

## Yih-Cherng LIOU



*D. Phil. (Queen's, Canada), B. Sc. (NTOU, Taiwan)*  
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### Current position

2017-Present	Deputy Head, Department of Biological Sciences (Research and Post-Graduate Matters)
2016-present	Director, Special program in Science, Faculty of Science
2016-present	Director, Joint Master of Science in Science Communication
2011-present	Associate Professor and Principal Investigator
2012-2015	Deputy Head, Department of Biological Sciences (Life Science Undergraduate Curriculum)
2010-2012	Assistant Head, Department of Biological Sciences
2003 Aug-2011	Assistant Professor and Principal Investigator Department of Biological Sciences, National University of Singapore.

### Academic qualification

2000-2003	Post-doctoral Fellow, Department of Medicine, Cancer Biology Division. Harvard Institutes of Medicine, Harvard Medical School. (Boston, USA) Supervisor: <b>Professor Kun Ping Lu</b>
1995-1999	Ph. D. degree, Dept. of Biochemistry, Queen's University (Kingston, Ontario, Canada) Supervisor: <b>Professor Peter Davies</b>
1993-1995	MSc. degree. Dept. of Biochemistry, University of Guelph (Ontario, Canada) Supervisors: <b>Professor Rickey Yada and Professor Alex Marangoni.</b>
1987-1989	M.Sc. degree, Marine Food Science, National Taiwan Ocean University, Taiwan, R.O.C. Supervisor: Professor Shin-Chen Chen
1983-1987	B.Sc. degree, Marine Food Science, National Taiwan Ocean University, Taiwan, R.O.C.

### Research and Working Experience

2000-2003	Department of Medicine, Harvard Medical School; Beth Israel Deaconess Medical Center, Harvard Institutes of Medicine.
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1995-1999 Department of Biochemistry, Queen's University  
1989-1991 Military Service, Taiwan R.O.C.

### **Awards**

2006 The Best Mentor Award of the 12th Youth Science Program  
2003-2006 Young Investigator Award, BMRC, Singapore  
2002-2005 Michael Smith (Nobel Laureate) Fellowship Award, Canada  
2002-2005 Canadian Institutes of Health Research (CIHR) Postdoctoral Fellowship, Canada  
2000-2002 Natural Sciences and Engineering Research Council (NSERC) Postdoctoral Fellowship, Canada  
2001 Natural Doctoral Prize nominee (a runner up), Canada

### **Research Highlights**

1. Demonstrate novel microtubules-associated proteins in chromosome oscillations.
2. First to demonstrate ribosomal protein DAP3 in regulating mitochondrial dynamics.
3. First to generate and study Pin1 (Pin1At) transgenic plant.
4. First to demonstrate bio-physiological roles of the Pin1 prolyl isomerase.
5. First to generate the plant Arabidopsis model of Pin1 prolyl isomerase.
6. First to isolate insect antifreeze protein/gene.
7. First to determine the insect antifreeze protein structure by X-ray crystallography.

### **Postgraduate students trained to date**

1. Song Pei Chee (Masters, 2007) "Structural and functional relationship of Pin1"
2. Zhou Wei (Ph.D., 2008) "From function to substrate recognition: Investigations on a peptidyl-prolyl Cis/trans isomerase pin1".
3. Tan Wee Wee (Masters, 2008) "A multiplex comparative proteomic analysis of hypoxia influence in the presence and absence of p53 in HCT116 Cells".
4. Xia Yun (Ph.D., 2009) "Characterization of Wip1 function in tumorigenesis".
5. Zhao Liqun (Ph.D., 2009) "Characterization of Pin1 function in zebrafish development".
6. Liu Jun (Ph.D., 2010) "Functional Analysis of human NIMA-related Kinase (Nek8)".
7. Luo Zhuojuan (Ph.D.2010) "The Roles of PIN1 in the Pituitary Ganadotropes".
8. Ye Fan (Ph.D., 2011) "Characterization of HURP function in mitosis".
9. Lai Chengyu (Ph.D., 2012) "Novel mechanisms of activation and stability of the catalytic subunit C of cAMP-depedent Protein Kinase (PKA)".
10. Xiao Lin (Ph.D., 2013) "Functional studies of DAP3 in mediating mitochondrial dynamics and cell death".
11. Lora Tan (Ph.D., 2013) "Characterization of HURP function in zebrafish gastrulation".
12. Xiao Bin (Ph.D., 2014) "The role of ROS and VDAC1 in parkin/pink1-mediated mitophagy".

