

## MIN-HAO KUO

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### ACADEMIC APPOINTMENT

7/22 – Present Professor, Department of Biochemistry and Molecular Biology, Michigan State University  
7/06 – 6/22 Associate Professor, Department of Biochemistry and Molecular Biology, Michigan State University  
9/15 – 7/16 Visiting Associate Professor, Neuroscience Program in Academia Sinica, Institute of Molecular Biology, Academia Sinica, Taiwan  
9/99 – 7/06 Assistant Professor, Department of Biochemistry and Molecular Biology, Michigan State University

### Research interests:

1. Alzheimer's disease drug discovery
2. Lifespan regulation and lipid metabolism
3. Technology development for functional studies of protein post-translational modifications

### EDUCATION AND RESEARCH EXPERIENCES

8/98 – 8/99 Research Associate, Department of Biochemistry and Molecular Genetics, University of Virginia. Mentor: Dr. C. David Allis.  
1/96 – 7/98 Postdoctoral associate, Department of Biology, University of Rochester. Mentor: Dr. C. David Allis.  
5/95 – 12/95 Postdoctoral associate, Department of Biochemistry, University of Rochester. Mentor: Dr. Elizabeth J. Grayhack.  
9/88 – 5/95 Ph.D. Department of Biology, University of Rochester; Advisor: Elizabeth J. Grayhack. Thesis: Identification of potential target genes and phosphorylation sites of a yeast multifunctional transcriptional factor, MCM1  
9/82 – 5/86 B.S. Department of Medical Technology, National Taiwan University, Taiwan.

### AWARDS

2005 Early Promise Research Excellence Award, College of Osteopathic Medicine, Michigan State University.  
1996 – 2000 Kauffman La Roche postdoctoral fellowship.  
1992 – 1993 Elon Huntington Hooker Graduate Fellowship, University of Rochester.

### D. Research Support: Active

**National Institutes of Health 4/1/2022 – 3/31/2023 (1 R01 GM098285; administrative supplement to Dr. Hien Nguyen) Role: MPI**  
**Total cost: \$353,298 (total cost to Kuo: \$117,766)**  
Title: Tailoring Structures of Sulfated Oligosaccharides for Modulating Heparanase Activity  
This administrative supplement (NOT-AG-21-018) for R01 GM098285 awarded to Dr. Hien Nguyen at the Wayne State University is to establish a joint task force among three cross-institute laboratories for the

discovery of novel therapeutics candidates for AD. Specifically, we focus on the development of derivatives of heparan sulfates for their cytoprotective activity against a disease-causing hyperphosphorylated tau protein.

**National Institutes of Health 6/1/2022 – 5/31/2025 (1RF1 AG077475) Role: PI**  
**Total cost: \$1,337,894**

Title: Hyperphosphorylated tau and the molecular mechanisms of tauopathy  
This project proposes to use a disease-relevant hyperphosphorylated tau to study the molecular basis of the neurodegenerative tauopathies, including the mechanisms of neuron death, and the regulation of hyperphosphorylated tau by endogenous and synthetic molecules.

**National Institutes of Health 9/15/2020 - 8/31/2022 (1R21 GM139881) Role: PI**  
**Total cost: \$426,250 (currently on no-cost extension to 8/31/2023)**

Title: ePIMAX - Controlled expression of post-translationally modified proteins in eukaryotes.  
This Technology Development R21 Award aims to develop a methodology supporting the expression and functional studies of proteins bearing a desired post-translational modification in their native eukaryotic systems.

**National Institutes of Health 9/30/2020 – 5/31/2022 (1R44 AG057274) Role: Co-PI**  
**Total cost: \$1,521,001 (total cost to Kuo: \$600,000) (currently on no-cost extension to 5/31/2023)**

Title: Hyperphosphorylated tau-based aggregation and cytotoxicity kits.  
This phase II SBIR grant is a collaboration between the Kuo group and the Cayman Chemical Company, Ann Arbor, MI. This grant is an extension and expansion from an STTR grant awarded to Kuo in 2017 (1R41AG057274). Dr. Maria Inés Morano, Senior Director of Discovery R&D, Cayman, serves as the person of contact for the current grant.

**National Institutes of Health 4/1/2019 – 1/31/2022 (1R01 AG062435) Role: PI**  
**Total cost: \$1,332,000 (currently waiting for no-cost extension approval to 1/31/2024)**

Title: Hyperphosphorylated tau aggregation-based Alzheimer's disease early drug discovery  
The aim of this project is to conduct a 100,000-compound library screen for chemicals that control the aggregation of hyperphosphorylated tau as therapeutic candidates for Alzheimer's disease. R01AG062435

**National Science Foundation 8/15/2018 – 7/31/2022 (MCB1817324) Role: PI**  
**Total cost: \$834,500 (currently on no-cost extension to 7/31/2023)**

Title: Lipid metabolism and lifespan control in a model organism *Saccharomyces cerevisiae*  
This project aims to delineate the molecular basis underlying the energy expenditure-independent pro-longevity function of intracellular triacylglycerol. MCB1817324.

**National Institutes of Health 9/1/2021 - 8/31/2023 (1R21 AG070447) Role: collaborator**  
**Total cost: \$426,500 (PI, Jessica Fortin)**

Title: Small molecule inhibitors of hyperphosphorylated tau aggregation and cytotoxicity for the development of Alzheimer's therapeutics  
This project aims to use hyperphosphorylated tau aggregation and cytotoxicity platform established in my lab to evaluate several JF compounds developed Dr. Jessica Fortin (PI) for their potential as therapeutics against Alzheimer's disease and other tauopathies.

### Pending

**National Institutes of Health 1/1/2024 – 12/31/2028 (1R01 AG084727-01) Role:**  
**PI**

**Total cost: \$3,741,950**

Title: Hyperphosphorylated tau-based drug discovery for Alzheimer's disease and related dementias  
This MPI R01 project recruits a renowned medicinal chemist, Dr. Edmund Ellsworth (Michigan State University) as a co-PI to develop therapeutics for AD/ADRD.

**National Institutes of Health 4/1/2023 – 3/31/2025 (R21) Role: PI**

**Total cost: \$426,500**

Title: A novel, non-transgenic fly model of tauopathy

This R21 project aims to establish a novel, non-transgenic fly model for tauopathy based on the neurotoxicity of hyperphosphorylated tau.

