

黃奇英 (Chi-Ying F. Huang)

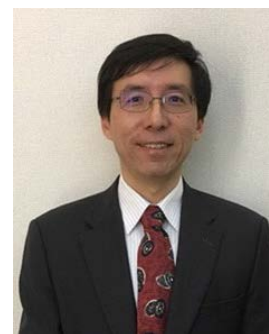
(112)台北市立農街二段 155 號圖資大樓 623 室
國立陽明大學生物藥學研究所 教授
臨床醫學研究所 合聘
生物醫學資訊研究所 合聘
醫學生物技術暨檢驗學系暨研究所 合聘

電話: 02-28267000 分機 7904/6047/6048

傳真: 02-28250883

手機: 0922-292-811

E-mail:cyhuang5@ym.edu.tw; cyhuang1963@yahoo.com.tw, bps Huang@gmail.com



Research Interests

● 老藥新用藥物篩選平台

這個平台是以基因表現圖譜為基礎，首先針對疾病或藥物以基因微陣列晶片做分析，以得到疾病或藥物作用的基因表現圖譜，再透過與生物資訊的結合，利用 Connectivity map—簡稱 CMap，一個儲存了大量 FDA 核准之老藥的基因表現圖譜的資料庫—將疾病、基因表現及藥物三者做一個連結，快速的找出治療癌症的藥物；使用 CMap 除了加速藥物篩選外，從過去的藥物或已上市之藥物切入，能夠大幅降低後續臨床試驗的失敗率，更是一項關鍵的優勢。癌症治療的瓶頸在於抗藥性及高復發率，欲突破這個瓶頸我們從對抗癌症幹細胞著手，以癌症幹細胞的基因表現圖譜來比對 CMap 中的資料，透過上述的篩選平台我們找到兩個小分子用藥(T2 及 CY001)可以有效殺死癌症幹細胞，並能克服抗藥性的問題，且其效果已在動物實驗模式上得到證實。

CY001：此藥在仿單核准適應症外的使用 (off-label use)上發現可使數個病人的腫瘤縮小或趨於穩定的現象，目前獲得 Si2C 及科技部的支持進入臨床試驗，並授權給業界。

● 中草藥物的藥物研發

石蓮花：近年來以中草藥作為疾病(例如慢性肝臟疾病)替代療法的例子大幅增加，我們以本土植物為開發重點，我們證實部分純化過的石蓮花對治療肝硬化及肝癌有顯著的效果，並與生技中心合作進行製程放大與管控(CMC)後，此項專利目前已授權業界，陽明分得 33%。

YQ1：現今認為化療產生的抗藥性和助於腫瘤生長的癌症幹細胞，這都是癌症病人治療失敗和腫瘤復發的主要因素。透過基因微陣列技術、CMap 和 LINCS 的分析，發現以黃耆為底的複方(以 YQ1 表示)可能與癌症幹細胞、EGFR 的訊息傳遞和免疫反應有關。細胞實驗的結果指出 YQ1 能夠抑制肺癌細胞株的各種能力，並能克服抗藥性的問題。在老鼠實驗中，cisplatin 搭配 YQ1 可以明顯的抑制腫瘤的生長。此外，在 YQ1 搭配化療藥物相較於單獨化療的治療會有較顯著的延長肺癌病人存活時間。本團隊的未來目標是將 YQ1 建立為癌症幹細胞的抑制劑，並與業界準備向美國提出新藥臨床試驗申請。目前陽明大學與長庚醫院共同與業界洽談技轉中。

Professional Experience

- Professor in Institute of Biopharmaceutical Sciences, National Yang-Ming University (陽明大學生藥所) (2017- present)
- Professor and chairman in Institute of Biopharmaceutical Sciences, National Yang-Ming University (陽明大學生藥所) (2011-2017)
- Join appointments: Institute of Clinical Medicine, Institute of Biomedical Informatics and

Department of Biotechnology and Laboratory Science in Medicine, National Yang-Ming University (陽明大學臨醫所,生資所,醫技所合聘) (2007-present)

- Associate Investigator in Institute of Cancer Research, National Health Research Institutes (國家衛生研究院癌症研究所) (2005-2007)
- Associate Investigator in Division of Molecular and Genomic Medicine, NHRI (國家衛生研究院分子與基因醫學組) (2003-2005)
- Adjunct Associate Professor in Department of Computer Science and Information Engineer, National Taiwan University (台灣大學資訊工程研究所) (2003-2009)
- Adjunct Associate Professor in Institute of Biotechnology in Medicine and Institute of Bio-Pharmaceutical Sciences, National Yang-Ming University (陽明大學生物醫學技術研究所(2003-2007)及生物藥學研究所(2006-2007))
- Adjunct Associate Professor in Graduate Institute of Life Sciences, National Defense Medical Center (國防大學生命科學研究所) (1999-2007)
- Assistant Investigator in Division of Molecular and Genomic Medicine (National Health Research Institutes) (1998-2003)
- Postdoctoral Fellow (Stanford University) (1994-1998) (Laboratory of James E. Ferrell, Jr.)
- Ph.D. in Biochemistry and Biophysics (Iowa State University) (1988-1994) (Laboratory of Donald J. Graves)
- Research Assistant in Institute of Botany (Academia Sinica) (1987-1988) (Laboratory of Li-Chun Huang)
- Military Service (Taiwan) (1985-1987)
- B.S. in Chemistry (Tunghai University) (1981-1985)

Honors

Leukemia Society of America Career Development Award (1998-1999)
Leukemia Society of America Fellowship (1996-1998)
Keystone Symposium Travel Award (1997)
Stanford Dean's Postdoctoral Fellowship (1994-1995)
Graduate Research Excellence Award (Iowa State University) (1994)
The Honor Society of Agriculture (Gamma Sigma Delta) (1989)
第十四屆國家新創獎—學研新創獎 (2017)

Publications

1. **Chi-Ying F. Huang**, Chiun-Jye Yuan, Nataliya B. Livanova, and Donald J. Graves. Expression, purification, characterization, and deletion mutations of phosphorylase kinase γ subunit: identification of an inhibitory domain in the γ subunit. *Mol. Cell. Biochem.* 127/128, 7-18 (1993).
2. Chiun-Jye Yuan, **Chi-Ying F. Huang**, and Donald J. Graves. Phosphorylase kinase: a metal ion-dependent dual specificity kinase. *J. Biol. Chem.* 268, 17683-17686 (1993).
3. **Chi-Ying F. Huang**, Chiun-Jye Yuan, Siquan Luo, and Donald J. Graves. Mutational analyses of the metal ion binding sites of phosphorylase kinase γ subunit: a metal ion-dependent dual specificity kinase. *Biochemistry* 33, 5877-5883 (1994).
4. Chiun-Jye Yuan, **Chi-Ying F. Huang**, and Donald J. Graves. Oxidation and site-directed mutagenesis of sulfhydryl groups of a truncated γ catalytic subunit of phosphorylase kinase. *J. Biol. Chem.* 269, 24367-24373 (1994).
5. **Chi-Ying F. Huang**, Chiun-Jye Yuan, Nataliya B. Livanova, and Donald J. Graves. Purification and characterization of truncated γ_{1-300} subunit of phosphorylase kinase. *Modern Enzymology: Problems and Trends*, pp191-205 (1994).
6. Siquan Luo, **Chi-Ying F. Huang**, John F. McClelland, and Donald J. Graves. A study of protein secondary structures by photoacoustic infrared spectroscopy. *Anal. Biochem.* 216, 67-76 (1994).

