

Chi Li, Ph.D.
12816 Deercross Drive
Prospect, KY 40059
(502) 852-0600
(502) 852-3661
chi.li@louisville.edu

Education

- 09/92-10/98 Department of Biological Sciences, Columbia University, New York, NY
Ph.D. (Molecular Biology)
- 09/92-10/95 Department of Biological Sciences, Columbia University, New York, NY
M.A. & M.Phil. (Molecular Biology)
- 09/86-07/91 Department of Biology, University of Science and Technology of China,
Hefei, China. B.S. (Biology)

Academic Appointments

- 06/10- Senior member
Graduate faculty of the School of Medicine
University of Louisville
- 02/06-06/15 Assistant Professor of Medicine, and Pharmacology & Toxicology
Associate Scientist, James Graham Brown Cancer Center
University of Louisville School of Medicine
- 07/15- Associate Professor of Medicine, and Pharmacology & Toxicology
Associate Scientist, James Graham Brown Cancer Center
University of Louisville School of Medicine

Other Positions and Employment

- 07/99-01/06 Postdoctoral research fellow in Dr. Craig Thompson's laboratory
University of Pennsylvania Cancer Center
- 11/98-06/99 Postdoctoral research fellow in Dr. Craig Thompson's laboratory
Howard Hughes Medical Institute, University of Chicago
- 05/93-10/98 Graduate research assistant with Dr. James Manley
Department of Biological Sciences, Columbia University

Professional Memberships and Activities

- 07/07- Member, American Association for Cancer Research
- 02/09 Ad Hoc reviewer for the Health Research Board (Ireland)
- 09/14 Reviewer for National Cancer Institute Special Emphasis (ZCA1 RPRB-O) study
section
- 01/16-01/22 Reviewer for National Science Foundation Graduate Research Fellowship
Program Panel

04/18 Reviewer for National Cancer Institute Basic Mechanisms of Cancer Therapeutics
2 (ZRG1 BMCT-C) study section

Honors and Awards

09/92-10/98 Faculty Fellowship (Columbia University)
06/96 James Howard McGregor Prize (Columbia University)
05/98 Peter Sajovic Memorial Prize (Columbia University)
07/05-06/11 Howard Temin Career Development Award (National Institutes of Health)
11/07 The first place Ralph Scott Fellow Research Prize for poster presentation
(Annual James Graham Brown Cancer Center Retreat)

Committee Assignments and Administrative Services

08/08- Faculty Advisory Committee
James Graham Brown Cancer Center
University of Louisville School of Medicine
10/10-10/19 Judge, Research!Louisville, University of Louisville, KY
11/10- 10/12 Judge, Annual James Graham Brown Cancer Center Retreat,
University of Louisville, KY

Educational Activities

Courses:

2008-2018 Lecturer
“Molecular biology techniques”
“Mechanism of cell death and cell fate”
Radiation Biology course, Department of Radiation Oncology
2 lectures, 5-6 radiation oncology fellows.

Seminars:

03/16/09 Instructor
“Target the apoptosis: anticancer activity of anti-Bcl-2 family inhibitor ABT-263”
Hematology/Oncology Fellows Research Seminar Series
James Graham Brown Cancer Center, Department of Medicine
04/19/10 Instructor
“TRIAL agonists and cancer therapy”
Hematology/Oncology Fellows Research Seminar Series
James Graham Brown Cancer Center, Department of Medicine

Grants and Contracts

Finished

K01CA106599-06S1 Li (PI) 09/01/2009 to 8/31/2010 Direct Cost \$46,296
NIH/NCI (ARRA Administrative Supplement)
“Regulation of apoptosis by Bcl-X_L, Bak and Bax”
Role: PI (5% effort)

K01 CA106599 Li (PI) 07/01/2005 to 06/30/2011 Direct Cost \$702,000
NIH/NCI
“Regulation of apoptosis by Bcl-X_L, Bak and Bax”

Role: PI (75% effort)

Basic Award Li (PI) 07/01/2010 to 6/30/2011 Direct Cost \$43,161
Clinical Translational Science Pilot Grant Program, the University of Louisville

"Promotion of tumor cell apoptosis by direct activation of the pro-apoptotic Bcl-2 protein Bax"