13. Bhavani K (M.Sc, 2014) “Insights into the role of grim-19 in mitochondrial function and interferon -retinoic acid induced cell death pathway”.
14. Goh Jian Yuan (Ph.D., 2014) “MKK7 function in human stem cells reprogramming”.
15. Li Chenyu (Ph.D., 2015) “Functional studies of NUSAP in microtubule stability, chromosome oscillation and midzone formation during mitosis”.
16. Zhang Yajun (Ph.D., 2016) “Deciphering the function of HURP in modulating microtubule dynamics and chromosome movement”.
17. Zhang Rui (PhD., 2017) “Poly(ADP-ribosyl)ation of OVOL2 regulates aneuploidy and cell death in cancer cells”

## Publications

### Peer reviewed articles

1. Xian H, Xiao L, Yang<sup>1</sup> QY, Shen HM, **Liou YC\***. (2019) STX17 dynamically regulated by Fis1 induces mitophagy via hierarchical macroautophagic mechanism. **Nature Communication**.(In Press)
2. Xian H & **Liou YC\***. (2019) Loss of MiD51 confers susceptibility to Bax-mediated cell death and PINK1/Parkin-dependent mitophagy. **Autophagy**. (In Press)
3. Zhang R, Hong JJ, Yang Q, Ong CT, Li BA, **Liou YC\***. (2018) Poly(ADP-ribosyl)ation of OVOL2 regulates aneuploidy and cell death in cancer cells. **Oncogene**. Dec 12. doi: 10.1038/s41388-018-0615-3.
4. Lee YM, **Liou YC**. (2018) Gears-In-Motion: The Interplay of WW and PPlase Domains in Pin1. **Front Oncol**. 2018 Oct 25;8:469
5. Zhang Y, Tan L, Yang Q, Li C, **Liou YC**. (2018) The microtubule-associated protein HURP recruits the centrosomal protein TACC3 to regulate K-fiber formation and support chromosome congression. **J Biol Chem**. 2018 Jul 27. pii: jbc.RA118.003676.
6. Tan HL, Lim KK, Yang Q, Fan JS, Sayed AMM, Low LS, Ren B, Lim TK, Lin Q, Mok YK, **Liou YC**, Chen ES (2018). Prolyl isomerization of the CENP-A N-terminus regulates centromeric integrity in fission yeast. **Nucleic Acids Res**. 2018 Feb 16;46(3):1167-1179.
7. Lin Q & **Liou YC**. (2017) Fishing for key players in ER-mitochondrial contacts. **J Biol Chem**. 2017 Sep 29;292(39):16393-16394
8. Xiao B, Goh JY, Xiao L, Xian H, Lim KL, **Liou YC**. (2017) Reactive oxygen species trigger Parkin/PINK1 pathway-dependent mitophagy by inducing mitochondrial recruitment of Parkin. **J Biol Chem**. 2017 Oct 6;292(40):16697-16708
9. Wang Y, Zhang H, Shi M, **Liou YC**, Lu L, Yu F. (2017) Sec71 functions as a GEF for the small GTPase Arf1 to govern dendrite pruning of *Drosophila* sensory neurons. **Development**. 2017 May 15;144(10):1851-1862.
10. Ang Z, Er JZ, Tan NS, Lu J, **Liou YC**, Grosse J, Ding JL.(2016) Human and mouse monocytes display distinct signalling and cytokine profiles upon stimulation with FFAR2/FFAR3 short-chain fatty acid receptor agonists. **Sci Rep**. 2016 Sep 26;6:34145. doi: 10.1038/srep34145.
11. Li C, Xue C, Yang Q, Low BC & **Liou YC**. (2016) NuSAP governs chromosome oscillation by facilitating the Kif22 generated polar ejection force. **Nat Commun**. 7:10597 doi: 10.1038/ncomms10597.
12. Xi W, Gong X, Yang Q, Yu H, **Liou YC**. (2016) Pin1At regulates PIN1 polar localization and root gravitropism. **Nat Commun**. 7:10430. doi: 10.1038/ncomms10430.
13. Li C, Zhang Y, Yang Q, Ye F, Sun SY, Chen ES, **Liou YC**. (2016) NuSAP modulates the dynamics of kinetochore microtubules by attenuating MCAK depolymerisation activity. **Sci Rep**. 6:18773. doi: 10.1038/srep18773.