7. **Chi-Ying F. Huang**, Chiun-Jye Yuan, Donald K. Blumenthal, and Donald J. Graves. Identification of the substrate and pseudosubstrate binding sites of phosphorylase kinase γ subunit. *J. Biol. Chem.* 270, 7183-7188 (1995).
8. **Chi-Ying F. Huang** and James E. Ferrell, Jr. Ultrasensitivity in the MAP kinase cascade. *Proc. Natl. Acad. Sci. USA* 93, 10078-10083 (1996).
9. **Chi-Ying F. Huang** and James E. Ferrell, Jr. Dependence of Mos-induced Cdc2 activation on MAP kinase function in a cell-free system. *EMBO J.* 15, 2169-2173 (1996).
10. **Chi-Ying F. Huang**, Chao-Pei Betty Chang, Chia-Lin Huang, and James E. Ferrell, Jr. M-phase phosphorylation of cytoplasmic dynein intermediate chain and p150^{Glued}. *J. Biol. Chem.* 274, 14262-14269 (1999).
11. See-Chang Huang, **Chi-Ying F. Huang**, and Te-Chang Lee. Induction of mitosis-mediated apoptosis by sodium arsenite in HeLa S3 cells. *Biochem. Pharmacol.* 60, 771-780 (2000).
12. Wey-Jinq Lin, Yaun-Fu Chang, Wei-Li Wang, and **Chi-Ying F. Huang**. * The mitogen-stimulated TIS21 protein interacts with a protein kinase C α binding protein rPICK1. *Biochemical J.* 354, 635-643 (2001).
13. Yi-Mi Wu, Chia-Lin Huang, Hsing-Jien Kung, and **Chi-Ying F. Huang***. Proteolytic activation of Etk/Bmx tyrosine kinase by caspases. *J. Biol. Chem.* 276, 17672-17678 (2001).
14. **Chi-Ying F. Huang**, Yi-Mi Wu, Chiung-Yueh Hsu, Wan-Shu Lee, Ming-Derg Lai, Te-Jung Lu, Chia-Lin Huang, Tzeng-Horng Leu, Hsiu-Ming Shih, Hsin-I Fang, Dan R. Robinson, Hsing-Jien Kung, and Chiun-Jye Yuan. Caspase activation of mammalian sterile 20-like kinase 3 (Mst3): nuclear translocation and induction of apoptosis. *J. Biol. Chem.* 277, 34367-34374 (2002).
15. Chiu-Ya Wang, Huey-Jing Lei, **Chi-Ying F. Huang**, Zhongjian Zhang, Anil B. Mukherjee, and Chiun-Jye Yuan. Induction of cyclooxygenase-2 by staurosporine through the activation of nuclear factor for IL-6 (NF-IL6) and activator protein 2 (AP2) in an osteoblast-like cell line. *Biochem. Pharmacol.* 64, 177-184 (2002).
16. Ann-Ping Tsou[#], Chu-Wen Yang[#], **Chi-Ying F. Huang**[#], Chang-Tze R. Yu, Yuan-Chii G. Lee, Cha-Wei Chang, Bo-Rue Chen, Yu-Fang Chung, Ming-Ji Fann, Chin-Wen Chi, Jen-Hwey Chiu, and Chen-Kung Chou. Identification of a novel cell cycle regulated gene, HURP, overexpressed in human hepatocellular carcinoma. *Oncogene* 22, 298-307 (2003) ([#]contributed equally).
17. Jin-Yuan Shih, Yuan-Chii G. Lee, Shuenn-Chen Yang, Tse-Ming Hong, **Chi-Ying F. Huang**, and Pan-Chyr Yang. Collapsin Response Mediator Protein-1: a novel invasion-suppressor gene. *Clinical and Experimental Metastasis* 20, 69-74 (2003).
18. Chang-Han Chen, Shen-Long Howng, Tai-Shan Cheng, Meng-Hui Chou, **Chi-Ying F. Huang**, and Yi-Ren Hong. Molecular characterization of human ninein protein: Two distinct subdomains required for centrosomal targeting and regulating signals in cell cycle. *Biochem. Biophys. Res. Comm.* 308, 975-983 (2003).
19. Wei-Li Wang, Sheau-Farn Yeh, Yuan-I Chang, Shun-Fang Hsiao, Wei-Nan Lian, Chi-Hung Lin, **Chi-Ying F. Huang**, Wey-Jinq Lin. PICK1, an Anchoring Protein That Specifically Targets Protein Kinase Ca to Mitochondria Selectively upon Serum Stimulation in NIH 3T3 Cells. *J. Biol. Chem.* 278, 37705-37712 (2003).
20. An-Chi Tien, Ming-Hong Lin, Li-Jen Su, Yi-Ren Hong, Tai-Shan Cheng, Yuan-Chii G. Lee, Wey-Jinq Lin, Ivan Still, and **Chi-Ying F. Huang***. Identification of the substrates and interaction proteins of Aurora kinases from a protein-protein interaction model. *Molecular and Cellular Proteomics* 3, 93-104 (2004).
21. Fu-Hsiung Chang, Chien-Hsin Lee, Ming-Ta Chen, Chun-Chen Kuo, Yi-Lin Chiang, **Chi-Ying F. Huang**, and Steve Roffler. Surfektion: a new platform for transfected cell arrays. *Nucleic Acids Res.* 32, e33 (2004).
22. Jung-Mao Hsu, Yuan-Chii G. Lee, Chang-Tze R. Yu, and **Chi-Ying F. Huang***. Fbx7 functions in the SCF complex regulating Cdk1-cyclin B-phosphorylated HURP proteolysis by proline-rich region. *J. Biol. Chem.* 279, 32592-32602 (2004).

23. Wan-Shu Lee, Chiung-Yueh Hsu, Pei-Ling Wang, **Chi-Ying F. Huang**, Chia-Hua Chang, and Chiun-Jye Yuan. Identification and characterization of the nuclear import and export signals of the mammalian Ste20-like protein kinase 3. *FEBS Letters* 13, 41-45 (2004).
24. Cheng-Yan Kao, D. Frank Hsu, Han-Yu Chuang, **Chi-Ying F. Huang**, and Kuang-Chi Chen. To combine or not to combine. *International Chinese Statistical Association Bulletin*, 37-39 (2004).
25. Tao-Wei Huang, An-Chi Tien, Wen-Shien Huang, Yuan-Chii G. Lee, Chin-Lin Peng, Huei-Hun Tseng, Cheng-Yan Kao, and **Chi-Ying F. Huang***. POINT: a database for the prediction of protein-protein interactions based on the orthologous interactome. *Bioinformatics* 20, 3273-3276 (2004).
26. Jiunn-Chyi Wu, Tzong-Yueh Chen, Chang-Tze R. Yu, Si-Jie Tsai, Jung-Mao Hsu, Ming-Jer Tang, Chen-Kung Chou, Wey-Jinq Lin, Chiun-Jye Yuan and **Chi-Ying F. Huang***. Identification of V23RafA-Ser194 as a critical mediator for Aurora-A-induced cellular motility and transformation by small pool expression screening. *J. Biol. Chem.* 280, 9013-9022 (2005).
27. Chi-Chih Cheng, Shu-Mei Yang, **Chi-Ying F. Huang**, Jung-Chou Chen, Wei-Mao Chang, and Shih-Lan Hsu. Molecular mechanisms of ginsenoside Rh2-mediated G1 growth arrest and apoptosis in human lung adenocarcinoma A549 cells. *Cancer Chemotherapy and Pharmacology* 55, 531-40 (2005).
28. Te-Jung Lu, **Chi-Ying F. Huang**, Chiun-Jye Yuan, Yuan-Chii Lee, Tzeng-Horng Leu, Wen-Chang Chang, Te-Ling Lu, Wen-Yih Jeng, Ming-Derg Lai. Zinc ion acts as a cofactor for serine/threonine kinase MST3 and has a distinct role in autophosphorylation of MST3. *J. Inorg. Biochem.* 99, 1306-1313 (2005).
29. Chang-Tze Ricky Yu, Jung-Mao Hsu, Yuan-Chii Gladys Lee, Ann-Ping Tsou, Chen-Kung Chou and **Chi-Ying F. Huang***. Phosphorylation and stabilization of HURP by Aurora-A: implication of HURP as a transforming target of Aurora-A. *Mol. Cell. Biol.* 25, 5789-5800 (2005).
30. Kuang-Chi Chen, Tse-Yi Wang, Huei-Hun Tseng, **Chi-Ying F. Huang** and Cheng-Yan Kao. A stochastic differential equation model for quantifying transcriptional regulatory network in *Saccharomyces cerevisiae*. *Bioinformatics* 21, 2883-2890 (2005).
31. Kuo-Ting Chang, **Chi-Ying F. Huang**, Chun-Ming Tsai, Chao-Hua Chiu and Ying-Yung Lok. Role of IL-6 in Neuroendocrine Differentiation and Chemosensitivity of Non-Small Cell Lung Cancer. *American Journal of Physiology: Lung Cellular and Molecular Physiology* 289, 438-445 (2005).
32. Kuo-Ting Chang, Chun-Ming Tsai, Yih-Chy Chiou, Chao-Hua Chiu, King-Song Jeng and **Chi-Ying F. Huang***. IL-6 induces neuroendocrine de-differentiation and cell proliferation in non-small cell lung cancer cells. *American Journal of Physiology: Lung Cellular and Molecular Physiology* 289, 446-453 (2005).
33. Yong-Shiang Lin, Li-Jen Su, Chang-Tze Ricky Yu, Fen-Hwa Wong, Hsu-Hua Yeh, Su-Liang Chen, Jiunn-Chyi Wu, Wey-Jinq Lin, Yow-Ling Shiue, Hsiao-Sheng Liu, Shih-Lan Hsu, Jin-Mei Lai and **Chi-Ying F. Huang***. Gene Expression Profiles of the Aurora Family Kinases. *Gene Expression* 13, 15-26 (2006).
34. Shih-Lan Hsu, Chang-Tze Ricky Yu, Sui-Chu Yin, Ming-Jer Tang, An-Chi Tien, Yi-Mi Wu, and **Chi-Ying F. Huang***. Caspase 3, periodically expressed and activated at G2/M transition, is required for nocodazole-induced mitotic checkpoint. *Apoptosis* 11, 765-771 (2006).
35. Cheng-Ming Lee, Shih-Yin Chen, Yuan-Chii G. Lee, **Chi-Ying F. Huang** and Yi-Ming Arthur Chen. Benzo[a]pyrene and Glycine N-methyltransferase Interactions: Gene Expression Profiles of the Liver Detoxification Pathway. *Toxicology and Applied Pharmacology* 214, 126-135 (2006).
36. Li-Jen Su, Shih-Lan Hsu, Jyh-Shyue Yang, Huei-Hun Tseng, Shiu-Feng Huang, and **Chi-Ying F. Huang***. Global gene expression profiling of dimethylnitrosamine induced liver fibrosis: from pathological and biochemical data to microarray analysis. *Gene Expression* 13, 107-132 (2006).
37. He-Yen Chou, Shen-Long Howng, Tai-Shan Cheng, Yun-Ling Hsiao, Ann-Shung Lieu,

