

**REUBEN JAMES SHAW, PH.D.**  
**Curriculum vitae**

**Title:** William R. Brody Endowed Chair in Biology  
Director, Salk Institute NCI-Designated Cancer Center  
Professor, Molecular and Cell Biology Laboratory, Salk Institute for Biological Studies

**Place of Birth:** Amsterdam, New York, USA

**Marital Status:** Married to Katja A. Lamia, one daughter and one son

**Citizenship:** United States of America

**Address:** Molecular and Cell Biology Laboratory, MCBL-W  
The Salk Institute for Biological Studies  
10010 North Torrey Pines Road, La Jolla, CA 92037  
Tel: 858-453-4100 x1258  
Email: shaw@salk.edu

**Major Research Interests:** Metabolism and Cancer, Nutrient sensing, Starvation and stress response  
AMPK and mTOR signaling pathways

**Education**

09/89-06/93 B.S. Biology, Cornell University, Ithaca, NY, *with highest honors*  
09/93-06/99 Ph.D. Biology, Massachusetts Institute of Technology, Cambridge, MA

**Research Experience/ Training**

1991-1993	Undergraduate research, Cornell University	Advisor: Dr. Richard Cerione, Ph.D.
1994-1999	Ph.D., Massachusetts Institute of Technology	Advisor: Dr. Tyler Jacks, Ph.D.
1999-2003	Postdoctoral fellow, Harvard Medical School	Advisor: Dr. Lewis Cantley, Ph.D.
2003-2005	Instructor, Harvard Medical School	Advisor: Dr. Lewis Cantley, Ph.D.
2006-2012	Assistant Professor, Salk Institute	Molecular & Cell Biology Laboratory
2012-2014	Associate Professor, Salk Institute	Molecular & Cell Biology Laboratory
2014-present	Professor, Salk Institute	Molecular & Cell Biology Laboratory
2014-2015	Deputy Director	Salk NCI-Designated Basic Cancer Center
2016-present	Director	Salk NCI-Designated Basic Cancer Center

**Honors and Awards**

2006-2009 The V Foundation for Cancer Research Scholar Award  
2007-2011 American Cancer Society Research Scholar  
2008-2011 American Diabetes Association Junior Faculty Award  
2009-2015 Howard Hughes Medical Institute Early Career Scientist Award

**Additional Institutional Affiliations**

2006-2016 Assistant Adjunct Professor, Division of Biological Sciences, UCSD  
2009-2016 Assistant Adjunct Professor, Department of Medicine, UCSD  
2016-present Adjunct Full Professor, Division of Biological Sciences and Department of Medicine, UCSD

**Institutional Service**

2006-present Teach UCSD undergrads and grad courses ~ 5 lectures / year, multiple thesis committees  
2008-2013 Salk Academic Council  
2009-2012 Developed and run Salk Cancer Course for T32 NCI Cancer Center training grant  
2011-present Developed and run upperclassman / masters / Ph.D. student UCSD course BGGN245  
2011-present Salk Faculty Development Committee  
2014-present UCSD-Salk Ph.D. Graduate Committee  
2015-present Salk Appointments Committee  
2013-2015 Associate Program Leader, Salk NCI-Designated Basic Cancer Center

## **Extramural Professional Responsibilities**

- 2007-present Adhoc Manuscript Reviewer: Nature, Cell, Science, Nature Medicine, Nature Cell Biology, Molecular Cell, Cell Metabolism, Cancer Cell, Cell Stem Cell, G&D, JCI, Science Signaling, Elife, MCB, PNAS, PLOS, JBC, Cancer Research, Biochemical Journal, and Oncogene
- 2009-2012 Member, Grant Review Board, State of Texas Cancer Research Initiative (CPRIT)
- 2010-2015 Editorial Board, *Oncogene*; Editorial Board, *Biochemical Journal*
- 2015-present Editorial Board, *Science Signaling*
- 2009-present Grant Reviewer: NIH (NCI, NIDDK), American Cancer Society, Tuberous Sclerosis Alliance