14. Xiao L, Xian H, Lee KY, Xiao B, Wang H, Yu F, Shen HM, Liou YC.(2015) Death-associated Protein 3 Regulates Mitochondrial-encoded Protein Synthesis and Mitochondrial Dynamics. *J Biol Chem*. 290(41):24961-74.
15. Gonzales KA, Liang H, Lim YS, Chan YS, Yeo JC, Tan CP, Gao B, Le B, Tan ZY, Low KY, Liou YC, Bard F, Ng HH (2015). Deterministic Restriction on Pluripotent State Dissolution by Cell-Cycle Pathways. *Cell*. 162(3):564-79
16. Jiao H, Dong W, Zhang L, Xie W, Yao L, Chen P, Liou YC, Su G, and Wang Z, Yu H. (2015) Chaperone-like Protein p32 Regulates ULK1 Stability and Autophagy. *Cell Death and Diff*. Apr 24. doi: 10.1038/xyza.2015.34.
17. Zhang H, Wang Y, Wong JJ, Lim KL, Liou YC, Wang H, Yu F (2014) Endocytic pathways downregulate the L1-type cell adhesion molecule neuroglian to promote dendrite pruning in Drosophila. *Dev Cell*. 30(4):463-78.
18. Wong JJ, Li S, Lim EK, Wang Y, Wang C, Zhang H, Kirilly D, Wu C, Liou YC, Wang H, Yu F (2013) A Cullin1-based SCF E3 ubiquitin ligase targets the InR/PI3K/TOR pathway to regulate neuronal pruning. *PLoS Biol*. 11(9).
19. Lee YC, Que J, Chen YC, Lin JT, Liou YC, Liao PC, Liu YP, Lee KH, Lin LC, Hsiao M, Hung LY, Huang CY, Lu PJ. Pin1 acts as a negative regulator of the G2/M transition by interacting with the Aurora-A-Bora complex. *J Cell Sci*. 126:4862-72.
20. Lee YC, Liao PC, Liou YC, Hsiao M, Huang CY, Lu PJ (2013) Glycogen synthase kinase 3  $\beta$  activity is required for hBora/Aurora A-mediated mitotic entry. *Cell Cycle*. 12:953-60.
21. Chu KL, Lew QJ, Rajasegaran V, Kung JT, Zheng L, Yang Q, Shaw R, Cheong N, Liou YC, Chao SH (2013) Regulation of PRDX1 peroxidase activity by Pin1. *Cell Cycle*. 12(6):944-52
22. Ruan K, Ye F, Li C, Liou YC, Lin SC, Lin SY. (2012) PLK1 interacts and phosphorylates Axin that is essential for proper centrosome formation. *PLoS One*.7(11):e49184
23. Sun L, Wu X, Peng Y, Goh JY, Liou YC, Lin D, Zhao Y (2012). Solution structural analysis of the single-domain parvulin TbPin1. *PLoS One*. 7(8):e43017
24. Ye F, Tan L, Yang Q, Xia Y, Deng LW, Murata-Hori M, Liou YC\* (2011) HURP Regulates Chromosome Congression by Modulating Kinesin Kif18A Function. *Curr Biol*. 21:1584-91.
25. Chen HZ, Li L, Wang WJ, Du XD, Wen Q, He JP, Zhao BX, Li GD, Zhou W, Xia Y, Yang QY, Hew CL, Liou YC\*, Wu Q\* (2011) Prolyl isomerase Pin1 stabilizes and activates orphan nuclear receptor TR3 to promote mitogenesis. *Oncogene*. doi: 10.1038/onc.2011.463. (\*co-corresponding author)
26. Kirilly D, Wong JJ, Lim EK, Wang Y, Zhang H, Wang C, Liao Q, Wang H, Liou YC, Wang H, Yu F (2011) Intrinsic epigenetic factors cooperate with the steroid hormone ecdysone to govern dendrite pruning in Drosophila. *Neuron*. 72:86-100
27. Lee ST, Li Z, Wu Z, Aau M, Guan P, Karuturi RK, Liou YC, Yu Q. (2011) Context-specific regulation of NF- $\kappa$ B target gene expression by EZH2 in breast cancers. *Mol Cell*. 43:798-810.
28. Liou YC\*, Zhou XZ\*, Lu KP\* (2011). Prolyl isomerase Pin1 as a molecular switch to determine the fate of phosphoproteins. *Trends Biochem Sci*. 36:501-14
29. Liu J, Wang XN, Cheng F, Liou YC, Deng LW (2010). Phosphorylation of mixed lineage leukemia 5 by CDC2 affects its cellular distribution and is required for mitotic entry. *J Biol Chem*. 285:20904-14.
30. Xia Y, Yang Q, Gong X, Ye F, Liou YC\* (2010). Dose-dependent mutual regulation between Wip1 and p53 following UVC irradiation. *Int J Biochem Cell Biol*. 2010 Dec 14.

