Lei Jiang

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EDUCATION

Ph.D. Biochemistry and Molecular Biology - Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai, China (2004 - 2009)
Advisor: Yong Liu

B.S. Biology - Wuhan University, Wuhan, China (2000 - 2004)
Advisor: Xiangdong Chen

PROFESSIONAL EXPERIENCE

Postdoctoral fellow, Children's Research Institute (2011 - present)
UT Southwestern Medical Center, Dallas, TX
Mentor: Ralph J. DeBerardinis

- Investigated the metabolic adaptation of anchorage-independent cell growth
- Discovered mitochondrial citrate uptake in cancer cells
- Characterized NADPH transportation from cytosol into mitochondria
- Managed and mentored PhD graduate students and research technicians

Postdoctoral fellow, Simmons Cancer Center (2009 - 2011)
UT Southwestern Medical Center, Dallas, TX
Mentor: David A. Boothman

- Examined metabolic reprogramming during TGF-beta-induced epithelial to mesenchymal transition (EMT) in lung cancer cells
- Identified fatty acid synthase as the potential target of TGF-beta

Graduate Student, Institute for Nutritional Sciences (2004 - 2009)
Chinese Academy of Sciences, Shanghai, China
Mentor: Yong Liu

- Discovered that tyrosine-dependent and -independent signaling pathways of the leptin receptor (Ob-Rb) are crucial for metabolic homeostasis in mice
- Defined the metabolic function of hepatic ATP citrate lyase (ACL) in genetic and diet-induced obese mice models

PUBLICATIONS

1. **Lei Jiang**, Alexander A. Shestov, Pamela Swain, Chendong Yang, Seth J. Parker, Qiong A. Wang, Lance S. Terada, Nicholas D. Adams, Michael T. McCabe, Beth Pietrak, Stan Schmidt, Christian M. Metallo, Brian P. Dranka, Benjamin Schwartz, and Ralph J. DeBerardinis. Cytosolic reductive carboxylation is required for mitochondrial redox homeostasis during anchorage-independent cell growth. *Nature.* (2016)
2. Christopher T. Hensley, Brandon Faubert, Qing Yuan, Naama Lev-Cohain, Eunsook Jin, Jiyeon Kim, **Lei Jiang**, Bookyung Ko, Rachael Skelton, Laurin Loudat, Michelle Wodzak, Claire Klimko, Elizabeth McMillan, Yasmeen Butt, Min Ni, Dwight Oliver, Jose Torrealba, Craig R. Malloy, Kemp Kernstine, Robert E. Lenkinski, and Ralph J. DeBerardinis. Metabolic heterogeneity in human lung tumors. *Cell.* (2016)