Role: PI (5% effort)

P20 RR018733 Li (PI of Project 6) 07/01/2008 to 06/30/2012 Direct Cost \$782,910
NIH/Center for Biomedical Research Excellence in Molecular Targets

"The programmed death pathway initiated from the Endoplasmic Reticulum"

Role: PI of sub-project (22% effort)

OGMB120516 Li (PI) 05/01/2012 to 04/30/2014 Direct Cost \$136,364
Commonwealth of Kentucky Lung Cancer Research Program

"Activating Bax as a therapeutic strategy against lung cancer"

Role: PI (5% effort)

Relinquished after 07/31/2013 due to the overlap of research scope with the funded R01

OGMB130027A1 Li (PI) 08/01/2013 to 06/31/2014 Direct Cost \$55,000
Commonwealth of Kentucky Lung Cancer Research Program Supplementary Grant

"Activating Bax as a therapeutic strategy against lung cancer"

Role: PI (5% effort)

U01 GM106386-01 Li (PI) 07/01/2015 to 06/30/2017 Direct cost \$150,000
NIH/ Molecular Targets CoBRE

"Novel Antitumor Activity of a Bacterial Homoserine Lactone"

Role: PI (8%)

University of Louisville Undergraduate Research Grant

01/01/2016 to 12/31/2016 Direct cost \$3,000

"Enhancing Chemosensitivity of Pancreatic Cancer by Modulation of Intracellular Iron Homeostasis"

Role: PI (3% effort)

R01 CA175003-01 Li (PI) 08/01/2013 to 05/31/2019 Direct cost \$1,033,175
NIH/NCI

"Activating Bax as a therapeutic strategy for lung cancer"

Role: PI (37.5% effort)

GB180441 Li (PI) 07/01/2018 to 06/30/2021 Direct Cost \$136,364
Commonwealth of Kentucky Lung Cancer Research Program,

"Inhibit non-small cell lung cancer growth by targeting paraoxonase 2"

Role: PI (10% effort)

LC180452 Li (PI) 08/15/2019 to 08/14/2021 Direct Cost \$100,000
Department of Defense Lung Cancer Research Program

"Identifying and characterizing neoantigens of an embryonic stem cell-based lung cancer vaccine"

Role: PI (25% effort)

Ongoing

IA-701596 Li (PI) 07/1/2020 to 07/30/2022 Direct Cost: \$150,000
American Lung Association Innovation Award
“*Inhibiting lung adenocarcinoma growth by inducing apoptosis independent of Bcl-2 proteins*”
Role: PI (10% effort)

(P20GM135004) Li (PI of a pilot project) 09/01/2021 to 08/31/2022 Direct Cost: \$50,000
NIH/Center for Biomedical Research Excellence
“*A lung cancer vaccine using exosomes from induced pluripotent stem cells*”
Role: PI of a pilot project (6%)

Patents

- 04/16 United States Utility Patent (USPA Serial No 61/923,437)
“Activating the pro-apoptotic Bcl-2 protein Bax by a small molecule induces tumor cell apoptosis”
Approved on 02/07/2017
- 06/18 United States Utility Patent Application (USPA Serial No. 62/504,132)
“Compositions comprising engineered embryonic stem cell derived exosomes and method of use therefor”
Pending

Editorial work

Editorial Board:

- 2009- International Journal of Clinical and Experimental Pathology
2015- Journal of Bioenergetics and Biomembranes

Publications

Peer-Reviewed

1. Um, M.[#], Li, C.[#], and Manley, J.L. (1995) Transcriptional repressor Even-skipped interacts directly with TATA-binding protein. *Mol. Cell Biol.* 15:5007-5016. ([#] The first two authors contributed equally to the paper). PMID:7651419.
2. Manley, J.L., Um, M., Li, C., and Ashali, H. (1996) Mechanism of transcriptional activation and repression can both involve TFIID. *Phil. Trans. R. Soc. Lond. B* 351: 516-526. PMID:8735274.
3. Li, C., and Manley, J.L. (1998) Even-skipped represses transcription by binding TBP and blocking the TFIID-TATA box interaction. *Mol. Cell Biol.* 18:3771-3781. PMID:9632760.
4. Li, C., and Manley, J.L. (1999) Allosteric regulation of Even-skipped repression activity by phosphorylation. *Mol. Cell.* 3:77-86. PMID:10024881.
5. Li, C., Fox, C.J., Master, S.R., Bindokas, V.P., Chodosh, L.A., and Thompson, C.B. (2002) Bcl-XL affects Ca²⁺ homeostasis by regulating expression of inositol 1,4,5-triphosphate receptor. *Proc. Natl. Acad. Sci. USA.* 99:9830-9835. PMID:12118121.
6. Li, C. and Thompson, C.B. (2002) DNA damage, deamidation, and death. *Science.* 298:1346-1347. PMID:12434041.