31. Goh JY, Lai CY, Tan LC, Yang D, He CY, Liou YC\* (2010). Functional characterization of two novel parvulins in *Trypanosoma brucei*. **FEBS Lett.** 584:2901-8.
32. Liu J, Wang XN, Cheng F, Liou YC, Deng LW (2010). Phosphorylation of mixed lineage leukemia 5 by CDC2 affects its cellular distribution and is required for mitotic entry. **J Biol Chem.** 285:20904-14
33. Wang Y, Liu C, Yang D, Yu H\*, Liou YC\* (2010). Pin1At encoding a peptidyl-prolyl cis/trans isomerase regulates flowering time in *Arabidopsis*". **Mol Cell.** 37:112-22.
34. Pan C., Liou YC, Low BC (2009). Active Mek2 as a regulatory scaffold that promotes concerted Pin1 binding to BPGAP via its WW and PPI domains to suppress BPGAP1-induced acute Erk activation and cell migration. **J. Cell Sci.** 123:903-16.
35. Luo Z, Wijeweera A, Oh Y, Liou YC\*, Melamed P\* (2009). Pin1 facilitates the phosphorylation-dependent ubiquitination of SF-1 to regulate gonadotropin  $\beta$ -subunit gene transcription. **Mol. Cell Biol.** 30:745-63 (\*co-corresponding author)
36. Zhou W, Yang Q, Low CB, Karthik BC, Wang Y, Ryo A, Yao SQ, Yang D, Liou YC (2009). Pin1 catalyzes conformational changes of Thr-187 in p27Kip1 and mediates its stability through a polyubiquitination process. **J Biol Chem.** 284:23980-8.
37. Xia Y, Ongusaha P, Lee SW, Liou YC (2009). Loss of Wip1 sensitizes cells to stress- and DNA damage-induced apoptosis. **J Biol Chem.** 284:17428-37.
38. Lu CH, Sun H, Abu Bakar FB, Uttamchandani M, Zhou W, Liou YC, Yao SQ. (2008). Rapid affinity-based fingerprinting of 14-3-3 isoforms using a combinatorial peptide microarray. **Angew Chem Int Ed Engl.** 47:7438-41
39. Chen X, Fang F, Liou YC, Ng HH (2008). Zfp143 regulates Nanog through modulation of Oct4 binding. **Stem Cells.** 26:2759-67.
40. Buschdorf JP, Chew LL, Soh UJ, Liou YC, Low BC. (2008). Nerve growth factor stimulates interaction of Cayman ataxia protein BNIP-H/Caytaxin with peptidyl-prolyl isomerase Pin1 in differentiating neurons. **PLoS ONE.** 16;3(7):e2686.
41. Lim J, Balastik M, Lee TH, Nakamura K, Liou YC, Sun A, Finn G, Pastorino L, Lee VM, Lu KP. (2008). Pin1 has opposite effects on wild-type and P301L tau stability and tauopathy. **J Clin Invest.** 118(5):1877-89.
42. Liu C, Chen H, Er HL, Soo HM, Kumar PP, Han JH, Liou YC, Yu H. (2008). Direct interaction of AGL24 and SOC1 integrates flowering signals in *Arabidopsis*. **Development.** 135(8):1481-91.
43. Chen LJ, Hsu CC, Hong JR, Jou LK, Tseng HC, Wu JL, Liou YC, Her GM. (2008). Liver-specific expression of p53-negative regulator mdm2 leads to growth retardation and fragile liver in zebrafish. **Dev Dyn.** 237(4):1070-81.
44. Low CB, Liou YC, Tang BL. (2008). Neural differentiation and potential use of stem cells from the human umbilical cord for central nervous system transplantation therapy. **J Neurosci Res.** 86(8):1670-9.
45. Sun H, Lu CH, Uttamchandani M, Xia Y, Liou YC, Yao SQ. (2008). Peptide microarray for high-throughput determination of phosphatase specificity and biology. **Angew Chem Int Ed Engl.** 47(9):1698-702.
46. Ryo A, Hirai A, Nishi M, Liou YC, Perrem K, Lin SC, Hirano H, Lee SW, Aoki I. (2007). A suppressive role of the prolyl isomerase Pin1 in cellular apoptosis mediated by the death-associated protein Daxx. **J Biol Chem.** 282(50):36671-81.