3. Qiong A. Wang, Caroline Tao, **Lei Jiang**, Mengle Shao, Risheng Ye, Yi Zhu, Ruth Gordillo, Aktar Ali, Yun Lian, William L. Holland, Rana K. Gupta, and Philipp E. Scherer. Distinct regulatory mechanisms governing embryonic versus adult adipocyte maturation. *Nature cell biology.* (2015)
4. Ruiting Lin, Shannon Elf, Changliang Shan, Hee-Bum Kang, Quanjiang Ji, Lu Zhou, Taro Hitosugi, Liang Zhang, Shuai Zhang, Jae Ho Seo, Jianxin Xie, Meghan Tucker, Ting-Lei Gu, Jessica Sudderth, **Lei Jiang**, Matthew Mitsche, Ralph J. DeBerardinis, Shaoxiong Wu, Yuancheng Li, Hui Mao, Peng R. Chen, Dongsheng Wang, Georgia Zhuo Chen, Selwyn J. Hurwitz, Sagar Lonial, Martha L. Arellano, Hanna J. Khoury, Fadlo R. Khuri, Benjamin H. Lee, Qunying Lei, Daniel J. Brat, Keqiang Ye, Titus J. Boggon, Chuan He, Sumin Kang, Jun Fan, and Jing Chen. 6-Phosphogluconate dehydrogenase links oxidative PPP, lipogenesis and tumour growth by inhibiting LKB1–AMPK signaling. *Nature cell biology.* (2015)
5. Kartik N. Rajagopalan, Robert A. Egnatchik, Maria A. Calvaruso, Ajla T. Wasti, Mahesh S. Padanad, Lindsey K. Boroughs, Bookyung Ko, Christopher T. Hensley, Melih Acar, Zeping Hu, **Lei Jiang**, Juan M. Pascual, Pier Paolo Scaglioni, and Ralph J. DeBerardinis. Metabolic plasticity maintains proliferation in pyruvate dehydrogenase deficient cells. *Cancer & metabolism* (2015)
6. **Lei Jiang**, Ralph J. Deberardinis, and David A. Boothman. The cancer cell 'energy grid': TGF-β1 signaling coordinates metabolism for migration. *Molecular & Cellular Oncology*. (2015)
7. **Lei Jiang**, Ling Xiao, Hidekazu Sugiura, Xiumei Huang, Aktar Ali, Makoto Kuro-o, Ralph J. Deberardinis, and David A. Boothman. Metabolic reprogramming during TGFβ1-induced epithelial-to-mesenchymal transition. *Oncogene.* (2015)
8. Andrew R. Mullen, Zeping Hu, Xiaolei Shi, **Lei Jiang**, Lindsey K. Boroughs, Zoltan Kovacs, Richard Boriack, Dinesh Rakheja, Lucas B. Sullivan, W. Marston Linehan, Navdeep S. Chandel, and Ralph J. DeBerardinis. Oxidation of alpha-ketoglutarate is required for reductive carboxylation in cancer cells with mitochondrial defects. *Cell Reports.* (2014)
9. Chendong Yang, **Lei Jiang**, Huafeng Zhang, Larissa A. Shimoda, Ralph J. DeBerardinis, and Gregg L. Semenza. Analysis of hypoxia-induced metabolic reprogramming. *Methods in Enzymology.* (2014)
10. John C. Schell, Kristofor A. Olson, **Lei Jiang**, Amy J. Hawkins, Jonathan G. Van Vranken, Jianxin Xie, Robert A. Egnatchik, Espen G. Earl, Ralph J. DeBerardinis, and Jared Rutter. A

