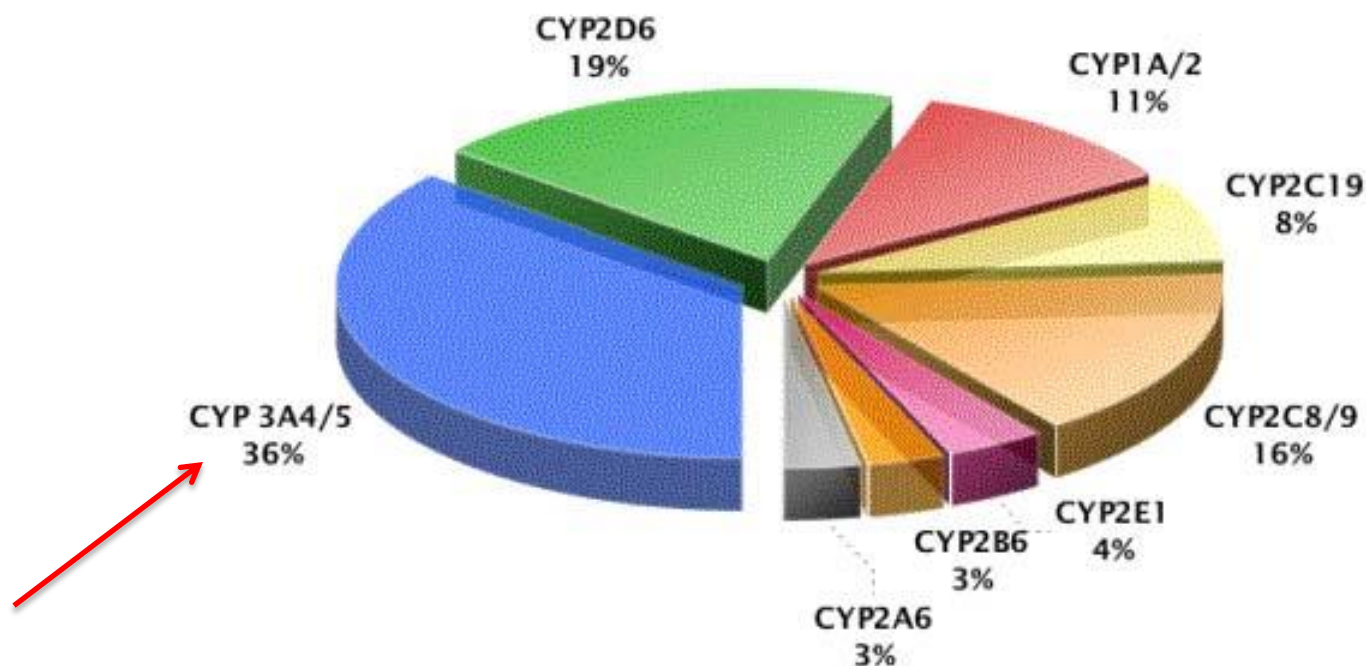




***Hypericum perforatum* (St. John's wort, Tipton's weed)**

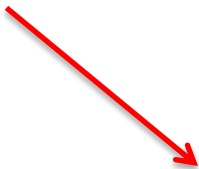
- Ruschitzka F, et al. Acute heart transplant rejection due to Saint John's wort. Lancet. 2000;355:548-9.
- Breidenbach T, et al. Profound drop of cyclosporin A whole blood trough levels caused by St. John's wort (*Hypericum perforatum*). Transplantation 2000;69:2229-30.

Proportion of Drugs Metabolized by P450 Enzymes



Adapted from: Wrighton SA et al. Crit Review Toxicology 1992;22:1-22.

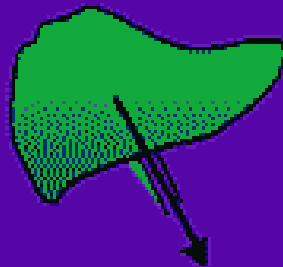
Kashuba and Bertino. Mechanisms of drug interaction. In Drug Interactions in Infections Diseases. Humana Press. 2001.