## **Meeting Co-organizer:**

- 2009 AACR Meeting on Cancer & Metabolism (w/ Ron Evans & Celeste Simon)
- 2009 Salk Cancer Mechanisms & Models (w/ Jan Karlseder, Laura Attardi, Clodagh O'Shea & Dave Tuveson)
- 2011 Salk Cancer Mechanisms & Models (w/ Jan Karlseder, Laura Attardi, Clodagh O'Shea & Dave Tuveson)
- 2012 Keystone Meeting on Cancer Metabolism (w/ David Sabatini)
- 2013 FASEB Meeting on Protein Kinase and Protein Phosphorylation (w/ Richard Marais)
- 2013 Salk Cancer Mechanisms & Models (w/ Jan Karlseder, Laura Attardi, Clodagh O'Shea & Dave Tuveson)
- 2015 Salk Cancer Mechanisms & Models (w/ Jan Karlseder, Laura Attardi, Clodagh O'Shea & Dave Tuveson)
- 2016 Salk Post-Translation Regulation of Cell Signaling (w/ Tony Hunter & Alexandra Newton)
- 2017 Keystone Meeting on Tumor Metabolism (w/ Brendan Manning & Kathryn Wellen)
- 2017 Salk Cancer Mechanisms & Models (w/ Jan Karlseder, Laura Attardi, Clodagh O'Shea & Martin McMahon)

## **Invited Talks Given:**

- 2017: Keystone Tumor Metabolism, Whistler, Canada  
Stanford Cancer Biology student invited seminar, Palo Alto, CA  
NCI Cancer Center Directors Conclave, Bethesda, MD  
CSHL Metabolic Signaling, Cold Spring Harbor Laboratory, NY  
United Mitochondrial Disease Foundation Annual Conference, Washington, DC  
FASEB Conference on Kinases and Phosphorylation, Cambridge, UK  
Immunometabolic and Chronic Diseases Conference, Fiji  
NYU Cancer Center weekly seminar, New York, NY  
MD Anderson Symposium on Cancer Metabolism, Houston, TX  
Cold Spring Harbor Asia Conference on Mitochondria, China  
Grace Lecture, U of Lausanne, Switzerland
- 2016: U of Toronto Endocrine Grand Rounds, Toronto, Canada  
Keystone Tumor Metabolism Meeting, Banff, Canada  
IPSEN Cancer Meeting on Tumor Metabolism, Atacama, Chile  
NYAS Cancer Metabolism Symposium, NY, NY  
Keystone Mitochondrial Dynamics Meeting, Steamboat Spring, CO  
American Association of Cancer Research Annual Meeting; New Orleans, LA  
American Diabetes Association Annual Meeting, New Orleans, LA  
CSHL Quantitative Symposium on Cancer, Cold Spring Harbor Laboratory, NY  
CSHL PI3K and mTOR signaling Meeting, Cold Spring Harbor Laboratory, NY  
9th International AMPK meeting, Xiamen, China  
Metabolism & Cancer 2016 Meeting, Montpellier, France  
World Health Summit, Berlin, Germany
- 2015: Keystone Tumor Metabolism Meeting, Vancouver, BC, Canada  
Keystone Metabolic Disease and Mitochondrial Dysfunction Meeting, Whistler, BC, Canada  
NIH Tuberous Sclerosis Workshop, Bethesda, MD  
NCI Cancer Center Directors Conclave, Bethesda, MD  
UCLA Tumor Metabolism Symposium; Los Angeles, CA  
American Association of Cancer Research Annual Meeting, Philadelphia, PA  
U Iowa Physiology Dept Seminar, Iowa City, IA

U Chicago Cancer Biology Dept Seminar, Chicago, IL  
UPenn Institute for Diabetes, Obesity, and Metabolism Seminar, Philadelphia, PA  
Harvard Med Hamatoma Tumor Suppressors Symposium, Boston, MA  
AACR Cancer Metabolism Mtg; Seattle, WA  
Cell Press Mitochondria Symposium; Chicago, IL  
FASEB Kinase Mtg; Chicago, IL  
40<sup>th</sup> European Symp on Hormones and Cell Regulation, Alsace, France  
Arias Liver Symposium, Boston, MA  
UMass Med School Cancer Biology Dept Seminar, Worcester, MA  
Banbury Tumor Metabolism Mtg, Cold Spring Harbor Laboratory, NY