**National Institutes of Health 4/1/2023 – 3/31/2028 (R01, MPI)**

**Role: MPI**

**Total cost: \$1,887,500**

Title: Neurotoxicity of hyperphosphorylated tau oligomers

This is a MPI R01 with Dr. Chia-Yi (Alex) Kuan as the PD/PI. This project aims to use our new mouse model to examine the mechanism of hyperphosphorylated tau-mediated brain pathology.

GRANTS – External (completed)

**8/15/16 – 7/31/18 National Institute of Health, Institute on Aging**

Role: PI (co-PI, Roland Kwok, University of Michigan, Ann Arbor)

Delineating protein-protein interaction network of hyperphosphorylated tau in tauopathies;

Total cost: \$426,250

This grant aims to use two complementary approaches to identify human proteins that interact preferentially with the hyperphosphorylated tau that is closely linked to the onset and progression of Alzheimer's disease. There is no overlap with the present application.

**11/1/17 – 10/31/18 National Institute of Health, Institute on Aging, 1R41AG057274-01**

Small Business Technology Transfer grant. Role: PI (co-PI, Cayman Chemical)

"Hyperphosphorylated tau aggregation kit to identify tauopathy risk factor".

Total cost: \$225,000. This grant is a collaboration with Cayman Chemical to develop a commercial kit featuring the aggregation of hyperphosphorylated tau protein for the identification of chemical risk factors for tauopathies.

**3/1/11 – 2/28/15 National Science Foundation, NSF MCB1050132, PI**

"Histones and cell division control". Total cost: \$693,944. This project continues our long-term research interest in chromatin biology and nuclear functions. The current focus of this project is to understand how the functional relationship of chromatin and mitotic progression and quality control. Specifically, the current objective is to examine how the newly identified "tension sensing motif" of histone H3 recruits specific proteins to the pericentromeres to control the mitotic spindle assembly checkpoint.

**4/1/11 – 3/31/13 National Institute of Health, Institute on Aging, R21 AG039768, PI, "Hyperphosphorylated tau as drug target".**

Total cost: \$342,924. The project seeks to use a novel approach to produce hyperphosphorylated tau protein for aggregation studies. Eventually, this pathophysiologically relevant protein will be used as a target to screen for compound that modulate, positively and negatively, the aggregation of tau protein, a molecular behavior intimately tied to the onset and progression of the Alzheimer's disease.

**2/1/01 – 1/31/06 National Institutes of Health (NIH), GM62282, PI, "Histone acetyltransferases and transcriptional regulation".** Total direct cost: \$830,000; total cost: \$1,220,000. This grant uses genetic and biochemical approaches to study how a prototypic histone acetyltransferase Gcn5 activates transcription via its enzymatic action.

**7/1/03 – 6/30/06 National Science Foundation (NSF), CMB0315542, PI, " Functions of histone modifications and specific binding proteins".** Total direct cost: \$324,470; total cost: \$458,000. This project uses a novel tethered catalysis/yeast two-hybrid system to identify and subsequently to functionally characterize proteins that function via direct interaction with acetylated histones.

GRANTS – Michigan State University

**9/1/19 – 8/31/21 Discretionary Fund Initiative, "ePIMAX: controlled expression of post-translationally modified proteins in eukaryotes".** Total cost: \$50,000.

- 1/1/17 – 9/30/17** Molecular Discovery Grant, Total cost: \$8,000. "Pilot screen for hyperphosphorylated tau aggregation inhibitors".
- 2/1/15 – 1/31/16** Discretionary Fund Initiative, "Hyperphosphorylated tau aggregation as drug target for tauopathies". Total cost: \$50,000.
- 8/1/07 – 7/31/10** Rackham Fund, Michigan Agricultural Experiment Station, PI. "SUMO in Kinome". Total cost: \$75,000.
- 12/1/02 – 2/29/04** Intramural Research Grant Proposal (IRGP), Incubator category, co-PI with Dr. R. William Henry (Dept. Biochem. Mol. Biol., Michigan State University). "Identification of functional partners of the tumor suppressor protein p53". Total cost: \$75,000.
- 7/1/01 – 6/30/04** MSU Foundation. Gene Expression, Development, and Disease (GEDD) Strategic Initiative. Co-investigators: David Arnosti, Zachary Burton, Michele Fluck, James Geiger, William Henry, Lee Kroos, **Min-Hao Kuo**, Steven Triezenberg. This group project supports several collaborative works among the listed principal investigators. Two projects are conducted in the Kuo lab: "Biochemical and genomic identification of general histone binding proteins" and "Identification of human proteins that bind acetylated tumor suppressor protein p53". Total cost: \$1,000,000.
- 8/1/00 – 7/31/01** College of Osteopathic Medicine Intramural Grant, PI. "Development of a novel genetic system for identifying protein-protein interactions modulated by post-translational modifications". Total cost: \$20,000.
- 12/1/99 – 5/31/01** Intramural Research Grant Proposal (IRGP), New Investigator category, PI. "Histone acetyltransferases and transcriptional regulation and cell cycle control". Total cost: \$50,000.

#### PATENT

- Autocatalysis/two-hybrid system to identify protein-protein interactions involving post-translational modifications. US Patent 7291464, issued 11/6/2007

#### MANUSCRIPTS UNDER REVIEW OR IN PREPARATION

- Song<sup>\*</sup>, Z., Wang<sup>\*</sup>, K.-W., Hagar<sup>\*</sup>, C.-H., Zhang<sup>^</sup>, K., and **Kuo<sup>^</sup>, M.-H.** Hyperphosphorylated tau inflicts intracellular stress responses that are mitigated by apomorphine (<sup>\*</sup>equal contributions; <sup>^</sup>co-corresponding authors) (under review)
- Wang, K.-W., Zhang, G., and **Kuo, M.-H.** P301L mutation potentiates, but is not sufficient to cause, the formation of cytotoxic fibrils of tau
- Vega, V.F., Jordan, L.O., Hagar, H.-T., Wang, K.-W., Lin, Y.-C., Ellsworth, E., Shumate, J., Scampavia, L., **Kuo,\* M.-H.**, and Spicer,\* T.P. Identification of small molecule inhibitors of hyperphosphorylated tau aggregation and cytotoxicity via high-throughput screening. <sup>\*</sup>co-corresponding authors
- Payankulam, S., Hovde, S., Henige, J., Schoborg, T.A., and **Kuo, M.-H.** A fly *in cibo* model of tauopathies
- Hsiao, K.-C., Lin, H.-S., Hazbun, T., and **Kuo, M.-H.** Synchronous cell division in chronologically aging yeast population
- Lin, H.-S., Hsiao, K.-C., and **Kuo, M.-H.** High-copy suppressor screen for the early death defects of triacylglycerol-deficient cells uncovers genes involved in endocytosis and quorum sensing