47. Li Q, Wang X, Wu X, Rui Y, Liu W, Wang J, Wang X, Liou YC, Ye Z, Lin SC. (2007). Daxx cooperates with the Axin/HIPK2/p53 complex to induce cell death. *Cancer Res.* 67(1):66-74.
48. Wang XW, Liou YC, Ho B, Ding JL. (2007). An evolutionarily conserved 16-kDa thioredoxin-related protein is an antioxidant which regulates the NF-kappaB signaling pathway. *Free Radic Biol Med.* 42(2):247-59.
49. Han NL, Wen J, Lin Q, Tan PL, Liou YC, Sheu FS. (2007). Preomics analysis of the expression of neurogranin in murine neuroblastoma (Neuro-2a) cells reveals its involvement for cell differentiation. *Int J Biol Sci.* 3:263-73.
50. Tang BL & Liou YC (2007). Novel modulators of amyloid-beta precursor protein (APP) processing. *J. Neurochem.* 100(2):314-23.
51. Buschdorf JP, Li Chew L, Zhang B, Cao Q, Liang FY, Liou YC, Zhou YT, Low BC. (2006). Brain-specific BNIP-2-homology protein Caytaxin relocalises glutaminase to neurite terminals and reduces glutamate levels. *J Cell Sci.* 119:3337-50.
52. Ryo A, Togo T, Nakai T, Hirai A, Nishi M, Yamaguchi A, Suzuki K, Hirayasu Y, Kobayashi H, Perrem K, Liou YC, Aoki I. (2006). Prolyl-isomerase Pin1 accumulates in lewy bodies of parkinson disease and facilitates formation of alpha-synuclein inclusions. *J Biol. Chem.* 281(7):4117-25.
53. Whiteman M, Chua YL, Zhang D, Duan W, Liou YC, Armstrong JS. (2006) Nitric oxide protects against mitochondrial permeabilization induced by glutathione depletion: role of S-nitrosylation? *BBRC.* 6;339(1):255-62.
54. Wulf G, Garg P, Liou YC, Iglehart D, Lu KP. (2004). Modeling breast cancer in vivo and ex vivo reveals an essential role of Pin1 in tumorigenesis. *EMBO J.*, 23, 3397-407.
55. Ryo A, Suizu F, Yoshida Y, Perrem K, Liou YC, Wulf G., Rottapel R, Yamaoka S, Lu KP. (2003). Regulation of NF-kappaB signaling by Pin1-dependent prolyl isomerization and ubiquitin-mediated proteolysis of p65/RelA. *Mol Cell.* 12:1413-26.
56. Liou YC, Sun A, Ryo A, Zhou XZ, Yu, ZX, Huang H, Uchida T, Bronson R, Bing G, Li X, Hunter T, Lu KP. (2003). Role of the prolyl isomerase Pin1 in protecting against age-dependent neurodegeneration. *Nature*, 424, 556-61.
57. Wulf G, Ryo A, Liou YC, Lu KP. (2003). The prolyl isomerase Pin1 in breast development and cancer. *Breast Cancer Res.* 5(2):76-82. Review.
58. Ryo A, Liou YC, Lu KP, Wulf G. (2003). Prolyl isomerase Pin1: a catalyst for oncogenesis and a potential therapeutic target in cancer. *J Cell Sci.* 116:773-83.
59. Wulf GM, Liou YC, Ryo A, Lee SW, Lu KP. (2002). Role of Pin1 in the regulation of p53 stability and p21 transactivation, and cell cycle checkpoints in response to DNA damage. *J. Biol. Chem.* 277:47976-9.
60. Lu KP, Liou YC, Vincent I. (2003). Proline-directed phosphorylation and isomerization in mitotic regulation and in Alzheimer's disease. *Bioessays* 25,174-181.
61. Lu KP, Liou YC, Zhou X Z. (2002). Pinning down proline-directed phosphorylation signaling. *Trends Cell Biol.* 12, 164-172.
62. Ryo A, Liou YC, Wulf G, Nakamura N, Lee SW, Lu KP. (2002). Pin1 is a downstream target of E2F and is essential for the Neu/Ras-induced transformation of mammary epithelial cells. *Mol. Cell Biol.* 22, 5281-5295.
63. Liou YC, Ryo A, Huang HK, Lu PJ, Bronson R, Fujimori F, Uchida T, Hunter T, Lu, KP. (2002) Loss of Pin1 function in the mouse causes phenotypes resembling cyclin D1-null phenotypes. *Proc. Natl. Acad. Sci. U.S.A.* 99, 1335-40. (Track II)
64. Lu, PJ, Xiao Z, Liou YC, Lu KP. (2002). Critical role of WW domain phosphorylation in regulating phosphoserine binding activity and Pin1 function. *J Biol Chem.* 277, 2381-4.
65. Ryo A, Liou YC\*, Nakamura N\*, Wulf G\*, Lu KP. (2001). Prolyl isomerase Pin1 regulates subcellular localization and turnover of beta-catenin by inhibiting its interaction with APC. *Nature Cell Biol.* 3:793-801 (\* These authors contributed equally).