- 2014 CSHL Pten Meeting; Cold Spring Harbor Laboratory, NY  
LAM Symposium 2014; Cincinnati, OH  
AACR Annual Meeting; San Diego, CA  
Abcam meeting on Epigenetics and Metabolism;  
BMC Metabolism, Diet, and Disease, Washington, DC  
Lewis Cantley 65<sup>th</sup> Birthday Symposium at Harvard Medical School, Boston, MA  
Beatson Institute Meeting on Driving the Cancer Engine, Glasgow, UK  
FASEB Phosphorylation Meeting, Aspen, CO  
FASEB Nutrient Sensing Meeting, Big Sky, Montana  
FASEB International AMPK Meeting, Tuscany, Italy  
AACR International Meeting 2014, Shanghai, China  
TSC International Meeting 2014 Beijing, China  
Baylor MCB Department, Houston, TX  
Houston Health Science Center, Houston, TX  
St. Jude Biomedical Sciences Symposium 2014, Memphis, TN  
University of Leuven Second Annual Metabolism Symposium, Leuven, Belgium  
EMBO|EMBL Symposium on Frontiers in Metabolism, Heidelberg, Germany
- 2013 25<sup>th</sup> Pezcoller Symposium, Trento Italy  
Banbury Meeting on Biguanides, Cold Spring Harbor Laboratory, NY  
CSHL meeting on Metabolism & Disease, Cold Spring Harbor Laboratory, NY  
FASEB Meeting on Protein Kinase and Protein Phosphorylation, Niagara Falls, NY  
Yale University Physiology Dept, New Haven, CN  
Memorial Sloan-Kettering Cancer Center, NY, NY  
Oregon Health Science University, Portland, OR  
Keystone Tumor Metabolism Meeting, Whistler, BC, Canada  
Annual AACR meeting, Washington, DC  
World Congress on Insulin Resistance, Diabetes & Cardiovascular Disease, Los Angeles, CA
- 2012 Banbury Meeting on Cancer Metabolism, Cold Spring Harbor Laboratory, NY  
Les Treilles TOR Meeting, Nice, France  
St. Jude's 50<sup>th</sup> Anniversary Symposium, Memphis, TN  
Keystone Meeting on Cancer Metabolism, Banff, Canada  
FASEB Meeting on AMPK, Monterrey, CA  
EPFL School of Life Sciences, Lausanne, Switzerland  
London Research Institute, London, UK  
IPSEN Cancer Meeting on Mouse Models, Or Preto, Brazil  
Albert Einstein Cell Biology Dept, NY, NY  
Dartmouth Medical School, Hanover, NH  
annual Endocrine Society Meeting, Boston, MA
- 2011 CSHL 76<sup>th</sup> Annual Symposium: Metabolism & Disease, Cold Spring Harbor Laboratory, NY  
Molecular & Physiological Aspects of Type 2 Diabetes Symposium, Karolinska Institute, Sweden  
Keystone Diabetes Meeting, Keystone, CO  
Aspen Cancer Conference, Aspen, CO

FASEB Meeting on Kinases and Protein Phosphorylation, Snowmass, CO  
FASEB Meeting on Nutrient Control and Metabolism, Steamboat Springs, CO  
AACR Meeting on Metabolism and Cancer,  
Banbury Meeting on Metformin and Cancer, Cold Spring Harbor Laboratory, NY  
University of Utah Metabolism Symposium, Salt Lake City, UT  
Washington University Cell Biology Dept, St. Louis, MO  
University of Pennsylvania Cancer Center, Philadelphia, PA  
Stanford Department of Genetics weekly seminar, Stanford, CA  
McGill Cancer Center, Montreal, Canada  
Massachusetts General Hospital Cancer Center, Boston, MA  
UTSW Children's Hospital Cancer Institute, Dallas, TX