#### PUBLICATIONS – Research articles

- Fortin, J. S.; Shimanaka, K.; Saraswati, A. P.; Liu, M.; Wang, K. W.; Hagar, H. T.; Maity, S.; Ganegamage, S. K.; Ellsworth, E.; Counts, S. E.; Borhan, B.; Dettmer, U.; **Kuo, M. -H.**, Anti-fibrillization effects of sulfonamide derivatives on  $\alpha$ -synuclein and hyperphosphorylated tau isoform 1N4R. *J Mol Struct* 2022, 1267.

- Congdon, E. E.; Pan, R.; Jiang, Y.; Sandusky-Beltran, L. A.; Dodge, A.; Lin, Y.; Liu, M.; **Kuo, M.-H.**; Kong, X. P.; Sigurdsson, E. M., Single domain antibodies targeting pathological tau protein: Influence of four IgG subclasses on efficacy and toxicity. *EBioMedicine* 2022, 84, 104249.
- Jiang L., Lin W., Zhang, C., Ash, P.E.A., Verma, M., Kwan, J., van vliet, E., Yang, Z., Cruz, A.L., Boudeau, S., Maziuk, B.F., Lei, S., Song, J., Alvarez, V.E., Hoved, S., Abisambra, J.F., **Kuo, M.-H.**, Kanaan, N., Murray, M.E., Crary, J.F., Zhao, J., Cheng, J.-X., Petrucelli, L., Li, H., Emili, A., and Wolozin, B. (2021) Interaction of tau with HNRNPA2B1 and N6-methyladenosine RNA mediates the progression of tauopathy. *Molecular Cell*, 81:4209-4227.
- Liu, M., Dexheimer, T., Sui, D., Hovde, S., Deng, X., Kwok, R., Bochar, D. A., and **Kuo, M.-H.** (2020) Hyperphosphorylated tau aggregation and cytotoxicity modulators screen identified prescription drugs linked to Alzheimer's disease and cognitive functions. *Scientific Reports* 10: 16551.
- Liu, M., Sui, D., Dexheimer, T., Hovde, S., Deng, X., Wang, K. W., Lin, H. L., Chien, H. T., Kweon, H. K., Kuo, N. S., Ayoub, C. A., Jimenez-Harrison, D., Andrews, P. C., Kwok, R., Bochar, D. A., Kuret, J., Fortin, J., Tsay, Y. G., and **Kuo, M.-H.** (2020) Hyperphosphorylation Renders Tau Prone to Aggregate and to Cause Cell Death. *Molecular Neurobiology* 57: 4704 - 4719.
- Deng, X. and **Kuo, M.-H.** Tripartite localization of Sgo1p at centromeres and pericentromere reveals higher-ordered architecture of *Saccharomyces cerevisiae* mitotic chromosomes. (2018) *G3 (Bethesda)* 8(9):2901-2911.
- Buehl, C.J., Deng, X., Luo, J., Buranasudja, V., Hazbun, T., and **Kuo, M.-H.** A failsafe for sensing chromatid tension in mitosis with the histone H3 tail in *Saccharomyces cerevisiae*.(2017) *Genetics* 57:72-80 (**February 2018 Highlights**).
- Li, X., Handee, W., and **Kuo, M.-H.** (2017) The slim, the fat, and the obese: guess who lives the longest? *Curr. Genet.* 61:43-49.
- Luo J, Deng X, Buehl C, Xu X, Kuo MH. Identification of Tension Sensing Motif of Histone H3 in *Saccharomyces cerevisiae* and Its Regulation by Histone Modifying Enzymes. *Genetics*. 2016;204(3):1029-43. Epub 2016/09/28. (Featured article)
- Handee\*, W., Li\*, X., Hall, K., Deng, X., Benning, C., Williams, B., and Kuo, M.-H. (2016) An energy-independent pro-longevity function of triacylglycerol in yeast. *PLoS Genetics*, 12(2): e1005878. (\*equal contribution).
- Sui, D., Xu, X., Ye, X., Liu, M., Miannecki, M., Rattanasinchai, C., Buehl, C., Deng, X., and **Kuo, M.-H.** (2015) PIMAX approach to producing challenging proteins including hyperphosphorylated tau and active CDK/p25 kinase complex. *Mol. Cell. Proteomics*. 14:251-62
- Sui, D., Liu, M., and **Kuo, M.-H.** In vitro aggregation assays using hyperphosphorylated tau protein. (2015) *J Vis Exp* Jan 2; (95). doi:10.3791/51537.
- Buehl\*, C.J., Deng\*, X., Liu\*, M., Hovde, S., Xu, X., and **Kuo, M.-H.** (2014) Resolving acetylated and phosphorylated proteins by neutral urea Triton-polyacrylamide gel electrophoresis, NUT-PAGE. *BioTechniques* 57: 72-80. (\*equal contribution).
- Tan, Y.J., Sui, D., Wang, W.H., **Kuo, M.-H.**, Reid, G.E., and Bruening, M.L. (2013). Phosphopeptide enrichment with TiO-modified membranes and investigation of tau protein phosphorylation. *Anal Chem* 85:5699-706.
- Li X, Benning C, **Kuo M.-H.** (2012). Rapid triacylglycerol turnover in *Chlamydomonas reinhardtii* requires a lipase with broad substrate specificity. *Euk. Cell* 11:1451-1462.
- Vieler A, Wu G, Tsai CH, Bullard B, Cornish AJ, Harvey C, Reza IB, Thornburg C, Achawanantakun R, Buehl CJ, Campbell MS, Cavalier D, Childs KL, Clark TJ, Deshpande R, Erickson E, Armenia Ferguson A, Handee W, Kong Q, Li X, Liu B, Lundback S, Peng C, Roston RL, Sanjaya, Simpson JP, Terbush A, Warakanont J, Zäuner S, Farre EM, Hegg EL, Jiang N, **Kuo M.-H.**, Lu Y, Niyogi KK, Ohlrogge J, Osteryoung KW, Shachar-Hill Y, Sears BB, Sun Y, Takahashi H, Yandell M, Shiu SH, Benning C. (2012). Genome, functional gene annotation, and nuclear transformation of the heterokont oleaginous alga *Nannochloropsis oceanica* CCMP1779. *PLoS Genet.* 8:e1003064. Epub 2012 Nov 15.