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P-gp Tissue Distribution

Liver



Intestine



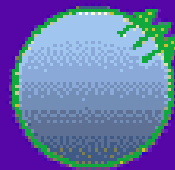
Kidney



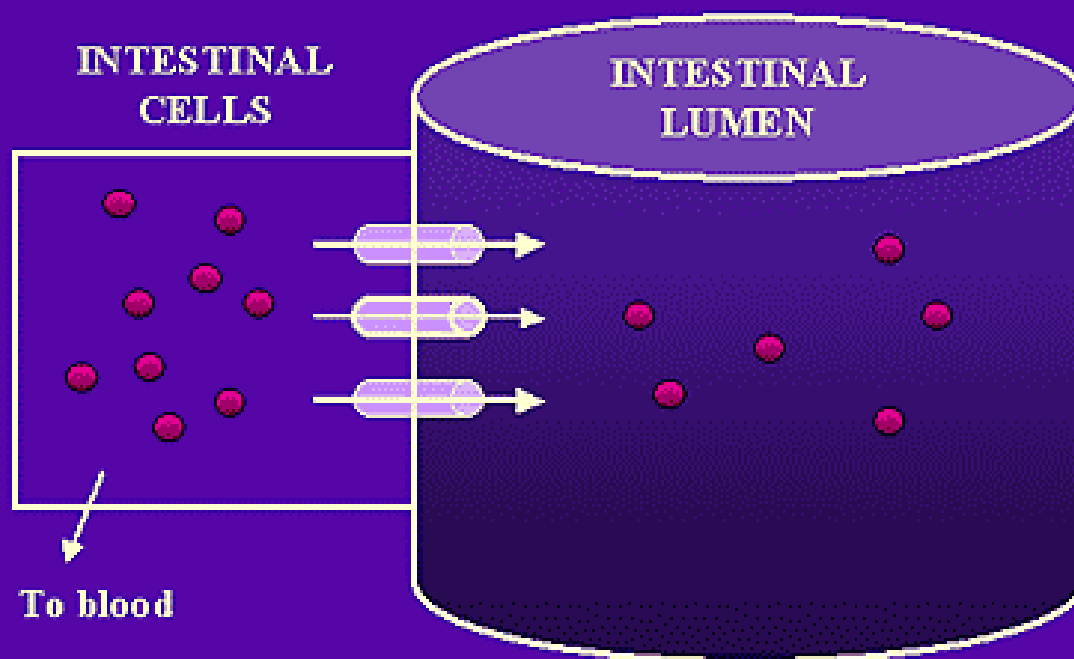
Blood-Organ
Barrier Sites



Lymphocytes



P-gp Action Without Inducer



P-gp Modulation

St. John's wort





Turmeric (*curcuma longa*)

Effects of Curcumin on P-glycoprotein activity

A. Increased

None found

B. Decreased/Inhibited

⊕ Cho YA, et al. Pharmazie 2012; 67: 124-30.

- Inhibited intestinal P-gp efflux transporter
- Enhanced bioavailability of Tamoxifen in rats (1.12 to 1.64-fold)

⊕ Hsieh YW. Sci Rep 2014; 4: 6587.

- Inhibition of P-gp in rats
- [? - Everolimus levels reduced; m/p d/t CYP3A4 activation]

C. Increased + Decreased

⊕ Hou XL, et al. Int J Pharm 2008; 368: 224-9..

- Curcumas → up-regulated P-gp + MDR1 mRNA levels
- Curcumin → decreased P-gp + MDR-1 MRNA levels

⊕ Zhang W, et al. Drug Metab Dispos 2007; 35: 110-5.

- 4 days of intragastric lavage (rats) → down-regulation of intestinal P-gp
→ up-regulation of hepatic P-gp
→ no effect on renal P-gp activity

Effects of Curcumin on CYP-3A activity

A. Increased

⊕ Hsieh YW. Sci Rep 2014; 4: 6587.

- CYP3A4 activated by curcumin metabolites
- reduced serum everolimus levels [rats] - over-rode inhibition of P-gp

B. Decreased/Inhibited

⊕ Appiah-Opong R, et al. Toxicology 2007; 235: 83-91.

- Curcumin → competitive-type inhibition of CYP3A4 [in vitro]
- Decomposition products → no inhibition
- **Unlikely to cause drug-drug interactions at the level of CYPs – d/t low liver levels**

⊕ Cho YA, et al. Pharmazie 2012; 67: 124-30.

- Inhibited intestinal CYP3A4-mediated metabolism
- Enhanced bioavailability of Tamoxifen (1.12 to 1.64-fold)

C. Increased + Decreased

⊕ Zhang W, et al. Drug Metab Dispos 2007; 35: 110-5.