2010 American Association of Cancer Research (AACR) Annual Meeting, Washington, DC  
Metabolism in Cancer Conference, Berlin, Germany,  
Gordon Conference on Cell Growth and Proliferation, Lewiston, ME  
The tumor suppressor LKB1: basic science to the clinic, Marseilles France,  
FASEB 5<sup>th</sup> International AMPK Conference, Kyoto, Japan  
Keystone Meeting on Cancer & Metabolism, Vancouver, Canada  
CSHL PTEN meeting, Cold Spring Harbor Laboratory, NY  
Fred Hutchinson Cancer Center, Seattle, WA  
Dana Farber Cancer Center, Boston, MA  
CSHL 5th Annual Cancer Mechanisms & Models, Cold Spring Harbor Laboratory, NY  
Abcam Cancer and Metabolism Meeting, Edinburgh, Scotland, UK  
Banbury Meeting on Cancer Metabolism, Cold Spring Harbor Laboratory, NY  
Barcelona Biomed Conference on Cancer Metabolism, Barcelona, Spain  
Vanderbilt Weekly Physiology Seminar Series, Nashville, TN  
NCI Workshop on Cancer and Autophagy, Bethesda, MD

2009 CNIO Meeting on Cancer and Metabolism, Madrid, Spain  
American Cancer Society Professors Meeting, Tampa, FL  
Abcam Meeting on Aging and Age-related disease, Mexico  
FASEB Meeting on Kinases and Protein Phosphorylation,  
Duke University Department of Pharmacology, Durham, NC  
Case Western University Dept of Pathology, Cleveland, OH  
Forbeck Foundation Annual Meeting, Ann Arbor, WI  
Tuberous Sclerosis Alliance International Symposium, Charleston, SC  
UCLA IMED Seminar Series, Los Angeles, CA  
Yale Medical School Pharmacology Weekly Seminar, New Haven, CN  
Memorial Sloan-Kettering Cancer Center Cancer Biology weekly Seminar, NY, NY

2008 American Association of Cancer Research (AACR) Annual Meeting,  
CNIO Cancer Conference on mTOR Signaling Metabolism & Cancer, Madrid, Spain  
CSHL 3<sup>rd</sup> Annual Cancer Mechanisms & Models, Cold Spring Harbor Laboratory, NY  
FASEB Meeting on Nutrient Regulation, Snowmass, CO  
FASEB International AMPK Meeting, Copenhagen, Denmark  
IPSEN Cancer and Metabolism Meeting, Costa Rica  
Minisymposium at Fred Hutchinson Cancer Research Center,  
Beatson Institute Cancer & Metabolism Symposium, Glasgow, UK  
UNC Lineberger Comprehensive Cancer Center Weekly Seminar, Chapel Hill, NC  
Boston Medical Center Whittaker Cardiovascular Weekly Seminar, Boston, MA  
Annual LAM (Lymphoangiomyoleiosarcoma) Foundation Meeting, Chicago, IL  
UC Irvine Molecular and Cell Biology Weekly Seminar, Irvine, CA  
UT Southwestern Pathology Weekly Seminar, Dallas, TX  
UT Southwestern Pharmacology Weekly Seminar, Dallas, TX  
UPenn Mari Lowe Center for Comparative Oncology Weekly Seminar, Philadelphia, PA  
National Cancer Institute Distinguished Scientist Lecture, Frederick, MD

- 2007      Gordon Conference on Signaling in the Nucleus, Ventura, CA  
Keystone Symposium on Nuclear Receptor Pathways and Metabolic Syndrome, Keystone, CO  
American Association of Cancer Research Annual Meeting,  
American Diabetes Association Annual Meeting,  
Gordon Conference on Cell Growth & Proliferation, Lewiston, ME  
FASEB Meeting on Protein Kinases, Snowmass, CO  
Kern Lipid Conference, Aspen, CO  
UCLA Hillblom Diabetes Symposium on Tumor Suppressors and Diabetes, Los Angeles, CA  
UC Davis Cancer Center Weekly Seminar, Davis, CA  
UCSD Mahajani Symposium on Cancer & Metabolism, San Diego, CA  
International Tuberous Sclerosis Alliance Annual Meeting, Charleston, SC  
University of Wisconsin at Madison Weekly Seminar, Madison, WI
- 2006      Keystone Diabetes Meeting, Vancouver, BC, Canada  
NCI Insulin Signaling and Hamartoma Syndromes Meeting, Bethesda, MD  
UCSF Cancer Center, San Francisco, CA  
Gordon Conference on Phosphorylation & G Protein Mediated Signaling, Lewiston, ME  
FASEB Meeting on AMPK, Aspen, CO  
Annual Obesity Society Conference, Boston, MA