66. Graham LA, Tang W, Baust JG, Liou YC, Reid TS, Davies PL. (2001). Characterization and cloning of a *Tenebrio molitor* hemolymph protein with sequence similarity to insect odorant-binding proteins. *Insect Biochem Mol Biol.* 31(6-7):691-702.
67. Liou YC, Tocilj A, Davies PL, Jia Z. (2000). Mimicry of ice structure by surface hydroxyls and water of a beta-helix antifreeze protein. *Nature* 406, 322-324.
68. Liou YC, Daley ME, Graham LA, Kay CM, Walker VG, Sykes, BD, Davies, PL. (2000). Folding and structural characterization of highly disulfide-bonded beetle antifreeze protein produced in bacteria. *Protein Expr. Purif.* 19, 148-157.
69. Liou YC, Davies PL, Jia Z. (2000). Crystallization and preliminary X-ray analysis of insect antifreeze protein from the beetle, *Tenebrio molitor*. *Acta Crystallogr. D* 56, 354-356.
70. Liou YC, Thibault P, Davies PL, Walker VK, Graham LA. (1999). A complex family of highly heterogeneous and internally repetitive hyperactive antifreeze proteins from the beetle *Tenebrio molitor*. *Biochemistry* 38, 11415-11424.
71. Rothmund S, Liou YC, Davies PL, Krause K, Sönnichsen, FD. (1999). A new class of hexa-helical insect protein as putative carriers of small hydrophobic ligands. *Structure* 7, 1325-1332.
72. Liou YC, Marangoni AG, Yada RY. (1998). Aggregation behavior of *Candida rugosa* lipase. *Food Res. Int.* 31: 243-248.
73. Graham LA, Liou YC, Walker VK, Davies PL. (1997). Hyperactive antifreeze protein from beetles. *Nature* 388: 727-728.
74. Rothmund S, Liou YC, Davies PL, Sönnichsen FD. (1997). Backbone structure and dynamics of a hemolymph protein from the mealworm Beetle *Tenebrio molitor*. *Biochemistry* 36: 13791-13801.
75. Yu TH, Wu CY, Liou YC. (1989). Volatile compounds from garlic. *J. Agric. Food Chem.* 37: 725-730.
76. Yu TH, C M Wu, Liou YC and Chen YS. (1989) Flavor retention of garlic powers. *J. Food Sci.* 15 296-303.
77. Yu TH, Wu CM and Liou YC, (1989). Effects of pH adjustment and subsequent heat treatment on the formation of volatile compounds from garlic. *J. Food Sci.* 54:632-637.

### **Book Chapter**

Walker, V.K., Kuiper, M.J., Tyshenko, M.G., Doucet, D., Graether, S.P., Liou, Y.C., Sykes, B.D., Jia, Z., Davies, P.L. and Graham, L.A. (2000) Surviving winter with antifreeze proteins: studies on budworms and beetles. In *Insect Timing: Circadian Rhythmicity and Seasonality* (eds. D.L. Denlinger, J. Giebultowitc and D.S. Saunders) Elsevier, Amsterdam.

### **Patents**

1. U.S Patent, Application Serial No. 10/641, 815. "Methods of treating neurodegenerative diseases" Co-inventor, Filed Jan 12, 2004.
2. U.S Patent, Application Serial No. 08/882, 907. "Tenebrio Antifreeze Protein" Co-inventor, Filed Dec 10, 2001.
3. WIPO Application Serial No. PCT/CA98/00618. "Tenebrio Antifreeze Protein" Co-inventor. Filed June 25, 1998.
4. European Patent Application No: 98930588.3 "Tenebrio Antifreeze Protein" Co-inventor, Filed June 25, 1998

### **Selected More Recent Invited presentations**

- Liou YC. "Prolyl isomerase Pin1 as a molecular switch in signal transduction". July 2018. Queen's University, Canada. Seminar Series.
- Liou YC "Convergent Evolution of Prolyl Isomerase Pin1 Functions", The 3<sup>rd</sup> Cell dynamics symposium. May 2018. Taiwan.