- Li X, Moellering ER, Liu B, Johnny C, Fedewa M, Sears BB, **Kuo M.H.**, Benning C. (2012). A galactoglycerolipid lipase is required for triacylglycerol accumulation and survival following nitrogen starvation in *Chlamydomonas reinhardtii*. *Plant Cell* 24:4670-4286.
- Miller R, Wu G, Deshpande RR, Vieler A, Gärtner K, Li X, Moellering ER, Zäuner S, Cornish AJ, Liu B, Bullard B, Sears BB, **Kuo M.-H.**, Hegg EL, Shachar-Hill Y, Shiu SH, Benning C (2010). Changes in transcript abundance in *Chlamydomonas reinhardtii* following nitrogen deprivation predict diversion of metabolism. *Plant Phys.* 154:1737-52.
- Luo, J., Xu, X., Hall, H., Hyland, E.M., Boeke, J.D., Hazbun, T., and **Kuo, M.-H.** (2010) Histone H3 exerts key function in mitotic checkpoint control. *Mol. Cell. Biol.* 30:537-549. **(Featured in Spotlight)**
- Liu, Y., Xu, X., and **Kuo, M.-H.** (2010) Snf1p regulates Gcn5p transcriptional activity by antagonism of Spt3p. *Genetics* 184:91-105.
- **Kuo, M.-H.**, Xu, X.-J., Bolck, H., and Guo, D. Functional connection between histone acetyltransferase Gcn5p and methyltransferase Hmt1p. (2009) *Biochim. Biophys. ACTA, Gene Reg. Mech.* 1789:395-402.
- Liu, Y., Xu, X.-J., Singh-Rodriguez, S., Zhao, Y., and **Kuo, M.-H.** (2005) A histone H3 phosphorylation-independent function of Reg1 and Snf1 proteins rescues a *gcn5<sup>-</sup>* mutant in *HIS3* expression. *Mol. Cell. Biol.* **25**:10566-80.
- Lee, D.Y., Northrop, J.P., Jelinek, M.A., **Kuo, M.-H.**, and Stallcup, M.R. (2006) Histone H3 Lysine-9 methyltransferase G9a is a transcriptional coactivator for nuclear receptors. *J. Biol. Chem.* **281**:8476-85.
- Acharya, A., Xu, X.-J., Husain-Ponnampalam, R.D., Hoffmann-Benning, S., and **Kuo, M.-H.** (2005) Production of constitutively acetylated recombinant p53 from yeast and *Escherichia coli* by tethered catalysis. *Protein Expr. Purif.* **41**:417-425.
- Guo, D, Hazbun, T., Xu, X., Ng, S.-L., Fields, S., and **Kuo, M.-H.** (2004) A tethered catalysis two-hybrid system to identify protein-protein interactions requiring post-translational modifications. *Nature Biotech.* **22**:888-892.
- **Kuo, M.-H.**, E. vom Baur, K. Struhl, and C.D. Allis. (2000) Gcn4 activator targets Gcn5 histone acetyltransferase to specific promoters independently of transcription. *Mol. Cell.* **6**:1309-1320.
- Broday, L., W. Peng, **M.-H. Kuo**, K. Salnikow, M. Zoroddu, and M. Costa. (2000) Nickel compounds are novel inhibitors of histone H4 acetylation. *Can. Res.* **60**:238-241.
- Tanner, K.G., R.C. Trievel, **M.-H. Kuo**, R.M. Howard, S.L. Berger, C.D. Allis, R. Marmostein, J.M. Denu (1999). Catalytic mechanism and function of invariant glutamic acid 173 from the histone acetyltransferase GCN5 transcriptional coactivator. *J. Biol. Chem.* **274**:18157-18160.
- Krebs, J.E., **M.-H. Kuo**, C.D. Allis, C.L. Peterson (1999). Cell cycle-regulated histone acetylation required form expression of the yeast HO gene. *Genes Dev.* **13**:1412-1421.
- **Kuo, M.-H.**, J. Zhou, P. Jambeck, M. Churchill, and C.D. Allis (1998). Histone acetyltransferase activity of yeast Gcn5p is required for the activation of target genes *in vivo*. *Genes Dev.* **12**:627-639.
- **Kuo, M.-H.**, E.T. Nadeau, and E.J. Grayhack (1997). Phosphorylation of *S. cerevisiae* MCM1 protein, an SRF homolog, is in a domain involved in response to salt stress. *Mol. Cell. Biol.* **17**:819-832.
- **Kuo, M.-H.**, J.E. Brownell, R.E. Sobel, T.A. Ranalli, R.G. Cook, D.G. Edmondson, S.Y. Roth, and C.D. Allis (1996). Transcription-linked acetylation by Gcn5p of histone H3 and H4 at specific lysines. *Nature* **383**:269-272.
- **Kuo, M.-H.**, and E.J. Grayhack (1994). A library of yeast genomic MCM1 binding sites contains genes involved in cell cycle control, cell wall and membrane structure, and metabolism. *Mol. Cell. Biol.* **14**:348-359.