### **Shaw Lab Personnel – March 2017**

12 postdoctoral fellows, 2 PhD students, 3 research technicians

#### **Former Trainees**

postdoc David Shackelford finished 2011, now an Assistant Professor at UCLA Medical School  
postdoc Will Mair, (joint with Andrew Dillin) finished 2011, now Asst Prof at Harvard School of Public Health  
postdoc Jung-Whan (Jay) Kim, (joint with Randy Johnson) finished 2013, now Asst Prof at UT Dallas  
postdoc Matthew Chun, finished 2015, now at Amgen, South San Francisco  
postdoc Nathan Young, finished 2016, now at Effector Therapeutics, San Diego  
postdoc Erin Toyama, finished 2016, now at Genomic Research Institute of Novartis Foundation, San Diego  
PhD student Rebecca Kohnz, did postdoc at UC Berkeley, now at Merck, San Francisco  
PhD student Dana Gwinn, now a postdoc at Stanford  
PhD student Maria Mihaylova, now a postdoc at the Whitehead Institute, MIT  
PhD student Daniel Egan, now a postdoc at Harvard Medical School  
PhD student Jonathan Goodwin, now a postdoc at Novartis in Boston  
PhD student Ben Stein, now a postdoc at Weill Cornell Medical School in Manhattan

## **Publications – Primary Research**

1. Howell, J.J., Hellberg, K., Turner, M., Talbott, G., Kolar, M.G., Ross, D.S., Hoxhaj, G., Saghatelian, A., Shaw, R.J.\*, and Manning, B.D.\* (2017). Metformin Inhibits Hepatic mTORC1 Signaling via Dose-Dependent Mechanisms Involving AMPK and the TSC Complex. ***Cell Metab*** 25: 463-471. (\*co-corresponding authors)
2. Parker, S. J., Svensson, R. U., Divakaruni, A. S., Lefebvre, A. E., Murphy, A. N., Shaw, R. J. and Metallo, C. M. (2017). Lkb1 promotes metabolic flexibility in response to energy stress. ***Metab Eng***. [epub ahead]
3. Svensson, R.U., Parker, S.J., Eichner, L.J., Kolar, M.J., Wallace, M., Brun, S.N., Lombardo, P.S., Van Nostrand, J.L., Hutchins, A., Vera, L., Gerken, L., Greenwood, J., Bhat, S., Harriman, G., Westlin, W.F., Harwood Jr., H.J., Saghatelian, A., Kapeller, R., Metallo, C.M., and Shaw, R.J. (2016) Inhibition of acetyl-CoA carboxylase suppresses fatty acid synthesis and tumor growth of non-small cell lung cancer in preclinical models. ***Nature Medicine***, 22:1108-1119.
4. Young, N.P., Reddy, A., Van Nostrand, J.L., Eichner, L.J., Shokhirev, M.H., Dayn, Y., and Shaw, R.J. (2016) AMPK governs lineage specification through Tfeb-dependent regulation of lysosomes. ***Genes & Dev***, 30: 535–552