- 4 days of intragastric lavage (rats) → reduced intestinal CYP3A4 activity
→ increased hepatic + renal CYP3A4 expression
- **When administered 30 min. before drug → no change in drug pharmacokinetics**

Astragalus membranaceus (Huan Qi; Locoweed)



Decreased Drug Levels
CYP3A4 induction



Increased Drug Levels

- Phase II enzyme induction
(uridine diphosphate glucoronosyltransferase)
- Inhibition of:
 - P-gp
 - Breast Cancer Resistance Protein
 - Multidrug Resistance Proteins



No effect on Docetaxel pharmacokinetics

Cassileth BR, et al. Safety and pharmacokinetic trial of docetaxel plus an Astragalus-based herbal formula (Jinfukang) for non-small cell lung cancer patients. Cancer Chemother Pharmacol 2009;65:67-71.

PHY906 Components:

- *Glycyrrhiza uralensis* Fisch (Chinese licorice)
- *Paeonia lactiflora* Pall (Chinese peony)
- *Scutellaria baicalensis* Georgi (skullcap root)
- *Ziziphus jujuba* Mill (fruit from a buckthorn tree)



CYP3A4
induction

Saif MW, et al. First-in-human phase II trial of the botanical formulation PHY906 with capecitabine as second-line therapy in patients with advanced pancreatic cancer. Cancer Chemother Pharmacol. 2014 Feb;73(2):373-80.

3. אינטרקציות

Table 6 Effect of PHY906 on Pharmacokinetics of 5-FU, CPT-11 (Irinotecan), and SN-38

Analyte	Statistic	T_{max} (hr)		C_{max} (ng/mL)		$AUC_{0-\infty}$ (hr*ng/mL)		CL (mL/hr/m ²)	
		PHY906	Placebo	PHY906	Placebo	PHY906	Placebo	PHY906	Placebo
5-FU	Mean	0.23	0.20	51941	60765	16415	18520	86843	59364
	SD	0.10	0.12	88714	72610	25116	19485	73194	69664
	Min	0.08	0.11	4220	2910	2086	1911	5561	7039
	Median	0.21	0.18	32200	38300	7731	11761	64676	42515
	Max	0.39	0.54	314000	264000	89918	71035	239647	261590
	CV%	42	58	171	119	153	105	84	117
	P value	.4434		.4825		.6026		.3893	
CPT-11	Mean	8.46	8.28	899	1012	6275	5686	22159	25301
	SD	1.48	2.25	260	526	1996	2099	8206	10566
	Min	5.63	3.95	476	434	3169	2574	12702	13157
	Median	8.82	8.61	927	906	5992	5486	20870	22787
	Max	10.39	11.28	1480	2390	9841	9500	39450	48565
	CV%	17	27	29	52	32	37	37	42
	P value	.5739		.5024		.3807		.4622	
SN-38	Mean	20.41	25.02	13.5	15.3	161.3	194.9	NC	NC
	SD	8.32	27.48	7.9	11.5	86.6	117.7	NC	NC
	Min	11.79	6.48	4.2	3.4	47.3	48.9	NC	NC
	Median	16.97	17.65	12.0	13.0	127.1	196.9	NC	NC
	Max	40.25	105.36	25.3	37.1	321.7	436.8	NC	NC
	CV%	41	110	58	75	54	60	NC	NC
	P value	.6148		.3758		.4259		NC	

Abbreviations: T_{max} = time to maximal concentration; C_{max} = maximum plasma concentration; AUC = area under time-concentration curve; CL = clearance; NC = no change.

Treatment with PHY906 **did not alter the pharmacokinetics** of 5-FU, irinotecan, or the irinotecan metabolite SN-38.

Kummar S, et al. Clin Colorect Cancer 2011; 10: 85-96.

האם יש בעיה עם השימוש בתוספים בזמן טיפול פעיל?!?



**Health Canada International Symposium on
Drug, Food and Natural Health Product Interactions
February 9, 2006
Gatineau, Quebec**

Risk of Drug Interactions Involving Herbal and Citrus Products

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Jerry Collins	Soloman Sobel	John Strong
David M Green	David Frucht	
Hon Sum Ko	Toni Stifano	
Robert Temple	Janet Norden	



קבוצת עבודה לשימוש נבון בצמחי מרפא



שאלות?