7. Zong, W-X. #, **Li, C.** #, Hatzivassiliou, G., Lindsten, T., Yuan, J., and Thompson, C.B. (2003) Initiation of apoptosis from the endoplasmic reticulum by Bax and/or Bak. *J. Cell Biol.* 162:59-69 (# The first two authors contributed equally to the paper). PMID:12847083.
8. Lum, J.J., Bauer, D.E., Kong, M., Harris, M.H., **Li, C.**, Lindsten, T., and Thompson, C.B. (2004) Growth factor regulation of autophagy and cell survival in the absence of apoptosis. *Cell.* 120: 237-248. PMID:15680329.
9. Oltersdorf, T., Elmore, S.W., Shoemaker, A.R., Armstrong, R.C., Augeri, D., Belli, B.A., Bruncko, M., Deckwerth, T.L., Dinges, J., Hajduk, P.J., Joseph, M.K., Kitada, S., Korsmeyer, S.J., Kunzer, A.R., Leita, A., **Li, C.**, Mitten, M.J., Nettesheim, D.G., Ng, S., Nimmer, P.M., O'Connor, J.M., Oleksijew, A., Petros, A.M., Reed, J.C., Shen, W., Tahir, S.K., Thompson, C.B., Tomaselli, K.J., Wang, B., Wendt, M.D., Zhang, H., Fesik, S.W., and Rosenberg, S.H. (2005) An inhibitor of Bcl-2 family proteins induces regression of solid tumors. *Nature.* 435: 677-681. PMID:15902208.
10. White, C. #, **Li, C.** #, Yang, J., Petrenko, N.B., Madesh, M, Thompson, C.B., and Foskett, K.J. (2005) The endoplasmic reticulum gateway to apoptosis: Bcl-XL modulation of the InsP3. *Nature Cell Biol.* 7:1021-1028 (# The first two authors contributed equally to the paper). PMID:16179951.
11. Bivona, T.G., Quatela, S.E., Bodemann, B.O., Ahearn, I.M., Soskis, M.J., Mor, A., Miura, J., Wiener, H.H., Wright, L., Saba, S.G., Yim, D., Fein, A., Perez de Castro, I., **Li, C.**, Thompson, C.B., Cox, A.D., and Philips, M.R. (2006) PKC regulates a farnesyl-electrostatic switch on K-Ras that promotes its association with Bcl-Xl on mitochondria and induces apoptosis. *Mol Cell.* 21: 481-493. PMID:16483930.
12. **Li, C.**, Wang, X., Vais, H., Thompson, C.B., Foskett, J.K. and White, C. (2007) Apoptosis regulation by Bcl-xL modulation of mammalian inositol 1,4,5-trisphosphate receptor channel isoform gating. *Proc. Natl. Acad. Sci. USA.* 104:12565-12570. PMID:17636122.
13. **Li, C.** Increased mitochondrial activity in Anthrax-induced cell death. (2009) *J. Cell Death.* 2:41-44.
14. Brock, S.E., **Li, C.**, and Wattenberg, B.W. (2010) The Bax carboxyl-terminal hydrophobic helix does not determine organelle-specific targeting but is essential for maintaining Bax in an inactive state and for stable mitochondrial membrane insertion. *Apoptosis.* 15:14-27. PMID:19809877.
15. Olberding, K.E., Wang, X., Zhu, Y., Pan, J., Rai, S., and **Li, C.** (2010) Actinomycin D synergistically enhances the efficacy of the BH3 mimetic ABT-737 by down-regulating Mcl-1 expression. *Cancer Biology & Therapy.* 10:922-933. PMID:20818182.
16. Wang, X., Olberding, K.E., White, C., and **Li, C.** (2011) Bcl-2 proteins regulate ER membrane permeability to luminal proteins during ER stress-induced apoptosis. *Cell Death & Diff.* 18:38-47. PMID:20539308.
17. Wang, X., Eno, C.O., Altman, B.J., Zhu, Y., Zhao, G., Olberding, K.E., Rathmell, J.C., **Li, C.** (2011) ER stress modulates cellular metabolism. *Biochem. J.* 435:285-296. PMID:21241252.
18. Eno, C.O., Eckenrode, E.F., Olberding, K.E., Zhao, G., White, C. and **Li, C.** (2012) Distinct roles of mitochondria- and ER-localized Bcl-XL in apoptosis resistance and Ca²⁺ homeostasis. *Mol Biol Cell.* 23:2605-2618. PMID:22573883.