5. Toyama, E.Q., Herzig, S., Courchet, J., Lewis, T.L. Jr., Losón, O.C., Hellberg, K., Young, N.P., Chen, H., Polleux, F., Chan, D.C., and Shaw, R.J. (2016) AMP-activated protein kinase mediates mitochondrial fission in response to energy stress. ***Science*** 351: 275-281
6. Schaffer, B.E., Hertz, N.T., Levin, R.S., Maures, T.J., Schoof, M.L., Hollstein, P.E., Benayoun, B.A., Banko, M.R., Shaw, R.J., Shokat, K.M., Brunet, A. (2015) Identification of AMPK phosphorylation sites reveals a network of proteins involved in cell invasion and facilitates large-scale substrate prediction. ***Cell Metab*** 22 :907-21
7. McClatchy DB, Ma Y, Liu C, Stein BD, Martínez-Bartolomé S, Vasquez D, Hellberg K, Shaw R.J., Yates JR 3<sup>rd</sup>. (2015) Pulsed Azidohomoalanine Labeling in Mammals (PALM) Detects Changes in Liver-Specific LKB1 Knockout Mice. ***J Proteome Res***. 14:4815-22
8. Egan, D.F., Chun, M.G., Vamos, M., Zou, H., Rong, J., Miller, C.J., Lou, H.J., Raveendra-Panickar, D., Yang, C.C., Sheffler, D.J., Teriete, P., Asara, J.M., Turk, B.E., Cosford, N.D. and, Shaw, R.J. (2015). Small molecule inhibition of the autophagy kinase ULK1 and identification of ULK1 substrates. ***Molecular Cell*** 59: 285–297
9. Goodwin, J.M., Svensson, R.U., Lou, H.J., Winslow, M.M., Turk, B.E., and Shaw, R.J. (2014). An AMPK-Independent Signaling Pathway Downstream of the LKB1 Tumor Suppressor Controls Snail1 and Metastatic Potential. ***Molecular Cell*** 55: 436–450.
10. Luan, B., Goodarzi, M.O., Phillips, N.G., Guo, X., Chen, Y.I., Yao, J., Allison, M., Rotter, J.I., Shaw, R.J., and Montminy, M. (2014) Leptin-mediated increases in Catecholamine signaling reduce adipose tissue inflammation via activation of Macrophage HDAC4. ***Cell Metab*** 19:1058-65.
11. Faubert, B., Vincent, E.E., Griss, T., Samborska, B., Izreig, S., Svensson, R.U., Mamer, O.A., Avizonis, D., Shackelford, D.B., Shaw, R.J., and Jones, R.G. (2014) Loss of the tumor suppressor LKB1 promotes metabolic reprogramming of cancer cells via HIF-1a. ***Proc Natl Acad Sci USA*** 111: 2554-2559.
12. Masui, K., Tanaka, K., Akhavan, D., Babic, I., Gini, B., Matsutani, T., Iwanami, A., Liu, F., Villa, G.R., Gu, Y., Campos, C., Zhu, S., Yang, H., Yong, W.H., Cloughesy, T.F., Mellinghoff, I.K., Cavenee, W.K., Shaw, R.J., and Mischel, P.S. (2013) mTOR Complex 2 Controls Glycolytic Metabolism in Glioblastoma through FoxO Acetylation and Upregulation of c-Myc. ***Cell Metab*** 18: 726-739.
13. Liu, Y., Marks, K., Cowley, G.S., Carretero, J., Liu, Q., Nieland, T.J., Xu, C., Cohoon, T.J., Gao, P., Zhang,