role for the mitochondrial pyruvate carrier as a repressor of the Warburg Effect and colon cancer cell growth. *Molecular Cell.* (2014)

11. Chendong Yang, Bookyung Ko, Christopher T. Hensley, **Lei Jiang**, Ajla T. Wasti, Jiyeon Kim, Jessica Sudderth, Maria Antonietta Calvaruso, Lloyd Lumata, Matthew Mitsche, Jared Rutter, Matthew E. Merritt, and Ralph J. DeBerardinis. Glutamine oxidation maintains the TCA cycle and cell survival during impaired mitochondrial pyruvate transport. *Molecular Cell.* (2014)
12. Changliang Shan, Shannon Elf, Quanjiang Ji, Hee-Bum Kang, Lu Zhou, Taro Hitosugi, Lingtao Jin, Ruiting Lin, Liang Zhang, Jae Ho Seo, Jianxin Xie, Meghan Tucker, Ting-Lei Gu, Jessica Sudderth, **Lei Jiang**, Ralph J. DeBerardinis, Shaoxiong Wu, Yuancheng Li, Hui Mao, Peng R. Chen, Dongsheng Wang, Georgia Zhuo Chen, Sagar Lonial, Martha L. Arellano, Hanna J. Khoury, Fadlo R. Khuri, Benjamin H. Lee, Daniel J. Brat, Keqiang Ye, Titus J. Boggon, Chuan He, Sumin Kang, Jun Fan, and Jing Chen. Lysine acetylation activates 6-Phosphogluconate dehydrogenase to promote tumor growth. *Molecular Cell.* (2014)
13. Qian Zhang, Bin Liu, Ying Cheng, Qingshu Meng, Tingting Xia, **Lei Jiang**, Shanghai Chen, Yong Liu, and Feifan Guo. Leptin signaling is required for leucine deprivation-enhanced energy expenditure. *J Biol Chem.* (2014)
14. Haijun Yu, Yonglong Zou, **Lei Jiang**, Qi Yin, Xinyu He, Lingli Chen, Zhiwen Zhang, Wangwen Gu, and Yaping Li. Induction of apoptosis in non-small cell lung cancer by downregulation of MDM2 using pH-responsive PMPC-b-PDPA/siRNA complex nanoparticles. *Biomaterials.* (2013)
15. **Lei Jiang** and Ralph J. DeBerardinis. Cancer metabolism: When more is less. *Nature.* (2012)
16. Ting Mao, Mengle Shao, Yifu Qiu, Jialiang Huang, Yongliang Zhang, Bo Song, Qiong Wang, **Lei Jiang**, Yi Liu, Jing-Dong J. Han, Pengrong Cao, Jia Li, Xiang Gao, Liangyou Rui, Ling Qi, Wenjun Li, and Yong Liu. PKA phosphorylation couples hepatic inositol-requiring enzyme 1alpha to glucagon signaling in glucose metabolism. *Proc Natl Acad Sci U S A.* (2011)
17. Jia You, Yue Yu, **Lei Jiang**, Wenxia Li, Xinxin Yu, Lety Gonzalez, Guoqing Yang, Zunji Ke,Wenjun Li, Cai Li, and Yong Liu. Signaling through Tyr985 of Leptin Receptor as an Age/Diet-Dependent Switch in the Regulation of Energy Balance. *Molecular and Cellular Biology*. (2010)
18. Qiong Wang, Shoufeng Li, **Lei Jiang**, Mengle Shao, Wenjun Li, and Yong Liu. Hepatic Knockdown of ATP-citrate Lyase Suppresses Hepatic Triglyceride Mobilization and Ameliorates High Fat Diet Induced Hyperlipidemia. *Journal of Lipid Research.* (2010)
19. Qiong Wang, **Lei Jiang**, Jue Wang, Shoufeng Li, Yue Yu, Jia You, Rong Zeng, Xiang Gao, Liangyou Rui, Wenjun Li, and Yong Liu. Abrogation of hepatic ATP-citrate lyase protects against fatty liver and ameliorates hyperglycemia in leptin receptor-deficient mice. *Hepatology.* (2009)
20. **Lei Jiang**, Qiong Wang, Yue Yu, Feng Zhao, Ping Huang, Rong Zeng, Robert Z. Qi, Wenjun Li, and Yong Liu. Leptin contributes to the adaptive responses of mice to high-fat diet intake through suppressing the lipogenic pathway. *PLoS one.* (2009)
21. **Lei Jiang**, Jia You, Xinxin Yu, Lety Gonzalez, Yue Yu, Qiong Wang, Guoqing Yang, Wenjun Li, Cai Li, and Yong Liu. Tyrosine-dependent and -independent actions of leptin receptor in control of energy balance and glucose homeostasis. *Proc Natl Acad Sci U S A.* (2008)

SELECTED PRESENTATIONS

- Cytosolic reductive carboxylation is required for mitochondrial redox homeostasis during anchorage-independent cell growth. *AACR-Metabolism and Cancer*, Bellevue, WA, USA, 2015
- Reductive carboxylation mediated oxidative stress defense supports anchorage independent cell growth. *Metabolism, Diet and Disease 2014: Cancer and metabolism*, Washington, USA, 2014
- Metabolic Regulation during TGF-ß1-induced Epithelial-Mesenchymal Transition. *Cancer and Metabolism - Keystone Symposia*, Banff, Alberta, Canada, 2012
- Tyrosine-dependent and -independent actions of leptin receptor in control of energy balance and glucose homeostasis. *The Beijing Joint Conference of Physiological Sciences*, Beijing, China, 2008

HONORS

Travel Award for Poster Presentation, UTSW, Dallas, TX, USA 2015
Chinese Academy of Sciences Dean Award, China 2009
Unilever Scholarship, China 2009
Merit student, Chinese Academy of Sciences, China 2007-2008
First prize for graduate student thesis, Institute for Nutritional Sciences, SIBS, CAS, China 2008