- Joon-Khim Loh, Shiuh-Lin Hwang, Ching-Chih Lin, Ching-Mei Hsu, Chihuei Wang, Chu-I Lee, Pei-Jung Lu, Chen-Kung Chou, **Chi-Ying F. Huang** and Yi-Ren Hong. GSKIP is homologous to the Axin GSK3beta interaction domain and functions as a negative regulator of GSK3beta. *Biochemistry* 45, 11379-11389 (2006).
38. Ya-Shih Tseng, Ching-Cherng Tzeng, **Chi-Ying F. Huang**, Ping-Hong Chen, Allen Wen-Hsiang Chiu, Pei-Yin Hsu, Guan-Cheng Huang, Yu-Chun Wang, Hsiao-Sheng Liu. Aurora-A overexpression associates with Ha-ras codon-12 mutation and blackfoot disease endemic area in bladder cancer. *Cancer Letters* 241, 93-101 (2006).
 39. Te-Jung Lu, Wen-Yang Lai, **Chi-Ying F. Huang**, Wan-Jung Hsieh, Jau-Song Yu, Ya-Ju Hsieh, Wen-Tsan Chang, Tzeng-Horng Leu, Wen-Chang Chang, Woei-Jer Chuang, Ming-Jer Tang, Tzong-Yueh Chen, Te-Ling Lu, Ming-Derg Lai. Inhibition of cell migration by autophosphorylated mammalian sterile 20-like kinase 3 (MST3) involves paxillin and protein tyrosine phosphatase (PTP)-PEST. *J. Biol. Chem.* 281, 38405-38417 (2006).
 40. Yuan-Chii Gladys Lee, Yu-Chyi Hwang, Kuang-Chi Chen, Yong-Shiang Lin, Dah-yeou Huang, Tao-Wei Huang, Cheng-Yan Kao, Han-Chung Wu, Chin-Tarn Lin, **Chi-Ying F. Huang***. Effect of Epstein-Barr Virus Infection on Global Gene Expression in Nasopharyngeal Carcinoma. *Functional and Integrative Genomics* 7, 79-93 (2007).
 41. Kuan-Yu Chen, Yuan-Chii Gladys Lee, Jin-Mei Lai, Yih-Leong Chang, Yung-Chie Lee, Chong-Jen Yu, **Chi-Ying F. Huang***, Pan-Chyr Yang*. Identification of Trophinin as an Enhancer for Cell Invasion and a Prognostic Factor for Early Stage Lung Cancer. *European Journal of Cancer* 43, 782-90 (2007). (*corresponding author)
 42. Tai-Shan Cheng, Yun-Ling Hsiao, Ching-Chih Lin, Ching-Mei Hsu, Mau-Sun Chang, Chu-I Lee, Ricky Chang-Tze Yu, **Chi-Ying F. Huang**, Shen-Long Hwang, and Yi-Ren Hong. hNinein is required for targeting spindle-associated protein Astrin to the centrosome during the S and G2 phases. *Exp. Cell. Res.* 313, 1710-1721 (2007).
 43. Chun-Nan Hsu, Jin-Mei Lai, Chia-Hung Liu, Huei-Hun Tseng, Chih-Yun Lin, Kuan-Ting Lin, Hsu-Hua Yeh, Ting-Yi Sung, Wen-Lian Hsu, Li-Jen Su, Sheng-An Lee, Chan-Han Chen, Gen-Cher Lee, Der-Tsai Lee, Yow-Ling Shiue, Chang-Wei Yeh, Chao-Hui Chang, Cheng-Yan Kao, **Chi-Ying F. Huang***. Detection of the inferred interaction network in hepatocellular carcinoma from EHC0 (Encyclopedia of Hepatocellular Carcinoma genes Online). *BMC Bioinformatics* 8, 66 (2007).
 44. Chang-Han Chen, Pei-Jung Lu, Yu-Chia Chen, Shu-Ling Fu, Kou-Juey Wu, Ann-Ping Tsou, Yuan-Chii Gladys Lee, Tsu-Chun Emma Lin, Shih-Lan Hsu, Wey-Jinq Lin, **Chi-Ying F. Huang*** and Chen-Kung Chou*. FLJ10540-elicited cell transformation is through the activation of PI3-kinase/AKT pathway. *Oncogene* 26, 4272-4283 (2007) (*corresponding author)
 45. Li-Jen Su, Ching-Wei Chang, Yu-Chung Wu, Kuang-Chi Chen, Chien-Ju Lin, Shu-Ching Liang, Chi-Hung Lin, Jacqueline Whang-Peng, Shih-Lan Hsu, Chen-Hsin Chen and **Chi-Ying F. Huang***. Selection of DDX5 as a Novel Internal Control for Q-RT-PCR from microarray data: Using a Block Bootstrap Re-sampling scheme. *BMC Genomics* 8(1),140 (2007).
 46. Chueh-Chuan Yen, Shu-Ching Liang, Yiin-Jeng Jong, Yann-Jang Chen, Chi-Hung Lin, Yuh-Min Chen, Yu-Chung Wu, Wu-Chou Su, **Chi-Ying F. Huang**, Szu-Wen Tseng and Jacqueline Whang-Peng. Chromosomal aberrations of malignant pleural effusions of lung adenocarcinoma: Different cytogenetic changes are correlated with genders and smoking habits. *Lung Cancer Sep*;57(3):292-301 (2007).
 47. Wei-Li Wang, Sheau-Farn Yeh, Eagle Yi-Kung Huang, Yu-Ling Lu, Chun-Fa Wang, **Chi-Ying F. Huang** and Wey-Jinq Lin. Mitochondrial anchoring of PKCa by PICK1 confers resistance to etoposide-induced apoptosis. *Apoptosis Oct.* 12(10):1857-71 (2007).
 48. Chang-Tze Ricky Yu, Jiunn-Chyi Wu, Mei-Chih Liao, Shih-Lan Hsu and **Chi-Ying F. Huang***. Identification of c-Fos as a mitotic phosphoprotein: regulation of c-Fos by Aurora-A. *J. Biomedical Sci.* 15:79-87 (2008).
 49. Pao-Ling Torng, Yuan-Chii G. Lee, **Chi-Ying F. Huang**, Y. H. Ye, Yong-Shiang Lin, Yi-Wen Chu, Su-Cheng Huang, Pinchas Cohen, Cheng-Wen Wu, Chin-Tarn Lin.

- Insulin-like growth factor binding protein-3 (IGFBP-3) acts as an invasion-metastasis suppressor in ovarian endometrioid carcinoma. *Oncogene* 3:2137-2147 (2008).
50. Tai-Shan Cheng, Yun-Ling Hsiao, Ching-Chih Lin, Ricky Chang-Tze Yu, Ching-Mei Hsu, Mau-Sun Chang, Chu-I Lee, **Chi-Ying F. Huang**, Shen-Long Howng, and Yi-Ren Hong. Glycogen synthase kinase 3beta interacts with and phosphorylates the spindle-associated protein astrin. *J. Biol. Chem* 283(4):2454-2464 (2008).
 51. Dah-yeou Huang, Yi-Ting Lin, Pey-Shynan Jan, Yu-Chyi Hwang, Sung-Tzu Liang, Yeh Peng, **Chi-Ying F. Huang**, Han-Chung Wu and Chin-Tang Lin. Transcription factor SOX-5 enhances nasopharyngeal carcinoma progression by downregulating SPARC gene expression. *J. Pathology* 214(4): 445-455 (2008).
 52. Chia-Ying Yang, Chao-Hui Chang, Tsu-Chun Emma Lin, Ya-Ling Yu, Sheng-An Lee, Chueh-Chuan Yen, Jinn-Moon Yang, Jin-Mei Lai, Yi-Ren Hong, Tzu-Ling Tseng, Kun-Mao Chao and **Chi-Ying F. Huang***. PhosphoPOINT: a comprehensive human kinase interactome and phospho-protein database. *Bioinformatics* 24, i14-i20 (2008).
 53. Sheng-An Lee, Cheng-hsiung Chan, Chi-Hung Tsai, Jin-Mei Lai, Feng-Sheng Wang, Cheng-Yan Kao and **Chi-Ying F. Huang***. Ortholog-based protein-protein interaction prediction and its application to inter-species interactions. *BMC Bioinformatics* 9(Suppl 12):S11 (2008).
 54. Fen-Hwa Wong#, **Chi-Ying F. Huang#**, Li-Jen Su, Yu-Chung Wu, Yong-Shiang Lin, Jiun-Yi Hsia, Hsin-Ting Tsai, Sheng-An Lee, Chi-Hung Lin, Cheng-Hwai Tzeng, Po-Min Chen, Yann-Jan Chen, Shu-Ching Liang, Jin-Mei Lai, and Chueh-Chuan Yen. Combination of microarray profiling and protein-protein interaction databases delineates the minimal discriminators as a metastasis network for esophageal squamous cell carcinoma. *Int J Oncology* 34: 117-128 (2009). (#contributed equally)
 55. Zhong-Zhe Lin, Hey-Chi Hsu, Chih-Hung Hsu, Pei-Yen Yeh, **Chi-Ying F. Huang**, Yung-Feng Huang, Te-Jung Chen, Sung-Hsin Kuo, Chiun Hsu, Fu-Chang Hu, Yung-Ming Jeng, Ying Chung, and Ann-Lii Cheng. The Aurora kinase inhibitor VE-465 has anticancer effects in pre-clinical studies of human hepatocellular carcinoma. *J. Hepatology* 50(3): 518-527 (2009).
 56. Chang-Han Chen, Jin-Mei Lai, Teh-Ying Chou, Cheng-Yu Chen, Li-Jen Su, Yuan-Chii Lee, Tai-Shan Cheng, Yi-Ren Hong, Jacqueline Whang-Peng, Chen-Kung Chou, Yu-Chung Wu, and **Chi-Ying F. Huang***. VEGFA upregulates FLJ10540 and modulates migration and invasion of lung cancer via PI3K/AKT pathway. *PLoS ONE* 4(4): e5052 (2009).
 57. Sheng-An Lee, Chen-Hsiung Chan, Tzu-Chi Chen, Chia-Ying Yang, Kuo-Chuan Huang, Chi-Hung Tsai, Jin-Mei Lai, Feng-Sheng Wang, Cheng-Yan Kao, **Chi-Ying F. Huang***. POINeT: Protein Interactome with Sub-network Analysis and Hub Prioritization. *BMC Bioinformatics* 10:114 (2009).
 58. Chang-Han Chen, Chih-Yen Chien, Chao-Cheng Huang, Hui-Ching Chuang, Fu-Min Fang, Hsuan-Ying Huang, Ching-Mei Chen, Hsin-Ling Liu and **Chi-Ying F. Huang***. Expression of FLJ10540 is correlated with aggressiveness of oral cavity squamous cell carcinoma by stimulating cell migration and invasion via increased FOXM1 and MMP-2 activity. *Oncogene* 28, 2723-2737 (2009).
 59. Tzu-Chi Chen, Sheng-An Lee, Chen-Hsiung Chan, Yue-Li Juang, Yi-Ren Hong, Yi-Shann Huang, Jin-Mei Lai, Cheng-Yan Kao, and **Chi-Ying F. Huang***. Cliques in mitotic spindle network bring kinetochore-associated complexes to form dependence pathway. *Proteomics* 9, 4048-4062 (2009) (with a figure selected as journal cover.)
 60. Shun-Fu Chen, Yue-Li Juang, Wei-Kang Chou, Jin-Mei Lai, **Chi-Ying F. Huang***, Cheng-Yan Kao, and Feng-Sheng Wang*. Inferring a transcriptional regulatory network of the cytokinesis-related genes by network component analysis. *BMC Systems Biology* 3:110 (2009). (*corresponding author)
 61. Tzu-Chi Chen, Sheng-An Lee, Tse-Ming Hong, Jin-Yuan Shih, Jin-Mei Lai, Hsin-Ying Chiou, Shuenn-Chen Yang, Chen-Hsiung Chan, Cheng-Yan Kao, Pan-Chyr Yang* and **Chi-Ying F. Huang***. From midbody protein-protein interaction network construction to novel regulators in cytokinesis. *Journal of Proteome Research* 8, 4943-4953 (2009).