- Y., Chen, Z., Altabef, A.B., Tchaicha, J.H., Wang, X., Choe, S., Driggers, E.M., Zhang, J., Bailey, S.T., Sharpless, N.E., Hayes, D.N., Patel, N.M., Janne, P.A., Bardeesy, N., Engelman, J.A., Manning, B.D., **Shaw, R.J.**, Asara, J.M., Scully, R., Kimmelman, A., Byers, L.A., Gibbons, D.L., Wistuba, I.I., Heymach, J.V., Kwiatkowski, D.J., Kim, W.Y., Kung, A.L., Gray, N.S., Root, D.E., Cantley, L.C., and Wong, K.K. (2013) Metabolic and functional genomics identify deoxythymidylate kinase as a target in LKB1-mutant lung cancer. **Cancer Discov** 3: 870-879.
14. Shackelford, D.B., Abt, E., Gerken, L., Vasquez, D.S., Seki, A., Leblanc, M., Wei, L., Fishbein, M.C., Czernin, J., Mischel, P.S., and **Shaw, R.J.** (2013) LKB1 inactivation dictates therapeutic response of non-small cell lung cancer to the metabolism drug phenformin. **Cancer Cell** 23: 143-158.
15. Xia, Y., Yeddula, N., LeBlanc, M., Ke, E., Zhang, Y., Oldfield, E., **Shaw, R.J.**, and Verma, I.M. (2012) Reduced cell proliferation by IKK2 depletion in a mouse lung-cancer model. **Nat Cell Biol** 14: 257-265.
16. Auricchio, N., Malinowska, I., **Shaw, R.**, Manning, B.D., and Kwiatkowski, D.J. (2012). Therapeutic trial of metformin and bortezomib in a mouse model of tuberous sclerosis complex (TSC). **PLoS One** 7:e31900.
17. Wang, B., Moya, N., Niessen, S., Hoover, H., Mihaylova, M.M., **Shaw, R.J.**, Yates, J.R. 3rd, Fischer, W.H., Thomas, J.B. and Montminy, M. (2011) A hormone-dependent module regulating energy balance. **Cell** 145:596-606.
18. Mihaylova, M.M., Vasquez, D.S., Ravnskjaer, K., Denechaud, P.D., Yu, R.T., Alvarez, J.G., Downes, M., Evans, R.M., Montminy, M., and **Shaw, R.J.** (2011) Class IIa histone deacetylases are hormone-activated regulators of FOXO and mammalian glucose homeostasis. **Cell** 145: 607-621.
19. Li, Y., Xu, S., Mihaylova, M., Zheng, B., Hou, X., Jiang, B., Park, O., Luo, Z., Lefai, E., Shyy, J.Y., Gao, B., Wierzbicki, M., Verbeuren, T.J., **Shaw, R.J.**, Cohen, R.A., and Zang, M. (2011) AMPK Phosphorylates and Inhibits SREBP Activity to Attenuate Hepatic Steatosis and Atherosclerosis in Diet-induced Insulin Resistant Mice. **Cell Metab** 13: 376-388.
20. Mair, W., Morantte, I., Rodrigues, A.P., Manning, G., Montminy, M., **Shaw, R.J.\*** and Dillin, A.\* (2011) Lifespan extension induced by AMPK and calcineurin is mediated by CRTC-1 and CREB. **Nature** 470:404-408. (\*co-corresponding authors)
21. Egan, D.F., Shackelford, D.B., Mihaylova, M.M., Gelino, S.R., Kohnz, R.A., Mair, W., Vasquez, D.S., Joshi, A., Gwinn, D.M., Taylor, R., Asara, J.M., Fitzpatrick, J., Dillin, A., Viollet, B., Kundu, M., Hansen, M. and **Shaw, R.J.** (2010) Phosphorylation of ULK1 (hATG1) by AMP-Activated Protein Kinase Connects Energy Sensing to Mitophagy. **Science** 331: 456-461.
22. Gwinn, D.M., Asara, J. and **Shaw, R.J.** (2010) Raptor is phosphorylated by cdc2 during mitosis. **PLoS ONE** 5: e9197.
23. Ohashi, K., Ouchi, N., Higuchi, A., **Shaw, R.J.**, and Walsh, K. (2010) LKB1 deficiency in Tie2-Cre expressing cells impairs ischemia-induced angiogenesis. **J Biol Chem** 285: 22291-22298.
24. Ikeda, Y., Sato, K., Pimentel, D.R., Sam, F., **Shaw, R.J.**, Dyck, J.R., Walsh, K. (2009) Cardiac-specific deletion of LKB1 leads to hypertrophy and dysfunction. **J Biol Chem** 284: 35839-35849.
25. Lamia, K.A., Sachdeva, U.M., DiTacchio, L., Williams, E.C., Alvarez, J.G, Egan, D.F., Vasquez, D.S., Juguilon, H., Panda, S., **Shaw, R.J.**, Thompson, C.B., and Evans, R.M. (2009) AMPK regulates the circadian clock by cryptochrome phosphorylation and degradation. **Science** 326: 437-440.
26. Shackelford, D.B., Vasquez, D.S., Corbeil, J., Wu, S., Leblanc, M., Wu, C.-L., Vera, D.R. and **Shaw, R.J.** (2009) mTOR and HIF-1 $\alpha$  mediated tumor metabolism in an LKB1 mouse model of Peutz-Jeghers syndrome. **Proc Natl Acad Sci USA** 106: 11137-11142.