19. Eno, C.O., Zhao, G., Olberding, K.E., and **Li, C.** (2012) The Bcl-2 proteins Noxa and Bcl-XL coordinately regulate oxidative stress-induced apoptosis. *Biochem J.* 444:69-78. PMID:22380599.
20. Zhu, Y., Eaton, J. W., and **Li, C.** (2012) Titanium dioxide (TiO₂) nano-particles preferentially induce cell death in oncogenic transformed cells in a Bak/Bax-independent fashion. *PLoS One.* 7:e50607. PMID:23185639.
21. Lanceta, L., **Li, C.**, Choi, A.M., and Eaton J.W. (2013) Heme oxygenase-1 overexpression alters intracellular iron distribution. *Biochem J.* 449:189-194. PMID:22989377.
22. Huang, H., Hu, X., Eno, C.O., Zhao, G., **Li, C.**, White, C. (2013) An interaction between Bcl-xL and VDAC promotes mitochondrial Ca²⁺ uptake. *J Biol Chem.* 288:19870-19881. PMID:23720737.
23. Eno, C.O., Zhao, G., Venkatanarayan, A., Wang, B., Flores, E.R., **Li, C.** (2013) Noxa couples lysosomal membrane permeabilization and apoptosis during oxidative stress. *Free Radic Biol Med.* 65C:26-37. PMID:23770082
24. Zhao, G., Zhu, Y., Eno, C.O., Liu, Y., DeLeeuw, L., Burlison, J.A., Chaires, J.B., Trent, J., **Li, C.** (2014) Activating the pro-apoptotic Bcl-2 protein Bax by a small molecule induces tumor cell apoptosis. *Mol Cell Biol.* 34:1198-1207. PMID:24421393.
25. Schwarzer, Z., Fu, Z., Shuai, S., Babbar, S., Zhao, G., **Li, C.**, Machen, T. E. (2014) Pseudomonas aeruginosa homoserine lactone triggers apoptosis and Bak/Bax-Independent release of mitochondrial cytochrome C in fibroblasts. *Cell Micro.* 16:1094-1104. PMID: 24438098.
26. Huang, H., Shah, K., Bradbury, N., **Li, C.**, White, C. (2014) Mcl-1 promotes lung cancer cell migration by directly interacting with VDAC to increase mitochondrial Ca²⁺ uptake and reactive oxygen species generation. *Cell Death & Disease.* 5:e1482. PMID:25341036
27. Saurabh, K., Michael T Scherzer, M.T., Song, A., Yip, K.W., Reed, J.C., **Li, C.**, Beverly, L.,J. (2014) Dissecting the in vivo leukemogenic potency of Bclxl. *Leukemia* 2:5
28. Schwarzer, C., Fu, Z., Morita, T., Whitt, A.G., Neely, A.M., **Li, C.**, Machen, T.E. (2015) Paraoxonase 2 serves a proapoptotic function in mouse and human cells in response to the pseudomonas aeruginosa quorum-sensing molecule N-(3-oxododecanoyl)-homoserine lactone. *J Biol Chem.* 920:7247-7258 PMID:25627690.
29. Zhao, G., Lu, H., **Li, C.** (2015) Pro-apoptotic activities of PDI and PDIA3: a role of Bcl-2 protein Bak. *J Biol Chem.* 290:8949-8963 PMID:25697356.
30. Rajan, S., Choi, M., Nguyen, Q.T., Ye, H., Liu, W., Toh, H.T., Kang, C., Kamariah, N., **Li, C.**, Huang, H., White, C., Baek, K., Grüber, G., Yoon, H.S. (2015) Structural transition in Bcl-xL and its potential association with mitochondrial calcium ion transport. *Sci Rep.* 5:10609. PMID:26023881.
31. Lanceta, L., Mattingly J.M., **Li, C.***, and Eaton J.W.* (2015) How Heme Oxygenase-1 Prevents Heme-Induced Cell Death. *PLoS One.* 10:e0134144. PMID:26270345 (*co-corresponding authors).
32. Zhao, G., Neely, A. M., Schwarzer, C., Lu, H., Whitt, A.G., Stivers, N.S., Burlison, J. A., White, C., Machen, T.E., **Li, C.** (2016) N-(3-oxo-acyl)homoserine lactone inhibits tumor growth