## PUBLICATIONS – Invited Reviews and Chapter

- Luo, J, and **Kuo, M.-H.** (2009) Nutrient metabolism and epigenetics. *Cell Science*, Vol 6. No. 1, published on-line, 7/27/2009.
- Acharya A, and **Kuo, M.-H.** (2006) Signaling through chromatin and protein-protein interactions. In *Biotechnology and Genetic Engineering Reviews*, Vol 23, 2006. Edited by S. Harding, pub. Lavoisier.
- Acharya, A and **Kuo, M.-H.** (Book chapter) Post-translational modifications and protein-protein interactions. In *Cancer Moleculomics*. Research Signpost Publisher. Edited by Takaki Hiwasa.
- **Kuo, M.-H.**, Tackling chromatin dynamics: use of antibodies against acetylated histones and other vibrant chromatin features. *Chemtracks*, **14**:539-556.
- **Kuo, M.-H.** and C.D. Allis (1999). Formaldehyde fixation and immunoprecipitation to study chromatin structure and dynamics. *Method* **19**:425-433.
- **Kuo, M.-H.** and C.D. Allis (1998). Roles of histone acetyltransferases and deacetylases in gene regulation. *BioEssays* **20**:615-626.
- Mizzen, C.A., **M.-H. Kuo**, E.R. Smith, J.E. Brownell, J. Zhou, R. Ohba, Y. Wei, L. Monaco, P. Sassone-Corsi, and C.D. Allis (1998). Signaling to chromatin through histone modification: how clear is the signal? *Cold Spring Harbor Symposia on Quantitative Biology* **63**:469-481.

## SUBMISSIONS TO GENBANK

- GenBank accession numbers: AY647987, AY647986, AY647985, AY647984, AY647983, AY647982, AY647981, AY647980; Guo, D., Hazbun, T.R., Xu, X.J., Ng, S.L., Fields, S. and **Kuo, M.-H.** "A tethered catalysis two-hybrid system to identify protein-protein interactions requiring post-translational modifications". Comments: synthetic vectors for tethered catalysis/yeast two-hybrid screens. 6/8/2004.

## EXTRAMURAL PRESENTATIONS – Speech and Posters

### 2022

- “Development and pharmacological control of neurological defects in a novel *in cibo* Drosophila model for Alzheimer’s disease”, Cold Spring Harbor Laboratory meeting, Neurodegenerative Diseases: Biology and Therapeutics, 11/30/2022 – 12/3/2022, Cold Spring Harbor Laboratory, NY (poster)
- “Neurotoxicity of hyperphosphorylated tau oligomers”, Cold Spring Harbor Laboratory meeting, Neurodegenerative Diseases: Biology and Therapeutics, 11/30/2022 – 12/3/2022, Cold Spring Harbor Laboratory, NY (poster)
- “Effects and Mechanisms of Heparan Sulfate-Mimicking Compounds in Attenuating Stress Response and Inflammation associated with Diabetes and Alzheimer’s Disease”, Midwest Carbohydrate and Glycobiology Symposium, 9/30/2022 (speech)

### 2021

- “Live long and happily ever after – on Alzheimer’s disease and cellular longevity regulation”, Brown Institute of Molecular Medicine, Center for Metabolic and Degenerative Diseases, University of Texas Health Science Center at Houston, McGovern Medical School. 9/1/2021 (speech)

### 2020

- “Alzheimer’s Disease Drug Discovery – A New Pipeline on An Old Platform”, Center for Molecular Medicine and Genetics, Department of Biochemistry, Microbiology, and Immunology, Wayne State University School of Medicine, 11/12/2020 (speech)

- “Intracellular triacylglycerol preserves yeast chronological lifespan by acting as a sink for free radicals”. GSA TAGC Meeting (April, 2020). This meeting was cancelled altogether due to the pandemic.

## 2019

- “Hyperphosphorylated tau aggregation as target for Alzheimer’s disease drug discovery”, Sparrow Hospital (Neurology), 4/5/2019 (speech)
- “Alzheimer’s disease drug discovery – a new pipeline on an old platform”, Department of Environmental Medicine, NYU Langone Health, NYU School of Medicine, 11/8/2019. (speech)
- "Small-molecule modulators of the aggregation of hyperphosphorylated tau include potential risk factors and therapeutics for Alzheimer's disease". Society for Neuroscience annual meeting, Chicago, IL, 10/19/19 - 10/23/19 (poster)

## 2018

- "Tangling with Alzheimer's disease -- discovering therapeutics and risk factors", Institute of Biochemistry, Academia Sinica, Taiwan, 11-1-2018 (speech)
- "Lifespan regulation by intracellular triacylglycerol", Department of Life Sciences and Institute of Genome Sciences, National Yang Ming Chiao Tung University, Taiwan, 7/4/2018
- “Hyperphosphorylated tau-based Alzheimer's disease drug discovery and risk factor identification”, Graduate Institute of Physiology, College of Medicine, National Taiwan University 6/20/2018 (speech)
- “Hyperphosphorylated tau-based Alzheimer's disease drug discovery and risk factor identification”, Graduate Institute of Molecular Medicine, National Cheng-Kung University 6/14/2018 (speech)

## 2017

- “Hyperphosphorylated tau aggregation as target for Alzheimer’s disease drug discovery”, NIH Workshop: Quantitative Systems Pharmacology for Drug Discovery, NIA/NIMH/NINDS/NCATS, 7/26 – 7/27/2017, Bethesda, MD. (poster)
- “Intracellular triacylglycerol as a longevity factor in *Saccharomyces cerevisiae*”, Keystone Symposium on Aging and Mechanism of Aging-Related Diseases. Yokohama, Japan. 5/15/2017 – 5/20/2017. (speech)
- “Getting fat and Alzheimer’s disease: two issues looming over aging”. Department of Biological Sciences, Wayne State University (3/20/2017). (speech)

## 2016

- “Getting fat and Alzheimer’s disease: two issues looming over aging”. Department of Biological Chemistry, University of Michigan, Ann Arbor (10/25/2016) (speech)
- “Getting fat and Alzheimer’s disease: two issues looming over aging”. Institute of Molecular and Genomic Medicine, National Health Research Institutes, Taiwan (7/20/2016) (speech)
- “Mitotic regulation by chromatin” and “Lifespan regulation by triacylglycerol”. Institute of Biophysics, Chinese Academy of Sciences, 7/18/2016 (speech)
- “Development of a novel Alzheimer’s disease drug screening platform”, Allgenesis, Taipei, Taiwan (6/21/2016) (speech)
- “Intracellular triacylglycerol as a novel pro-longevity factor”, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan (6/2/2016) (speech)
- “Getting fat and Alzheimer’s Disease: two issues looming over aging”, Graduate Institute of Biochemistry and Department of Medical and Biological Technology, National Yang-Ming University, Taipei, Taiwan, 5/19/2016 (speech)