27. Mair, W., Panowski, S.H., **Shaw, R.J.**, and Dillin, A. (2009) Optimizing Dietary Restriction for Genetic Epistasis Analysis and Gene Discovery in *C. elegans*. ***PLoS One***, 4: e4535.
28. Narkar, V.A., Downes, M., Yu, R.T., Embler, E., Wang, Y.X., Banayo, E., Mihaylova, M.M., Nelson, M.C., Zou, Y., Juguilon, H., Kang, H., **Shaw, R.J.** and Evans, R.M. (2008) AMPK and PPARdelta agonists are exercise mimetics. ***Cell*** 134: 405-415.
29. Gwinn, D.M., Shackelford, D.B., Egan, D.F., Mihaylova, M.M., Mery, A., Vasquez, D.S., Turk, B.E. and **Shaw, R.J.** (2008) AMPK phosphorylation of raptor mediates a metabolic checkpoint. ***Mol Cell*** 30: 214-226.
30. Baur, J.A., Pearson, K.J., Price, N.L., Jamieson, H.A., Lerin, C., Kalra, A., Prabhu, V.V., Allard, J.S., Lopez-Lluch, G., Lewis, K., Pistell, P.J., Poosala, S.Becker, K.G., Boss, O., Gwinn, D., Wang, M., Ramaswamy, S., Fishbein, K.W., Spencer, R.G., Lakatta, E.G., LeCouteur, D., **Shaw, R.J.**, Navas, P., Puigserver, P., Igram, D.K., deCabo, R., Sinclair, D.A. (2006) Resveratrol improves health and survival of mice on a high-calorie diet. ***Nature*** 444: 337-342.
31. **Shaw, R.J.**\*, Lamia, K.A., Vasquez, D., Koo, S.H., Bardeesy, N., DePinho, R.A., Montminy, M., Cantley, L.C. (2005) The Kinase LKB1 Mediates Glucose Homeostasis in Liver and Therapeutic Effects of Metformin. ***Science*** 310: 1642-1646. (\*corresponding author)
32. Fernandes, N., Sun, Y., Chen, S., Paul, P., **Shaw, R.J.**, Cantley, L.C., Price, B.D. (2005) DNA damage-induced association of ATM with its target proteins requires protein interaction domain in the N terminus of ATM. ***J Biol Chem*** 280:15158-15164.
33. **Shaw, R.J.**, Bardeesy, N., Manning, B., Lopez, L. Kosmatka, M., DePinho, R.A., and Cantley, L.C. (2004) The LKB1 tumor suppressor negatively regulates mTOR signaling. ***Cancer Cell*** 6: 91-99.
34. **Shaw, R.J.**, Kosmatka, M., Bardeesy, N., Hurley, R.L., Witters, L.A., DePinho, R.A., Cantley, L.C. (2004) The tumor suppressor LKB1 kinase directly activates AMP-activated kinase and regulates apoptosis in response to energy stress. ***Proc Natl Acad Sci USA*** 101: 3329-3335.
35. Karuman, P., Gozani, O., Odze, R., Zhou, X.C., Zhu, H., **Shaw, R.**, Brien, T.P., Bozzuto, C.D., Ooi, D., Cantley, L.C., and Yuan, J. (2001) The Peutz-Jegher Gene Product LKB1 is a mediator of p53-dependent cell death. ***Mol Cell*** 7: 1307-1319.
36. **Shaw, R.J.**, Paez, J.G., Curto, M., Yaktine, A., Pruitt, W.M., Saotome, I., O'Bryan, J.P., Gupta, V., Ratner, N., Der, C.J., Jacks, T. and McClatchey, A.I. (2001) The Nf2 tumor suppressor, merlin, functions in Rac-dependent signaling. ***Dev Cell*** 1: 63-72.
37. **Shaw, R.J.**, McClatchey, A.I., and Jacks, T. (1998) Regulation of the Neurofibromatosis type 2 tumor suppressor protein, merlin, by adhesion and growth arrest stimuli. ***J Biol Chem*** 273: 7757-64.
38. **Shaw, R.J.**, McClatchey, A.I., and Jacks, T. (1998) Localization and functional domains of the Neurofibromatosis type II tumor suppressor, merlin. ***Cell Growth Diff*** 9: 287-296.
39. **Shaw, R.J.**, Henry, M., Solomon, F., and Jacks, T. (1998) RhoA-dependent phosphorylation and re-localization of ERM proteins into apical membrane/ actin protrusions in fibroblasts. ***Mol Biol Cell*** 9:403-19.
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