- Liou YC "Proline Isomerization: An Intrinsic Molecular Switch of Cell Signaling". West China Medical University. China. Sept. 2017
- Liou YC "When Pin1(At) Meets PIN1: The functions of Pin1At in plant development". International symposium on Pin1 and signal transduction. FJMU. July 2017.
- Liou YC, "A key molecular switch for phosphorylation signaling: overall Pin1 function in model systems". National Hsinghua University Taiwan. Nov 2015. Seminar Series.
- Liou YC, "overall Pin1 function in model systems". Sichuan University. Sept 2015. Seminar Series.
- Liou YC" Roles of Pin1 in the different model systems: focusing on Pin1At functions in plant development. The 15<sup>th</sup> SCBA meeting. Taipei. June 26-29, 2015. (International conference)
- Liou YC, "An overview of Pin1 function in various organisms". International Symposium on Cyclophilins and other Foldases. Halle, Germany, 2013. (Session chair and speaker)
- Liou YC, "A molecular switch for phosphorylation signaling". Xiamen Univ. July 2013. Seminar Series.
- Liou YC, "Pin1 function in different biological system". Gongzhou, SCBA meeting, July 2011. (International conference)
- Liou YC, "HURP function in regulating Kif18a". The First Bilateral bio-imaging meeting, Taiwan, 2011
- Liou, YC, "The "post-phosphorylation" regulation: a novel mechanism in signal transduction". Singapore: DUKE-NUS. (DUKE-NUS seminar, 5 Jun 2011, DUKE-NUS, Singapore)
- Liou YC "A molecular switch for phosphorylation signaling and human diseases" The 6th Annual Meeting of the Chemical Biology. Xiamen, China. 23-25 Oct, 2009.
- Liou, YC, "Loss of Wip1 sensitizes cells to stress-and DNA damage-induced apoptosis". The 9th International Congress on Cell Biology, ICCB 2008, 6 - 10 Oct 2008, Seoul, South Korea
- Liou YC, "A new aspect of the phosphorylation regulation mechanism". National Infectious Disease Center, Japan. Invited talk. 5<sup>th</sup> Aug, 2009.
- Liou YC, "A molecular switch linking the phosphorylation signaling to human diseases" The Cell Fate Signaling in Health and Disease conference. Duke-NUS, Singapore. 11-13 Nov, 2009.
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### **Services to University and National Academic Community**

#### ***University***

- Director, Joint Master of Science in Science Communication (2016-present)
- Director, Special program in Science (2016-present)
- Deputy Head, Department of Biological Sciences (2012-2015); Life Science Undergraduate curriculum.
- Assistant Head, Department of Biological Sciences (2010-2012); Life Science Undergraduate curriculum.
- A member of the University Research Committee (URC) Expert Panel for BIOMEDICAL ENGINEERING & LIFE SCIENCES Tier1 and Teir2 grant (2009-present)
- A member of the NGS Senior Advisory in Graduate Education (SAGE; 2010-present)



- A member of Science Faculty Curriculum Committee (SFCC) (2010-present)

### ***National Academic Community***

- Ad cohort review member for National Medical Research Council (2016-present)
- A member of the National Medical Research Council, New Investigator Grant, Scientific Review Panel (SRP) (2007-2014)
- Grant reviewer for Singapore's Biomedical Research Council (since 2004-2014)
- Grant reviewer for National Medical Research Council (since 2004--2014)

### ***Other Public Services***

- A mentor for SRP and SMP students from Raffles Junior College Raffles Girls' School and Hwa Chong Institution (since 2004-2015)
- Served as a judge for the Open Section of the Tan Kah Kee Young Inventors' Award (TKKYIA) (since 2006-present)
- Served as an active member of the Xiamen University open laboratory. (in charge of the NUS-Xiamen student exchange program; involving in the 111 grant project and training students in this open laboratory; since 2005-present).
- Served as an examiner for SRP H3 Oral Defense (since 2005- present)
- Served as a mentor for Singapore Polytechnic for the Polytechnic Student Research Programme (2005-2006)
- Served as a Lecturer of Teachers Workshop for Chinese High Schools in Malaysia, TKK international program (2005-2007)
- Served as a judge for the Singapore Science and Engineering Fair (SSEF) (2005-2008)
- Served as a judge for the Youth Science Conference Oral and Poster Presentation (MOE;SMP) (2007)
- Served as a judge and invigilator for IBO, Singapore, 2012.