62. Ya-Shih Tseng, Jheng-Chang Lee, **Chi-Ying F. Huang** and Hsiao-Sheng Liu. Aurora-A overexpression enhances cell-aggregation of Ha-ras transformants through the MEK/ERK signaling pathway. *BMC Cancer* 9:435 (2009).
63. Ferrell JE, Pomerening JR, Kim SY, Trunnell NB, Xiong W, **Huang CY**, Machleder EM. Simple, realistic models of complex biological processes: positive feedback and bistability in a cell fate switch and a cell cycle oscillator. *FEBS Lett.* 583 (24): 3999-4005 (2009)
64. Sung, P.-L., Chang, S.-P., Wen, K.-C., Chang, C.-M., Yang, M.-J., Chen, L.-C., Chao, K.-C., Huang, C.-Y.F., Li, Y.-C., Lin, C.-C. Small supernumerary marker chromosome originating from chromosome 10 associated with an apparently normal phenotype. *American Journal of Medical Genetics, Part A* 149 (12): pp. 2768-2774. (2009)
65. Ching-Wen Huang, Ching-Yih Lin, Hsuan-Ying Huang, Hui-Wen Liu, Yi-Ju Chen, Deng-Fuh Shih, Hong-Yaw Chen, Chung-Chou Juan, Chen-Guo Ker, **Chi-Ying F. Huang**, Chien-Feng Li, and Yow-Ling Shiue. CKS1B overexpression implicates clinical aggressiveness of hepatocellular carcinomas but not p27(Kip1) protein turnover: an independent prognosticator with potential p27 (Kip1)-independent oncogenic attributes? *Ann Surg Oncol.* 17(3):907-22 (2010).
66. Ann-Shung Lieu, Tai-Shan Cheng, Chia-Hua Chou, Chia-Hung Wu, Chia-Yi Hsu, **Chi-Ying F. Huang**, Li-Kwan Chang, Joon-Khim Loh, Chung-Shing Chang, Ching-Mei Hsu, Shen-Long Howng And Yi-Ren Hong. Functional characterization of AIBp, a novel Aurora-A binding protein in centrosome structure and spindle formation. *International Journal Of Oncology* (37): 429-436 (2010)
67. Yu-Chung Wu, Li-Jen Su, Hao-Wei Wang, Chien-Fu Jeff Lin, Wen-Hu Hsu, Teh-Ying Chou, **Chi-Ying F. Huang**, Chia-Li Lu, and Chung-Tsen Hsueh. Cooverexpression of Cyclooxygenase-2 and Microsomal Prostaglandin E Synthase-1 Adversely Affects the Postoperative Survival in Non-small Cell Lung Cancer. *Journal of Thoracic Oncology* 5(8):1167-74 (2010).
68. Yun-Chih Hsieh, Yerra Koteswara Rao, Chun-Chi Wu, **Chi-Ying F. Huang**, Madamanchi Geethangili, Shih-Lan Hsu, and Yew-Min Tzeng. Methyl Antcinate A from *Antrodia camphorata* Induces Apoptosis in Human Liver Cancer Cells through Oxidant-Mediated Cofilin- and Bax-Triggered Mitochondrial Pathway. *Chem Res Toxicol.* 23(7):1256-67 (2010).
69. Yin-Ju Chen, Yu-Hsuan Chen, Lu-Ping Chow, Ya-Hui Tsai, Pei-Hong Chen, **Chi-Ying F. Huang**, Wei-Tzu Chen, and Lih-Hwa Hwang. Heat shock protein 72 is associated with the hepatitis C virus replicase complex and enhances viral RNA replication. *J Biol Chem* 285, 28183-28190 (2010).
70. Ming-Ying Lan, Chi-Long Chen, Kuan-Ting Lin, Sheng-An Lee, Wu-Lung R. Yang, Chun-Nan Hsu, Jaw-Ching Wu, Ching-Yin Ho, Jin-Ching Lin, **Chi-Ying F. Huang***. From NPC Therapeutic Target Identification to Potential Treatment Strategy. *Molecular Cancer Therapeutics* 9(9):2511-23 (2010).
71. Chia-Hung Liu#, Kuan-Ting Lin#, **Chi-Ying F. Huang#**, Yih-Jyh Shann, Yu-Shi Lin, Cheng-Yan Kao, Chun-Nan Hsu. Genome-Wide Detection of Putative Oncofetal Genes in Human Hepatocellular Carcinoma by Splicing Pattern Comparison. *iConcept Transaction on Computational Intelligence in Bioinformatics*, 2:1, iConcept Press (2010) (#contributed equally)
72. Sheng-Da Hsu, Feng-Mao Lin, Wei-Yun Wu, Chao Liang, Wei-Chih Huang, Wen-Ling Chan, Wen-Ting Tsai, Goun-Zhou Chen, Chia-Jung Lee, Chih-Min Chiu, Chia-Hung Chien, Ming-Chia Wu, **Chi-Ying Huang**, Ann-Ping Tsou and Hsien-Da Huang. miRTarBase: a database curates experimentally validated microRNA-target interactions. *Nucleic Acids Research* 39:D163–D169 (2011).
73. Yuan-I Chang, Sheng-Chieh Hsu, Gar-Yang Chau, **Chi-Ying F. Huang**, Jung-Sung Sung, Wei-Kai Hua, Wey-Jinq Lin. Identification of the methylation preference region in heterogeneous nuclear ribonucleoprotein K by protein arginine methyltransferase 1 and its implication in regulating nuclear/cytoplasmic distribution. *Biochemical and Biophysical Research Communications* 404(3):865–869 (2011).