- “Getting fat and Alzheimer’s Disease: two issues looming over aging”, Institute of Molecular Medicine, National Cheng-Kung University, Tainan, Taiwan, 5/8/2016 (speech)
- “Development of a novel Alzheimer’s disease drug screening platform”, BioSmart Co. Hsin-Chu, Taiwan, 3/12/2016 (speech)
- “Getting fat and Alzheimer’s disease: two issues looming over aging”. Department of Clinical Laboratory Sciences and Molecular Biology, National Taiwan University, Taipei, Taiwan (3/5/2016) (speech)

## 2015

- “Hyperphosphorylated tau as the target for Alzheimer’s disease drug discovery”, First World Congress on Dementia, Kaohsiung, Taiwan. 11/25/2015 – 11/28/2015. (speech)
- “Getting fat and Alzheimer’s disease: two looming issues of aging”. Neuroscience Program in Academia Sinica, 9/23/2015; Chang-Kung University (11/20/2015); National Taiwan University (12/3/2015) (speech)

## 2013

- “Fat and Alzheimer’s Disease: Two key issues of aging”, Institute of Biological Chemistry, Academia Sinica. Taipei, Taiwan. 7/17/2013 (speech)
- ASBMB Symposium on Evolution and Core Processes in Gene Expression. Three posters summarizing different research projects in the Kuo lab were presented. 7/25/2013 – 7/28/2013. Chicago, IL. (posters)

## 2012

- “PIMAX, a versatile and multifunctional system for specialized recombinant protein production”. Cayman Chemicals, Ann Arbor, Michigan. 1/27/2012 (speech)

## 2011

- "Histone H3 exerts key function in mitotic checkpoint control". Symposium on Pioneering Translational Medical Technology and Celebration of the 55th Anniversary of the Department of Medical Technology, College of Medicine, National Taiwan University. Taipei, Taiwan. 2/26/2011. (speech)
- "Tumor suppressor p53 and post-translational modifications". Department of Pharmacology, National Cheng-Kung University. Tainan, Taiwan, 3/3/2011. (speech)
- "Chromatin, Mitotic Control, and Post-Translational Modifications". Institute of Life Science, National Ching-Hua University. Hsin-Chu, Taiwan. 7/25/2011. (speech)
- "Production of Hyperphosphorylated Tau for Alzheimer's Disease Drug Discovery". 3rd Alzheimer's Disease Translational Research Investigators' Meeting, National Institute on Aging, Bethesda, MD. 9/13/2011. (poster)
- "Linking Chromatin and Chromatin Modifiers to Mitotic Checkpoint Control". Deciphering the Allis Code: A Scientific Symposium in Honor of 60 Years of C. David Allis. Rockefeller University, New York, New York. 10/6/2011. (speech)

## 2010

- American Society of Cell Biology annual meeting. Philadelphia, PA. 12/11/2010 – 12/15/2010 Speech. Chromatin and epigenetic control of mitotic tension. (speech)
- Department of Microbiology, Uniformed Services University, Bethesda, MD. 3/10/2010. Speech.

## 2008

- MSU Symposium on Gene Expression in Development and Disease. 7/18/08-7/19/08. Speech. Histone H3 is essential for monitoring tension between mitotic sister chromatids.
- Poster presentation. Cold Spring Harbor Conference on Cell Cycle, 3/10/08 – 3/15/08
- Poster presentation. FASEB Summer Research Conference, Carefree, Arizona, 6/22/08 – 6/27/08

## 2007

- 2007 Midwest Yeast Meeting, Northwestern University, 9/15/2007 – 9/16/2007. Poster presentation: Luo et al " A novel histone H3 mutation impairs Shugoshin-dependent mitotic tension sensing".
- 2007 Taiwan Yeast Symposium, Taipei, Taiwan. 8/1/2007. Title: A novel histone H3 mutation impairs Shugoshin-dependent mitotic tension sensing.
- Institute of Biological and Medical Sciences, Academia Sinica, Taiwan, Republic of China. Title: Chromatin dynamics and modification: transcriptional regulation and mitosis regulated by chromatin components. 8/10/2007.

## 2006

- Society of Chinese Bioscientists in America. San Francisco. Title: Acetylation of Lys320 antagonizes an auto-inhibitory intramolecular interaction of tumor suppressor p53 protein (oral presentation). 7/19/2006-7/23/2006.
- Experimental Biology 2006, ASBMB Annual Meeting, San Francisco. Title: Acetylation of Lys320 antagonizes an auto-inhibitory intramolecular interaction of tumor suppressor p53 protein (Oral presentation and poster). 4/1/2006 – 4/5/2006.
- Experimental Biology 2006, ASBMB Annual Meeting, San Francisco. Title: A histone H3 Ser10 phosphorylation-independent function of Snf1 and Reg1 proteins rescues a *gcn5<sup>-</sup>* mutant in *HIS3* expression. (Poster presentation; presenter: Yang Liu). 4/1/2006 – 4/5/2006.
- Shanxi Medical School, People's Republic of China. Title: Signaling through p53 acetylation and structural switch. 3/6/2006 (speech)
- Institute of Biological and Medical Sciences, Academia Sinica, Taiwan, Republic of China. Title: Post-translational modifications and protein-protein interaction – signaling through p53 acetylation and histone H3 phosphorylation. 3/8/2006 (speech)
- Chang Gung University, Taiwan, Republic of China. Title: Signaling through p53 acetylation and structural switch. 3/8/2006 (speech)

## 2005

- Acharya, A., Gridosova, A., Xu, X., Kwok, R., Ekstrom, JL, Lubdblud, J., Henry, RW., and **Kuo, M-H.** " Acetylation of Lys320 of p53 induces a conformational change for sumoylation and protein-protein interactions"; Mechanism of Eukaryotic Transcription. Cold Spring Harbor Laboratory. 8/31/05 – 9/4/05. (poster)