### **Services to International Academic Community**

#### ***Editorial Board Member/Reviewer for international refereed journals***

- ***Journal of Biological Chemistry (Editorial Board Member)***
- ***Frontiers in Cell and Developmental Biology(Editorial Board Member)***
- ***Frontiers in Oncology (Editorial Board Member)***
- ***ASMRM*** (Asia Society for Mitochondrial Research and Medicine; **Council Member**)
- Nature Communications
- Cell Death and Differentiation
- Proceedings of the National Academy of Sciences
- Journal of Proteomics
- Oncotarget

- Biochemie
- Frontiers in Bioscience
- FEBS Letters
- GENESIS
- PLoS ONE
- Molecular Cancer
- Biochemical and Biophysical Research Communications
- Cancer Research
- Oncogene
- Scientific Report
- Journal of Food Science

### ***Reviewer for overseas research grants***

- Hong Kong-Research Grant Council, Hong Kong. Biology & Medicine Panel (2004, 2010, 2011, 2017, 2018)
- China- Research Grant Council. Biomedical research and Cellular and Molecular Biology Panel (since 2008, 2010-present)

### ***Reviewer for local funding grants***

- Served as a reviewer for ARF, NMRC, BMRC and MOE
- Served as reviewer for Singapore's Biomedical Research Council (since 2004--2011)
- Served as reviewer for National Medical Research Council (since 2004-2012)
- Member of the Scientific Review Panel (SRP), National Medical Research Council, New Investigator Grant (2007-2011)
- Member of the University Research Committee (URC) expert panel for BIOMEDICAL ENGINEERING & LIFE SCIENCES Tier 1 and Teir2 grants (2009-Present)

### ***Member of conference committees***

1. Member of the Program Committee and Section Chair of the Queenstown Signal Transduction Conference. Sept 2006, New Zealand.
2. Member of the Program Committee of the Joint Conference of the Asian Crystallographic Association and the Crystallographic Society of Japan, 20-23 November 2006, Tsukuba, Japan.
3. Member of the Organizing Committee of the Proteome Organization (AOHUPO) and 4th Structural Biology and Functional Genomics Conference, 4-7 December 2006, Singapore.
4. Member of the Organizing Committee of The 8th Sino-Singapore Conference on Biotechnology, 18-21 November 2007, Singapore
5. Member of the Organization Committee of the Joint 5th Structural Biology & Functional Genomics and 1st Biological Physics International Conference, 9-11 December 2008, Singapore.
6. Member of the Organization Committee of the First NUS-NTHU Bilateral Meeting. 28-30 May 29, 2008, NTHU, Hsinchu, Taiwan.
7. Member of the Organization Committee of the First Xiamen University / National University of Singapore Bilateral Workshop on Human Infectious Diseases, 6 Dec 2008, School of Life Sciences, Xiamen University, China

8. Member of the Organizing Committee of the Second NUS-NTHU Bilateral Meeting. 12-14 August 2009, NUS. Singapore.
9. Member of the Organizing Committee of The 10th Sino-Singapore Conference on Biology, 16-18 November 2009, Xiamen University, China
10. Organizing Chairperson; the First NUS-Academia Sinica Bio-imaging Bilateral conference, Aug, 2010, Taiwan
11. Member of the Organization Committee of the 6th Structural Biology & Functional Genomics. 6-8 December 2010, Singapore
12. Member of the Organization Committee of the First Xiamen Winter symposium. Feb 21-23 2011, Xiamen, China.
13. Member of the Organization Committee of the Second Xiamen Winter symposium. Feb 18-21, 2012, Xiamen, China.
14. Member of the Organization Committee of the 7<sup>th</sup> APOCB meeting. 24-27 Feb 2014.
15. Organizing Chairperson; The 4<sup>th</sup> NTHU-NUS bilateral meeting, Nov 16-18, 2015.
16. Organization Committee. The international symposium on Pin1 and Signal transduction. FJMU. 2017.

### ***Membership of Research Societies***

1. Member of the Molecule Biological and Biochemistry Society of Singapore
2. Member of the Biophysics society of Taiwan
3. Member of the Asian Crystallographic Association
4. Member of the APOCB
5. Member of ASBMB
6. Member of ASCB
7. Member of ASMRM (*Council Member*)