- through a unique mitochondrial apoptotic pathway independent of Bcl-2 proteins. *Oncotarget* 7(5):5924-5942. PMID: 26758417.
33. Fouqué, A., Lepvrier, E., Debure, L., Gouriou, Y., Malleter, M., Delcroix, V., Ovize, M., Ducret, T., **Li, C.**, Hammadi, M., Vacher, P., Legembre, P. (2016) The apoptotic members CD95, BclxL, and Bcl-2 cooperate to promote cell migration by inducing Ca²⁺ flux from the endoplasmic reticulum to mitochondria. *Cell Death Differ*. PMID: 27367565.
34. Wang, C., Yan, J., Du, M., Burlison, J.A., **Li, C.**, Sun, Y., Zhao, D., Liu, J. (2017) One step synthesis of indirubins by reductive coupling of isatins with KBH4. *Tetrahedron*. 73: 2780-2785.
35. Neely, A.M., Zhao, G., Schwarzer, C., Stivers, N.S., Whitt, A.G., Meng, S., Burlison, J.A., Machen, T.E., **Li, C.** (2018). N-(3-oxo-acyl)-homoserine lactone induces apoptosis primarily through a mitochondrial pathway in fibroblasts. *Cell Microbiol*: 10.1111/cmi.12787.
36. Yaddanapudi, K., **Li, C.**, Eaton, J.W. (2018) Vaccination with induced pluripotent stem cells confers protection against cancer. *Stem Cell Investigation*. 5:24. doi: 10.21037/sci.2018.07.03. PMID: 30148156.
37. Chen, B., Cao, X., Lu, H., Wen, P., Qi, X., Chen, S., Wu, L., **Li, C.**, Xu, A., Zhao, G. (2018) N-(3-oxo-acyl) homoserine lactone induced germ cell apoptosis and suppressed the over-activated RAS/MAPK tumorigenesis via mitochondrial-dependent ROS in *C. elegans*. *Apoptosis*. 23(11-12): 626-640. PMID: 30171376.
38. Yaddanapudi, K., Meng, S., Whitt, A.G., Al Rayyan, N., Richie, J., Tu, A., Eaton, J.W., **Li, C.** (2019) Exosomes from GM-CSF expressing embryonic stem cells are an effective prophylactic vaccine for cancer prevention. *OncoImmunology*. 8:3. 2162402X.2018.1561119
39. **Li, C.**, Donninger, H., Eaton, J.W., Yaddanapudi, K. (2020) Regulatory role of immune cell-derived extracellular vesicles in cancer: the message is in the envelope. *Frontiers in Immunology*. 11: 1525.
40. Donninger, H., **Li, C.**, Eaton, J.W., Yaddanapudi, K. (2021) Cancer vaccines: promising therapeutics or an unattainable dream. *Vaccines (Basel)*. 9:668.
41. Meng, S., Whitt, A.G., Tu, A., Eaton, J.W., **Li, C.**, Yaddanapudi, K. (2021) Isolation of exosome-enriched extracellular vesicles carrying granulocyte-macrophage colony-stimulating factor from embryonic stem cells. *Journal of Visual Experiments*. 177: 10.3791/60170.