74. Hsien-Chia Juan, Hsin-Ting Tsai, Po-Hao Chang, **Chi-Ying F. Huang**, Cheng-Po Hu and Fen-Hwa Wong. Insulin-like growth factor 1 mediates 5-fluorouracil chemoresistance in esophageal carcinoma cells through increasing survivin stability. *Apoptosis* 16(2):174-183 (2011).
75. Chien-Chung Lin, Lien-Chin Chen, Vincent S. Tseng, Jing-Jou Yan, Wu-Wei Lai, Wen-Pin Su, Chi-Hung Lin, **Chi-Ying F. Huang**, and Wu-Chou Su. Malignant pleural effusion cells show aberrant glucose metabolism gene expression. *European Respiratory Journal* 37(6): 1453–1465 (2011).
76. Yu-Ying Lin, Chun-Hung Yang, Gwo-Tarnng Sheu, **Chi-Ying F. Huang**, Yu-Chung Wu, Shu-Ming Chuang, Ming-Ji Fann, Han Chang, Huei Lee, Jinghua Tsai Chang. A novel exon 15-deleted, splicing variant of slit2 shows potential for growth inhibition in addition to invasion inhibition in lung cancer. *Cancer* 117(15): 3404-15 (2011).
77. Jiz-Yuh Wang, Chi-Ling Yeh, Hsiao-Chin Chou, Chi-Hwa Yang, Yu-Ning Fu, Ya-Ting Chen, Hui-Wen Cheng, **Chi-Ying F. Huang**, Hui-Ping Liu, Shiu-Feng Huang and Yi-Rong Chen. Vaccinia H1-related phosphatase (VHR) is a phosphatase of ErbB receptors and is down-regulated in non-small cell lung cancer. *The Journal of Biological Chemistry* 286(12): 10177–10184 (2011).
78. Yei-Hsuan Huang, Chun-Chi Wu, Chen-Kung Chou, and **Chi-Ying F. Huang***. A Translational Regulator, PUM2, Promotes both Protein Stability and Kinase Activity of Aurora-A. *PLoS ONE* 6(5): e19718 (2011)
79. Kai-Wei Hsueh, Shu-Ling Fu, **Chi-Ying F. Huang**, Chao-Hsiung Lin. Aurora-A phosphorylates hnRNPk and disrupts its interaction with p53. *FEBS Letters* 585, 2671–2675 (2011).
80. Hsiao-Sheng Liu, Ching-Shiun Ke, Hung-Chi Cheng, **Chi-Ying F. Huang**, and Chun-Li Su. Curcumin-induced Mitotic Spindle Defect and Cell Cycle Arrest in Human Bladder Cancer Cells is partly through Inhibition of Aurora-A. *Mol. Pharmacol.* 80: 638-646 (2011).
81. Yun-Chih Hsieh, Yerra Koteswara Rao, Jacqueline Whang-Peng, **Chi-Ying F. Huang**, Song-Kun Shyue, Shih-Lan Hsu, and Yew-Min Tzeng. Antcin B and Its Ester Derivative from *Antrodia camphorata* Induce Apoptosis in Hepatocellular Carcinoma Cells Involves Enhancing Oxidative Stress Coincident with Activation of Intrinsic and Extrinsic Apoptotic Pathway. *J. Agric. Food Chem.* 59: 10943-10954 (2011).
82. Ming-Huang Chen, Wu-Lung R. Yang, Kuan-Ting Lin, Chia-Hung Liu, Yu-Wen Liu, Kai-Wen Huang, Peter Mu-Hsin Chang, Jin-Mei Lai, Chun-Nan Hsu, Kun-Mao Chao, Cheng-Yan Kao, **Chi-Ying F. Huang***. Gene Expression-Based Chemical Genomics Identifies Potential Therapeutic Drugs in Hepatocellular Carcinoma. *PLoS ONE* 6(11): e27186 (2011).
83. Yu-Liang Lee, Jie-Wei Weng, Wen-Chin Chiang, Yi-Wen Lin, Ka-Lok Ng*, Jeffrey Jing-Pha Tsai, **Chi-Ying F. Huang***. Investigating Cancer-related Proteins Specific Domain Interactions and Differential Protein Interactions caused by Alternative Splicing, *IEEE International Conference on Bioinformatics and Bioengineering BIBE 2011*, 1(1), 33-38 (2011) (EI)
84. Chang-Tze Yu, Jiun-Yi Hsia, Yun-Chih Hsieh, Li-Jen Su, Tien-Chiang Lee, Chia-Feng Ku, Ke-Shin Chen, Jou-May Chen, Tong-You Wei, Yuan-Chii Lee, **Chi-Ying F. Huang**, Yu-Chung Wu, Chiou-Ying Yang, Shih-Lan Hsu. The novel protein suppressed in lung cancer down-regulated in lung cancer tissues retards cell proliferation and inhibits the onco kinase Aurora-A. *J Thorac Oncol.* 6(6):988-97. (2011)
85. Yu-Yu Lin, Yung-Ho Hsu, Hsin-Yi Huang, Yih-Jyh Shann, **Chi-Ying F. Huang**, Shu-Chen Wei, Chi-Ling Chen, and Tzue-Shuh Jou. Aberrant nuclear localization of EBP50 promotes colorectal carcinogenesis in xenotransplanted mice by modulating TCF-1 and β -catenin interactions. *J. Clinical Investigation* 122(5): 1881-1894 (2012).
86. Li-Jen Su, Chih-Hsueh Yang, Shiu-Feng Huang, Ya-Ling Yuo, Hui-Chu Hsieh, Tzu-Ling Tseng, Chang-Han Chen, Shih-Lan Hsu* and **Chi-Ying F. Huang***. Evaluation of the Chinese medicinal herb, *Graptopetalum paraguayense*, as a therapeutic treatment for liver damage in rat models. *Evidence-Based Complementary and Alternative Medicine*

- 2012 (*contributed equally) (2012)
87. Chang-Han Chen, Li-Yen Shiu, Li-Jen Su, **Chi-Ying F. Huang**, Shun-Chen Huang, Chao-Cheng Huang, Yu-Fang Yin, Wei-Sheng Wang, Hsin-Ting Tsai, Fu-Min Fang, Wan-Chu Chuang, Hong-Chang Kang and Chung-Feng Hwang. FLJ10540 is associated with tumor progression in nasopharyngeal carcinomas and contributes to nasopharyngeal cell proliferation and metastasis via the osteopontin/CD44 pathway. *Journal of Translational Medicine* 10(1): 93 (2012).
 88. Yi-Hua Jan, Hong-Yuan Tsai, Chih-Jen Yang, Ming- Shyan Huang, Yi-Fang Yang, Tsung-Ching Lai, Chien-Hsin Lee, Yung-Ming Jeng, **Chi-Ying F. Huang**, Jen-Liang Su, Yung-Jen Chuang, and Michael Hsiao. Adenylate kinase-4 is a marker of poor clinical outcomes that promotes metastasis of lung cancer by downregulating the transcription factor ATF3. *Cancer Research* 72(19):5119-29 (2012)
 89. Chi-Tai Yeh, Alexander TH Wu, Peter M-H Chang, Kuan-Yu Chen, Chia-Ning Yang, Shuenn-Chen Yang, Chao-Chi Ho, Chun-Chi Chen, Yu-Lun Kuo, Pei-Ying Lee, Yu-Wen Liu, Chueh-Chuan Yen, Michael Hsiao, Pei-Jung Lu, Jin-Mei Lai, Liang-Shun Wang, Chih-Hsiung Wu, Jeng-Fong Chiou, Pan-Chyr Yang*, and **Chi-Ying F. Huang***. Trifluoperazine, an antipsychotic agent, inhibits cancer stem cell growth and overcomes drug resistance of lung cancer. *American Journal of Respiratory and Critical Care Medicine* 186(11):1180-8 (2012) (*corresponding author)
 90. Shen, C.-P., Liu, C.-H., Lin, F.-S., Lin, H., **Huang, C.-Y.F.**, Kao, C.-Y., Lai, F., Lin, J.-W. A multiclass classification tool using cloud computing architecture. *Proceedings of the 2012 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2012* 6425667:765-770. (2012)
 91. Lee, C.-I., Chou, A.-K., Lin, C.-C., Chou, C.-H., Loh, J.-K., Lieu, A.-S., Wang, C.-J., **Huang, C.-Y.F.**, Howng, S.-L., Hong, Y.-R. Immune and inflammatory gene signature in rat cerebrum in subarachnoid hemorrhage with microarray analysis. *Molecular Medicine Reports*, 5 (1);118-125. (2012)
 92. Wu-Lung R. Yang, Yu-En Lee, Ming-Huang Chen, Kun-Mao Chao*, **Chi-Ying F. Huang***. In-silico drug screening and potential target identification for hepatocellular carcinoma using Support Vector Machines based on drug screening result. *Gene* 518:201-8 (2013) (*corresponding author)
 93. Ming-Huang Chen, Yi-Chen Yeh, Yee Chao, Chung-Pin Li, Yi-Ming Shyr, Shin-e Wang, Cheng-Hwai Tzeng, Peter Mu-Hsin Chang, Chun-Yu Liu, Ming-Han Chen, Michael Hsiao* and **Chi-Ying F. Huang***. Expression of Gremlin 1 (GREM1) Correlated With Increased Angiogenesis and Increased Progression-Free Survival in Patients with Pancreatic Neuroendocrine Tumors. *Journal of Gastroenterology* 48(1):101-8 (2013) (*corresponding author)
 94. Ming-Huang Chen, Kun-Ju Lin, Wu-Lung R. Yang, Ya-Wen Kao, Tsung-Wen Chen, Shu-Chaou Chao, Peter Mu-Hsin Chang, Chun-Yu Liu, Cheng-Hwai Tzeng, Yee Chao, Ming-Han Chen, Chun-Nan Yeh*, and **Chi-Ying F. Huang***. Gene Expression-Based Chemical Genomics Identifies Heat Shock Protein 90 Inhibitors as Potential Therapeutic Drugs in Cholangiocarcinoma. *Cancer* 119(2):293-303 (2013) (*corresponding author)
 95. Li-Jen Su, Chia-Chuan Chang, Chih-Hsueh Yang, Shur-Jong Hsieh, Yi-Chin Wu, Jin-Mei Lai, Tzu-Ling Tseng, **Chi-Ying F. Huang***, and Shih-Lan Hsu*. Graptopetalum paraguayense ameliorates chemical-induced rat hepatic fibrosis in vivo and inactivates stellate cells and Kupffer cells in vitro. *PLoS ONE* 8(1): e53988 (2013)
 96. Yu-Cheng Lee, Po-Chi Liao, Yih-Cherng Liou, Michael Hsiao, **Chi-Ying Huang***, and Pei-Jung Lu*. Glycogen synthase kinase 3 β activity is required for hBora/Aurora A-mediated mitotic entry. *Cell Cycle* 12(6):1-8 (2013) (*corresponding author)
 97. Pei-Ying Lee, Chi-Long Chen, Zhong-Zhe Lin, Ann-Lii Cheng, Edmund I-Tsuen Chen, Jacqueline Whang-Peng and **Chi-Ying F. Huang***. The Aurora kinases inhibitor VE-465 is a novel treatment for glioblastoma multiforme. *Oncology* 84(6):326-35 (2013)
 98. Tzu-Chi Chen, Yu-Wen Liu, Yei-Hsuan Huang, Yi-Chen Yeh, Teh-Ying Chou, Yu-Chung Wu, Chun-Chi Wu, Yi-Rong Chen, Hui-Chuan Cheng, Pei-Jung Lu, Jin-Mei Lai,