## 2004

- Department of Biochemistry and Molecular Biology, University of Southern California. Title: Post-translational modifications and protein-protein interactions. 12/13/2004. (speech)
- Conference of Genetics, University of North Carolina, Chapel Hill. Title: Post-translational modifications and protein-protein interactions. 11/19/2004. (speech)
- American Society of Biochemistry and Molecular Biology conference on "Transcriptional regulation by chromatin and RNA polymerase II", Lake Tahoe, CA. Title: Identification of mammalian proteins interacting with acetylated tumor suppressor p53. 10/29/2004 – 11/1/2004. (poster)

- ICAST-2004, 19<sup>th</sup> International Conference on Advanced Science and Technology. Title: Protein-protein interactions and post-translational modifications: lessons from acetylation of histones and tumor suppressor p53. 9/17/2004 – 9/18/2004, Chicago, IL. (speech)
- 2004 Yeast Genetics and Molecular Biology Meeting, Seattle, WA. Title: A tethered catalysis/yeast two-hybrid system to identify protein-protein interactions requiring specific post-translational modifications. Presented in the New Technology Symposium and as a poster. 7/27/2004 – 8/1/2004. (poster)
- Department of Biochemistry and Molecular Biology, Upstate Medical School, SUNY. Title: From histone acetylation to PTM proteomics. 9/12/2004. (speech)

## 2003

- Division of Molecular and Genomic Medicine, National Health Research Institutes, Taiwan, Republic of China. Title: Histone modifications and gene regulation. 12/1/2003. (speech)
- Division of Cancer, National Health Research Institutes, Taiwan, Republic of China. 12/4/2003 (speech)
- Department of Biochemistry, National Defense Medical College, Taiwan, Republic of China. 12/8/2003. (speech)
- Department of Biological Chemistry, University of Michigan. Title: Histone modifications and gene regulation. 2/18/02. (speech)
- Keystone meeting "Enzymology of Chromatin and Transcription". Title: A modified two-hybrid system identifies novel acetylated histone binding proteins with diverse chromatin functions. 3/10/03 – 3/16/03 (speech)
- Guo, D, Hazbun, T., Xu, X., Ng, S.-L., Fields, S., and **Kuo, M.-H.** "A tethered catalysis two-hybrid system to identify protein-protein interactions requiring post-translational modifications"; Keystone meeting on Enzymology of Chromatin and Transcription, Santa Fe, New Mexico. 3/10/2003 – 3/15/2003. (poster)
- Acharya, A., Guo, D., Hazbun, T., Xu, X., Ng, S.-L., Fields, S., and **Kuo, M.-H.** "Tethered catalysis two-hybrid screens identifies mammalian proteins interacting with acetylated tumor suppressor protein p53"; FASEB meeting on Chromatin and Transcriptional Regulation, Snowmass, Colorado. 7/5/2003 – 7/11/2003. (poster)

## 2002

- Almy, D., Xu, X., and **Kuo, M.-H.**, "Identification of Gcn5-independent (gin) histone mutations in transcriptional activation"; Gordon Research Conference "Chromatin Structure and Functions". Tilton School, New Hampshire, 7/5/02 – 7/12/02 (poster)
- Almy, D., Xu, X., and **Kuo, M.-H.**, "Identification of Gcn5-independent (gin) histone mutations in transcriptional activation"; Gordon Research Conference "Chromatin Structure and Functions". Yeast Genetics and Molecular Biology Meeting. University of Wisconsin, Madison. 7/30/02 – 8/4/02. (poster)

## 2000

- **Kuo, M.-H.**, von Bauer, E., Struhl, K., and Allis, CD., "In vivo evidence that Gcn5p HAT is recruited to specific promoters by the transcriptional activator Gcn4p"; Yeast Genetics and Molecular Biology Meeting, Seattle, WA, 7/25/00 – 7/30/00. (poster)

## 1999

- **Kuo, M.-H.**, von Bauer, E., Struhl, K., and Allis, CD., "In vivo evidence that Gcn5p HAT is recruited to specific promoters by the transcriptional activator Gcn4p"; Midwest Yeast Club Meeting, Chicago, IL, 11/13/99 – 11/14/99. (speech)

1998

- **Kuo, M-H.**, Zhou, J., and Allis, CD., "*In vivo* characterization of yGcn5p histone acetyltransferase"; 63rd Cold Spring Harbor Symposia on Quantitative Biology: Mechanisms of Transcription. 6/3/98 – 6/8/98. (poster)

1996

- **Kuo, M-H.**, and Allis, CD., "Functionally defective Gcn5p mutants *in vivo* also fail to act as a HAT *in vitro*"; Northeast Regional Yeast Meeting, SUNY Buffalo, NY; 11/3/96. (speech)

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2001

- East Lansing and Grant Rapids Yeast Club, 11/2001. Title: Histone acetylation and phosphorylation in *HIS3* expression (speech)
- National Health Research Institute, Taiwan, Republic of China. Title: Tales of tails, functions of histone tails and their modifications. 5/21/01 (speech)
- Institute of Life Sciences, National Tsing-Hua University, Taiwan, Republic of China. Title: Tales of tails, functions of histone tails and their modifications. 5/29/01 (speech)

1999

- FASEB Conference on Chromatin and Transcription, Snowmass, CO, 7/10/99 – 7/15/99. Title: Targeted and dynamic histone acetylation associated with transcriptional activation. (speech)

1998

- Stohlman Scholar Symposium, Leukemia Society of America, Scottsdale, AZ. 10/9/98 – 10/10/98. Title: Linking histone acetylation and phosphorylation to gene activity. (speech)
- Endocrine Society 1998 Annual Meeting, New Orleans, MO. 6/25/98. Title: Linking chromatin modification to transcriptional activation. (speech)
- Department of Biochemistry and Molecular Genetics, University of Virginia; 5/21/98. Title: Transcriptional regulation by histone acetylation. (speech)

1997

- Institute of Molecular Biology, Academia Sinica, Taiwan, ROC; 9/24/97. Title: Transcriptional regulation by histone acetylation. (speech)

1996

- Gordon Research Conference: Molecular Genetics, Newport, RI.; 7/28/96 – 8/2/96. Title: Gcn5 family, transcription factors that acetylate histones. (poster)

1995

- Institute of Molecular Biology, Academia Sinica, Taiwan, ROC; 12/26/95. Title: A link between salt stress response and Mcm1 phosphorylation? (speech)
- Department of Medical Technology, National Taiwan University; 12/19/95. Title: A link between salt stress response and Mcm1 phosphorylation? (speech)