- Chi-Ying F. Huang***. Protein phosphorylation profiling via in situ proximity ligation assay: implication of AURKA-elicited EGFR-Thr654 and EGFR-Ser1046 phosphorylation in EGFR mutant cells. *PLoS ONE* 8(3):e55657 (2013)
99. Chia-Hung Liu, Tzu-Chi Chen, Gar-Yang Chau, Yi-Hua Jan, Chun-Houh Chen, Chun-Nan Hsu, Kuan-Ting Lin, Yue-Li Juang, Pei-Jung Lu, Hui-Chuan Cheng, Ming-Huang Chen, Chia-Fen Chang, Yu-Shan Ting, Cheng-Yan Kao*, Michael Hsiao*, and **Chi-Ying F. Huang***. Analysis of Protein-Protein Interactions in Cross-talk Pathways Reveals CRKL Protein as a Novel Prognostic Marker in Hepatocellular Carcinoma. *Molecular and Cellular Proteomics* 12(5):1335-49 (2013)
 100. Jiun-Ming Wu, Chiung-Tong Chen, Mohane Selvaraj Coumar, Wen-Hsin Lin, Zi-Jie Chen, John T.-A. Hsu, Yi-Hui Peng, Hui-Yi Shiao, Wen-Hsing Lin, Chang-Ying Chu, Jian-Sung Wu, Chih-Tsung Lin, Ching-Ping Chen, Ching-Cheng Hsueh, Kai-Yen Chang, Li-Pin Kao, **Chi-Ying F. Huang**, Yu-Sheng Chao, Su-Ying Wu, Hsing-Pang Hsieh, and Ya-Hui Chi. Aurora kinase inhibitors reveal mechanisms of HURP in nucleation of centrosomal and kinetochore microtubules. *Proc Natl Acad Sci U S A.* 110(19):E1779-87 (2013) (Published online)
 101. Yu-Feng Hu, Tzu-Chi Chen, Gar-Yang Chau, Tsung-Lin Yang, Chia-Jen Liu, Ming-Huang Chen, Peter Mu-hsin Chang, Tzeng-Ji Chen, Michael Hsiao, **Chi-Ying F. Huang*** and Shih-Ann Chen*. Baseline hypertension: New insight into the potential predictors of survival in patients with hepatocellular carcinoma. *International Journal of Cardiology* 168(3):2979–2981 (2013) (*contributed equally)
 102. Chien-Hung Huang, Min-You Wu, **Chi-Ying F. Huang**, and Ka-Lok Ng. Therapeutic target identification for lung cancer, international conference on bioinformatics (ICB'13) (2013) (EI)
 103. Mu-Hsin Peter Chang, Yi-Chen Yeh, Tzu-Chi Chen, Yu-Chung Wu, Pei-Jung Lu, Hui-Chuan Cheng, Hsueh-Ju Lu, Ming-Huang Chen, Teh-Ying Chou, **Chi-Ying F. Huang***. High expression of CHRNA1 is associated with reduced survival in early stage lung adenocarcinoma after complete resection. *Annals of Surgical Oncology* 20:3648-3654 (2013)
 104. Chi-Tai Yeh, Chun-Li Su, **Chi-Ying F. Huang**, Justin Kung-Yi Lin, Wei-Hwa Lee, Peter M.-H. Chang, Yu-Lun Kuo, Yu-Wen Liu, Liang-Shun Wang, Chih-Hsiung Wu, Yi-Shing Shieh, Yi-Hua Jan, Yung-Jen Chuang, Michael Hsiao, and Alexander T. H. Wu. A Preclinical Evaluation of Antimycin A as a Potential Antilung Cancer Stem Cell Agent. *Evidence-Based Complementary and Alternative Medicine.* 2013; (2013).
 105. Chih-Cheng Chen, Chia-Bao Chu, Ko-Jiunn Liu, **Chi-Ying F. Huang**, Jang-Yang Chang, Wen-Yu Pan, Huang-Hui Chen, Yun-Hsia Cheng, Kuan-Der Lee, Miao-Fen Chen, Ching-Chuan Kuo, Li-Tzong Chen. Gene expression profiling for analysis acquired oxaliplatin resistant factors in human gastric carcinoma TSGH-S3 cells: The role of IL-6 signaling and Nrf2/AKR1C axis identification. *Biochemical Pharmacology* 86(7):872–887 (2013).
 106. Yu-Cheng Lee, Jenny Que, Yu-Chia Chen, Jen-Tai Lin, Yih-Cherng Liou, Po-Chi Liao, Yu-Peng Liu, Kuen-Haur Lee, Li-Ching Lin, Michael Hsiao, Liang-Yi Hung, **Chi-Ying Huang*** and Pei-Jung Lu*. Pin1 acts as a negative regulator of the G2/M transition through an interplay with the Aurora A/hBora complex. *Journal of Cell Science* 126:4862-4872 (2013). (*contributed equally)
 107. Sung, P.-L., Cheng, E.-E., Chen, Y.-J., Chern, S.-R., Shih, C.-Y., Chang, C.-M., Wang, P.-H., Yen, M.-S., **Huang, C.Y.F.**, Chen, C.-P. Prenatal diagnosis of de novo monosomy 7q33-qter associated with hydrops fetalis, semilobar holoprosencephaly, and premaxillary dysgenesis. *Taiwanese Journal of Obstetrics and Gynecology* 52 (4):602-606. (2013)
 108. Yeh, C.-T., Huang, W.-C., Rao, Y.K., Ye, M., Lee, W.-H., Wang, L.-S., Tzeng, D.T.W., Wu, C.-H., Shieh, Y.-S., **Huang, C.-Y.F.**, Chen, Y.-J., Hsiao, M., Wu, A.T.H., Yang, Z., Tzeng, Y.-M. A sesquiterpene lactone antrocin from *Antrodia camphorata* negatively modulates JAK2/STAT3 signaling via microRNA let-7c and induces apoptosis in lung cancer cells. *Carcinogenesis* 34 (12):2918-2928. (2013)
 109. Liu, C.-H., Chen, T.-C., Chen, C.-H., Kao, C.-Y., **Huang, C.-Y.F.** Differential network

- biology reveals a positive correlation between a novel protein-protein interaction and cancer cells migration. Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS 6610097:2700-2703. (2013)
110. Chen, M.-H., Jan, Y.-H., Chang, P.M.-H., Chuang, Y.-J., Yeh, Y.-C., Lei, H.-J., Hsiao, M., Huang, S.-F., **Huang, C.-Y.F.**, Chau, G.-Y. Expression of GOLM1 correlates with prognosis in human hepatocellular carcinoma. *Annals of Surgical Oncology* 20:S616-S624. (2013)
 111. Mak, K.-K., Wu, A.T.H., Lee, W.-H., Chang, T.-C., Chiou, J.-F., Wang, L.-S., Wu, C.-H., **Huang, C.-Y.F.**, Shieh, Y.-S., Chao, T.-Y., Ho, C.-T., Yen, G.-C., Yeh, C.-T. Pterostilbene, a bioactive component of blueberries, suppresses the generation of breast cancer stem cells within tumor microenvironment and metastasis via modulating NF- κ B/microRNA 448 circuit. *Molecular Nutrition and Food Research* 57 (7):1123-1134. (2013)
 112. Ming-Ying Lan, Wu-Lung R. Yang, Kuan-Ting Lin, Jin-Ching Lin, Yih-Jyh Shann, Ching-Yin Ho, **Chi-Ying F. Huang***. Using computational strategies to predict potential drugs for nasopharyngeal Carcinoma. *HEAD & NECK* 36(10):1398-407 (2014)
 113. Kuan-Ting Lin, Yih-Jyh Shann, Gar-Yang Chau, Chun-Nan Hsu, and **Chi-Ying F. Huang***. Identification of latent biomarkers in hepatocellular carcinoma by ultra-deep whole-transcriptome sequencing. *Oncogene* 33:4786–4794 (2014)
 114. Ching-Shiun Kea, Hsiao-Sheng Liub, Cheng-Hsin Yena, Guan-Cheng Huang, Hung-Chi Cheng, **Chi-Ying F. Huang**, Chun-Li Su. Curcumin-induced Aurora-A suppression not only causes mitotic defect and cell cycle arrest but also alters chemosensitivity to anticancer drugs. *Journal of Nutritional Biochemistry* 25(5): 526–539 (2014).
 115. Chien-Hung Huang, Min-You Wu, Peter Mu-Hsin Chang, **Chi-Ying Huang**, Ka-Lok Ng. In silico identification of potential targets and drugs for non-small cell lung cancer. *IET Systems Biology* 8(2):56-66 (2014)
 116. Ming-Huang Chen, Kun-Chun Chiang, Chi-Tung Cheng, Shih-Chiang Huang, Yeng-Yang Chen, Tsung-Wen Chen, Ta-Sen Yeh, Yi-Yin Jan, Hsi-Ming Wang, Jiang-Jie Weng, Peter Mu-Hsin Chang, Chun-Yu Liu, Chung-Pin Li, Yee Chao, Ming-Han Chen, **Chi-Ying F. Huang***, Chun-Nan Yeh*. Antitumor activity of the combination of an HSP90 inhibitor and a PI3K/mTOR dual inhibitor against cholangiocarcinoma. *Oncotarget* 5(9):2372-89. (2014) (*corresponding author)
 117. Chien-Hung Huang, Peter Mu-Hsin Chang, Yong-Jie Lin, Cheng-Hsu Wang, **Chi-Ying F. Huang***, and Ka-Lok Ng*. Drug Repositioning Discovery for Early- and Late-Stage Non-Small-Cell Lung Cancer. *BioMed Research International* 2014:1-13 (2014) (*corresponding author)
 118. Pei-Jung Wu, Wu-Hsiung Wu, Tzu-Chi Chen, Kuan-Ting Lin, Jin-Mei Lai, **Chi-Ying F. Huang**, Feng-Sheng Wang. Reconstruction and analysis of a signal transduction network using HeLa cell protein–protein interaction data. *Journal of the Taiwan Institute of Chemical Engineers* 45(6):2835-2842. (2014)
 119. Tzu-Chi Chen, Sheng-An Lee, Kuan-Ting Lin, Chun-Houh Chen, Hsuan-Cheng Huang, Pei-Ying Lee, Yu-Wen Liu, Yu-Lun Kuo, Ming-Hui Yu, Wilber Huang, Jin-Mei Lai, and **Chi-Ying F. Huang***. Using an in situ proximity ligation assay to systematically profile endogenous protein-protein interactions in a pathway network. *J Proteome Res* 13 (12): 5339-5346 (2014)
 120. Do Thi Thao, **Chi-Ying Huang**, Kuan-Ting Lin, Do Thi Phuong, Nguyen Thi Nga, Nguyen Thi Trang, Nguyen Thi Cuc, Nguyen Xuan Cuong, Nguyen Hoai Nam and Chau Van Minh. Using the Gene Expression Signature of Scutebarbalactone VN Isolated from *Scutellaria barbata* to elucidate its Anticancer Activities. *Natural Product Communications* 10(2):353-355 (2015)
 121. Hong-Jhih Jhuang, Wei-Hsiang Hsu, Kuan-Ting Lin, Shih-Lan Hsu, Feng-Sheng Wang, Chen-Kung Chou, Kuen-Haur Lee, Ann-Ping Tsou, Jin-Mei Lai*, Sheau-Farn Yeh*, **Chi-Ying F. Huang***. Gluconeogenesis, lipogenesis, and HBV replication are commonly regulated by PGC-1 α -dependent pathway. *Oncotarget* 6(10):7788-803 (2015). (*corresponding author)
 122. Wei-Hsiang Hsu, Chia-Chuan Chang, Kai-Wen Huang, Yi-Chen Chen, Shih-Lan

- Hsu, Ann-Ping Tsou, Jin-Mei Lai, **Chi-Ying F. Huang***. Evaluation of the Medicinal Herb *Graptopetalum paraguayense* as a Treatment for Liver Cancer. PLoS One 10(4):e0121298 (2015).
123. Hui-Wen Cheng, Yu-Hsin Liang, Yu-Lun Kuo, Chih-Pin Chuu, Ching-Yu Lin, Meng-Hua Lee, Alexander T. H. Wu, Chi-Tai Yeh, Edmund I-Tsuen Chen, Jacqueline Whang-Peng, Chun-Li Su*, **Chi-Ying F. Huang***. Identification of Thioridazine, an anti-psychotic drug, as an anti-glioblastoma and anti-cancer stem cell agent using public gene expression data. Cell Death and Disease 6:e1753 (2015). (*corresponding author)
 124. Yu-Lun Kuo, Chun-Houh Chen, Tsung-Hsien Chuang, Wei-Kai Hua, Wey-Jinq Lin, Wei-Hsiang Hsu, Peter Mu-Hsin Chang, Shih-Lan Hsu, Tse-Hung Huang, Cheng-Yan Kao, **Chi-Ying F. Huang***. Gene expression profiling and pathway network analysis predicts a novel anti-tumor function for a botanical-derived drug, PG2. Evidence-Based Complementary and Alternative Medicine 2015 (2015).
 125. Sheng-Ming Wu, Wan-Li Cheng, Chia-Jung Liao, Hsiang-Cheng Chi, Yang-Hsiang Lin, Yi-Hsin Tseng, Chung-Ying Tsai, Ching-Ying Chen, Syuan-Ling Lin, Wei-Jan Chen, Yung-Hsin Yeh, **Chi-Ying F. Huang**, Ming-Huang Chen, Yi-Chen Yeh and Kwang-Huei Lin. Negative modulation of the epigenetic regulator, UHRF1, by thyroid hormone receptors suppresses liver cancer cell growth. International Journal of Cancer 137:37-49 (2015)
 126. Ming-Huang Chen, Chueh-Chuan Yen, Chi-Tung Cheng, Ren-Chin Wu, Shih-Chiang Huang, Chung-Shan Yu, Yi-Hsiu Chung, Chun-Yu Liu, Peter Mu-Hsin Chang, Yee Chao, Ming-Han Chen, Yu-Fen Chen, Kun-Chun Chiang, Ta-Sen Yeh, Tzu Chi Chen, **Chi-Ying F. Huang*** and Chun-Nan Yeh*. Identification of SPHK1 as a therapeutic target and marker of poor prognosis in cholangiocarcinoma. Oncotarget 6(27):23594-608. (2015) (*corresponding author)
 127. Pi-Lin Sung, Yi-Hua Jan, Shih-Chieh Lin, Chao-Cheng Huang, Hao Lin, Kuo-Chang Wen, Kuan-Chong Chao, Chiung-Ru Lai, Peng-Hui Wang, Chi-Mu Chuang, Hua-Hsi Wu, Nae-Fang Twu, Ming-Shyen Yen, Michael Hsiao*, **Chi-Ying F. Huang***. Periostin in tumor microenvironment is associated with poor prognosis and platinum resistance in epithelial ovarian carcinoma. Oncotarget 7(4):4036-47 (2016). (*corresponding author)
 128. Chien-Hung Huang, Peter Mu-Hsin Chang, Chia-Wei Hsu, **Chi-Ying F. Huang** and Ka-Lok Ng. Drug repositioning for non-small cell lung cancer by using machine learning algorithms and topological graph theory. BMC Bioinformatics 17(1):2 (2016).
 129. Kun-Chun Chiang, Chi-Chin Sun, Ming-Huang Chen, **Chi-Ying Huang**, Jun-Te Hsu, Ta-Sen Yeh, Li-Wei Chen, Sheng-Fong Kuo, Horng-Heng Juang, Masashi Takano, Atsushi Kittaka, Tai C Chen, Chun-Nan Yeh, , Jong-Hwei S. Pang. MART-10, the new brand of 1a,25(OH)2D3 analog, is a potent anti-angiogenic agent in vivo and in vitro. The Journal of Steroid Biochemistry and Molecular Biology 155(Pt A):26-34 (2016)
 130. Tzu-Chi Chen and **Chi-Ying F. Huang***. Use of in situ Proximity Ligation Assays for Systems Analysis of Signaling Pathways. Current Protocols in Cell Biology 71:17.18.1-17.18.11 (2016)
 131. Shen-Jeu Won, Hsiao-Sheng Liu, Jyun-Ti Chen, Ting-Yu Lin, Chun-Nan Lin, Yi-Ting Chen, Cheng-Hsin Yen, Cheng-Hao Yu, **Chi-Ying F. Huang**, Yu-Hau Tzeng, hi-Shiuan Wu, Chun-Li Su. A novel natural tautomeric pair of garcinielliptone FC suppressed nuclear factor κ B and induced apoptosis in human colorectal cancer cells. Journal of Functional Foods 24:568-578 (2016)
 132. Tzeng Tsai-Teng, Chen Chin-Chu, Lee Li-Ya, Chen Wan-Ping, Lu Chung-Kuang, Shen Chien-Chang, **Huang F. Chi-Ying**, Chen Chien-Chih and Young-Ji Shiao. Erinacine A-enriched *Hericium erinaceus* mycelium ameliorates Alzheimer's disease-related pathologies in APP^{swe}/PS1^{dE9} transgenic mice. Journal of Biomedical Science 23(1):49 (2016)
 133. Chien-Hung Huang, Jin-Shuei Ciou, Shun-Tsung Chen, Victor C. Kok, Yi Chung, Jeffrey J. P. Tsai, Nilubon Kurubanjerdjit, **Chi-Ying F. Huang***, Ka-Lok Ng*. Identify potential drugs for cardiovascular diseases caused by stress-induced genes in vascular smooth muscle cells. PeerJ 4:e2478 (2016) (*corresponding author)

134. Da-Wei Yeh, Li-Rung Huang, Ya-Wen Chen, **Chi-Ying F. Huang** and Tsung-Hsien Chuang. Interplay between inflammation and stemness in cancer cells: The role of Toll-like receptor signaling. *Journal of Immunology Research* 2016: ID 4368101 (2016)
135. Shun-Tsung Chen, Chien-Hung Huang, Victor C. Kok, Chi-Ying F. Huang, Jin-Shuei Ciou, Jeffrey J. P. Tsai, Nilubon Kurubanjerdjit, and Ka-Lok Ng. Drug repurposing and therapeutic anti-microRNA predictions for inhibition of oxidized low-density lipoprotein-induced vascular smooth muscle cell-associated diseases. *Journal of Bioinformatics and Computational Biology* 15(1): 1650043(1-23) (2017)
136. Chun-Li Su, Chia-Ling Tseng, Chintakunta Ramesh, Hsiao-Sheng Liu, **Chi-Ying F. Huang***, Ching-Fa Yao*. Using gene expression database to uncover biology functions of 1,4-disubstituted 1,2,3-triazole analogues synthesized via a copper (I)-catalyzed reaction. *European Journal of Medicinal Chemistry* 132:90–107 (2017) (*corresponding author)
137. Hua-Qing Wu , Mei-Ling Cheng , Jin-Mei Lai , Hsuan-Hui Wu, Meng-Chun Chen, Wen-Huan Liu, Wu-Hsiung Wu, Peter Mu-Hsin Chang, **Chi-Ying F. Huang**, Ann-Ping Tsou, Ming-Shi Shiao, Feng-Sheng Wang. Flux balance analysis predicts Warburg-like effects of mouse hepatocyte deficient in miR-122a. *PLoS Comput Biol* 13(7): e1005618 (2017).
138. Shu-Fang Lin, Jia-Ying Chien, **Chi-Ying F. Huang***, Shun-Ping Huang*. Oroxylin A Promotes Retinal Ganglion Cell Survival in a rat optic nerve crush model. *PLoS One* 12(6):e0178584 (2017). (*corresponding author)
139. Shen-Jeu Won, Cheng-Hsin Yen, Hao-Wen Hsieh, Shao-Wei Chang, Chun-Nan Lin, **Chi-Ying F. Huang***, Chun-Li Su*. Using connectivity map to identify natural lignan justicidin A as a NF- κ B suppressor. *Journal of Functional Foods* 34: 68–76 (2017). (*corresponding author)
140. Yu-Feng Hu*, Yao-Ting Chang, Yenn-Jiang Lin, Shih-Lin Chang, Li-Wei Lo, Yen-Hua Huang, Tze-Tze Liu, Che-Hong Chen, Ta-Chuan Tuan, Tze-Fan Chao, Fa-Po Chung, Jo-Nan Liao, Abigail Louise D. Te, **Chi-Ying F. Huang***, Shih-Ann Chen. The roles of alcohol dehydrogenase in patients with atrial fibrillation. *Pacing and Clinical Electrophysiology* 40(12):1446-1453 (2017) (*corresponding author)
141. Peter Mu-Hsin Chang, Che-Hong Chen, Chi-Chun Yeh, Hsueh-Ju Lu, Tze-Tze Liu, Ming-Huang Chen, Chun-Yu Liu, Alexander T. H. Wu, Muh-Hwa Yang, Shyh-Kuan Tai, Daria Mochly-Rosen, **Chi-Ying F. Huang***. Transcriptome analysis and prognosis of ALDH isoforms in human cancer. *Scientific Reports* 8(1):2713 (2018)

Book Chapter

1. Jin-Mei Lai, **Chi-Ying F. Huang**, and Chang-Han Chen. Using siRNA to uncover novel oncogenic signaling pathways. RNA interference, *Methods in Molecular Biology* 623, 231-242 (2010).

Patents

1. 謝惠珠(Hui-Chu Hsieh)、曾鎰翎 (Tzu-Ling Tseng)、蘇立仁 (Li-Jen Su)、黃奇英 (Chi-Ying Huang)、徐士蘭 (Shih-Lan Hsu)，“肝纖維化及/或肝硬化之生物標誌及其檢驗方法”(Biomarkers for liver fibrotic injury) (日本發明第 4297942 號專利權)。(獲證日：24 April, 2009)
2. 謝惠珠(Hui-Chu Hsieh)、曾鎰翎 (Tzu-Ling Tseng)、蘇立仁 (Li-Jen Su)、黃奇英 (Chi-Ying Huang)、徐士蘭 (Shih-Lan Hsu)，“Biomarkers for liver fibrotic injury”(新加坡發明第 134283 號專利權)。(獲證日：30 Nov., 2009)

3. 謝惠珠(Hui-Chu Hsieh)、曾鎰翎 (Tzu-Ling Tseng)、蘇立仁 (Li-Jen Su)、黃奇英 (Chi-Ying Huang)、徐士蘭 (Shih-Lan Hsu)，“Biomarkers for liver fibrotic injury”(美國發明第 7,972,785 號專利權)。(獲證日：5 July, 2011)
4. 黃奇英(Chi-Ying Huang)，“Anti-Cancer Extract and Components”(美國發明專利證書第 8,686,030 號)。(獲證日：1 April, 2014) 2014/04/01-2031/11/03
5. 黃奇英(Chi-Ying Huang)，“抗癌萃取物及化合物/Anti-Cancer Extract and Compounds“(中華民國專利證書第 I 444194 號)。(獲證日：2014). 2014/07/11-2031/09/29
6. 黃奇英(Chi-Ying Huang)，“抗癌萃取物及化合物“(中華人民共和國證書號第 1703552 號)。(獲證日：24 June, 2015) -2015/06/24-2031/9/29
7. 黃奇英(Chi-Ying Huang)，“Anti-Cancer Extract and Components”(美國發明專利證書第 9,132,158 號)。(獲證日：15 September, 2015) 2015/09/15-2031/09/30
8. 黃奇英、葉淇臺、吳駿翹、劉育姣，“Method of Using Antimycin A to Downregulate Wnt/B-Catenin Pathway to Treat Gefitinib Resistant Cancer”(美國發明專利證書第 9,138,422 號)。(獲證日：22 September, 2015) 2015/09/22-2031/06/13
9. 黃奇英(Chi-Ying Huang)，“Anti-Cancer Extract and Components”(日本發明專利證書第 5,902,174 號)。(獲證日：13 April, 2016) 2016/04/13-2031/09/30
10. 黃奇英(Chi-Ying Huang)，“Anti-Cancer Extract and Components”(美國發明專利證書第 9,511,104 號)。(獲證日：6 December, 2016) 2016/12/06-2031/09/30
11. 黃奇英、詹維康，“Method for Selecting a Pool of Molecules”(歐洲發明專利證書第 2786147 號)。(獲證日：1 February, 2017) 2017/02/01-2037/01/31
12. 黃奇英、詹維康，“Method for Selecting a Pool of Molecules”(日本發明專利證書第 6,175,144 號)。(獲證日：14 July, 2017) 2017/07/14-2032/12/04
13. 黃奇英、張牧新、陳冠宇、吳駿翹、鄭大山、余晟豪，“Method for Treating Drug Resistant Cancer”(南非發明專利證書第 2016/08820 號)。(獲證日：11 July, 2017)

Patents under review

1. 黃奇英、許偉祥、莊弘志、陳彥義，“一種鎢辦屬二甲亞砜萃取物或級分之新穎用途/Novel Use of Dimethyl Sulphoxide (DmsO) Extract or Fraction From Graptopetalum Sp.”(中國、台灣)
2. 黃奇英、張牧新、陳冠宇、吳駿翹、鄭大山、余晟豪，“抗藥性癌症之治療方法/Method for Treating Drug Resistant Cancer”(美國、中國、台灣、阿拉伯、加拿大、日本、澳洲、歐洲、印度、韓國、南非)
3. 黃澤宏、黃奇英、林冠廷、許瑄珉，“Therapeutic Methods and Compositions for Treating Non-Small Cell Lung Cancer”(台灣、PCT)
4. 黃奇英、楊泮池、許照惠、李孟樺，“使用啡噻嗪用於治療癌症的醫藥組成物/Pharmaceutical Composition for Treatment of Cancer Using Phenthiazine”(美國、台灣、PCT)

技術轉移

技術名稱	專利名稱	授權單位	被授權單位	簽約日期	科技部計畫編號
對抗癌症幹細胞及克服癌症抗藥性之藥物開發	使用啡噻嗪用於治療癌症的醫藥組成物 Pharmaceutical Composition for Treatment of Cancer Using Phenothiazine (申請中)	陽明大學 50% 臺灣大學 50%	潤惠生技股份有限公司	104/07/01 ~ 106/06/30	MOST 103-2325-B-010-006 -
對抗癌症幹細胞及克服癌症抗藥性之藥物開發	1) 供癌症幹細胞之清除之醫藥組合物 /Pharmaceutical Composition for Elimination of Cancer Stem Cells (申請中) 2) Method for Treating Brain Tumor (申請中)	陽明大學	潤惠生技股份有限公司	104/07/01 ~ 106/06/30	MOST 103-2325-B-010-006 -
石蓮花藥物開發	抗癌萃取物及化合物 Anti-Cancer Extract and Components	陽明大學 33% 生技中心 34% 中榮 16.5% 金銀 16.5%	金醫生物科技股份有限公司	103/07/21 ~專利到期為止	經濟部 99-EC-17-A-17-S1-152 100-EC-17-A-17-S1-152 101-EC-17-A-17-S1-152
中草藥指紋比對平台		陽明大學	慕德生物科技股份有限公司	101 年	經濟部 99-EC-17-A-17-S1-152 100-EC-17-A-17-S1-152
利用體外 (in vitro) 或動物試驗 (in vivo) 來		陽明大學	善笙生物科技股份有限公司	101 年	經濟部 99-EC-17-A-17-S1-152 100-EC-17-A-17-S1-152 101-EC-17-A-17-S1-152

其他協助產業技術發展之具體績效

1. 許多蛋白激酶(protein kinase)為癌症藥物標靶，蛋白激酶磷酸化狀態的改變可反應出細胞內訊息路徑的活化與否，為了分析癌化過程蛋白激酶磷酸化的程度，我們與亞諾法公司合作生產蛋白激酶及磷酸化的蛋白質抗體，為了增加磷酸化抗體的靈敏度與專一性，我們利用 PLA 分析的方式(即利用蛋白激酶及其磷酸化的配對抗體來偵測細胞內蛋白激酶磷酸化及蛋白質交互作用的情形)，以偵測蛋白激酶參與的訊息網絡或細胞癌化的過程，我們的成果如下：
 - a. 製造並上市 268 個以 PLA 形式配對的磷酸化蛋白質的抗體。
 - b. 製造並上市 612 個以 PLA 形式配對的蛋白質交互作用抗體。
2. 執行經濟部計畫「利用電腦模擬藥物篩選平台解析中草藥之表現特徵來發展其生物仿製藥物三年計畫」，已分別與慕德生物科技股份有限公司以及善笙生物科技股份有限公司簽訂先期技術授權。