1994

- Northeast Regional Yeast Meeting, SUNY Buffalo, NY; 11/2/94 Title: Mcm1 protein: its roles in cell cycle and cell type control. (speech)

1993

- Yeast Genetics and Molecular Biology Meeting, University of Wisconsin, Madison; 7/26/93 – 7/30/93. Title: A library of yeast genomic Mcm1 binding sites contains both metabolic and cell cycle control genes. (poster)

#### ON-CAMPUS PRESENTATIONS – Speech

- Department of Biochemistry and Molecular Biology, "Living long and happily ever after -- on fat, aging, and Alzheimer's disease"; 9/16/2021
- Department of Pharmacology and Toxicology, "Alzheimer's disease drug discovery – a new target on an old platform"; 3/15/2019
- Department of Biochemistry and Molecular Biology, "On fat and Alzheimer's disease: two issues looming over aging"; 10/26/17
- Department of Biochemistry and Molecular Biology, "Histone phosphorylation and mitotic progression"; 11/3/05.
- Program in Genetics, "Histone acetyltransferase and transcriptional regulation"; 10/17/05.
- Department of Microbiology and Molecular Genetics, "Post-translational modifications and proteomics"; 9/21/04.
- Programs in Cellular and Molecular Biology and in Genetics annual retreat, "PTM proteomics"; 8/26/03.
- Research Forum, Genetics Program, "Histone acetylation and transcriptional regulation"; 11/22/00
- Research Forum, Biochemistry Department, "Histone methylation"; 6/20/00
- Plant Research Laboratory, "Linking transcriptional regulation to chromatin modifications"; 3/22/00.
- Department of Microbiology, "Linking transcriptional regulation to chromatin modifications"; 4/25/99
- BCH Club on Transcription, "Chromatin and gene regulation"; 11/9/99.

#### TEACHING

2022 BMB471, BMB829

Spring, 2021 BMB479, an on-line version of BMB471, Advanced Biochemistry Laboratory. Course director. 8 pre-recorded lecture hours, 14 Zoom meeting hours (concurrent with BMB471)

Spring, 2021 BMB471, in-person BMB417, Advanced Biochemistry Laboratory. Course director. 8 re-recorded lecture hours, 14 Zoom meeting hours (concurrent with BMB479), 20 laboratory hours each week for the semester. One office hour (Zoom meeting) each week.

Spring, 2012 – 2020 BMB471. Advanced Biochemistry Laboratory. Course director (since 2019) 8 lecture hours, 12 laboratory hours per week for the semester, and one office hour per week.

Fall, 2002 – present BMB829. Methods of Macromolecular Analysis and Synthesis. Course direction (2009 - 2019). Topic: macromolecular interactions, including genomic approaches to subcloning, chromatin immunoprecipitation, yeast two-hybrid system and its derivatives, tethered catalysis, proteomic approaches on protein-protein interactions, and genetic synthetic lethality. 6 or 7 lecture hours, 3 examination hours per semester.

Spring, 2001 – 2011 BMB401. Basic Biochemistry (team-teaching with John Kaguni, Timothy Zacharewski). Topic: Introduction, water and pH, thermodynamics, amino acids and proteins, carbohydrates, lipids. 19 lecture hours.

Fall, 2018 BMB101, one lecture

Spring and Fall semesters, 2013, BMB490, Wei-Yu Liu, Independent Research; 10 contact hours per week

Fall, 2012 Independent research, Wei-Yu Liu and James Crawford. 10 contact hours per week.

Spring, 2012 BMB490. Biochemistry Research (Pan Li). 10 contact hours per week for each student.  
Independent research, Soo Hur. 10 contact hours per week.

Fall, 2011 BMB490. Biochemistry Research (Soo Kyun Hur; Pan Li). 10 contact hours per week for each student.

Fall 2005 BMB101. Topic: Protein-protein interactions and post-translational modifications. 1 lecture hour.

Fall 2004 BMB801. Molecular Biology; 2 lecture hours on centromere, telomere, and replication

2003 – 2004 BMB 978. Seminars in Biochemistry. Co-organized with Dean DellaPenna.

11/7/02 BMB101. Topic: Identification of acetylated histone binding proteins.

Fall 2001 BMB960/CMB800/GEN800. Graduate level weekly seminar class on "Chromatin structure and gene expression" (Other instructors: Michele Fluck, Jonathan Walton, Steven Triezenberg).

11/2/00 BCH101, Title: "Tales of tails: gene regulation, histone modifications, and chromatin metabolism".

Fall 1990 Teaching assistant, General Biochemistry. University of Rochester.

Spring 1991 Teaching assistant, Laboratory in Molecular Genetics. University of Rochester.

#### MEETING CO-ORGANIZATION and CHAIR

- ASBMB Meeting on Evolution and Core Processes in Gene Expression, Chicago, July 25 – 28, 2013. Chairing two sessions in the meeting.
- MSU Summer Symposium on Chromatin, Gene Expression, and Systems Biology. 7/18-7/20/2008.
- MSU Gene Expression in Development and Diseases focus group annual conference. 6/7/2002.

#### COLLABORATIONS (\*: current)

**Einar Sigurdsson\***, New York University Medical School, Langone

- Antibody therapy for Alzheimer's disease

**Timothy Spicer\***, Scrips Research Institute, Florida

- High-throughput screening for Alzheimer's disease drug discovery

**Yijuang Chern\***, Academia Sinica

- Neuroinflammation and Alzheimer's disease

**Jason Bazil\*, Robert Wiseman\***, Michigan State University

- Sporadic inclusion myositis as a degenerative tauopathy

**Jessica Fortin\***, Michigan State University

- Alzheimer's disease drug discovery

**Shiyong Ding, Huan Lei**, Michigan State University

- Atomic force microscopy studies of tau fibrillization

**Hien Nguyen\*, Kezhong Zhang\***, Wayne State University

- Alzheimer's disease mechanism and drug discovery studies

**Alex Kuan\***, University of Virginia

- Molecular basis for neurodegeneration in tauopathies

**Roland Kwok and Daniel Lawrence**, University of Michigan

- Traumatic brain injury and hyperphosphorylated tau

**Richard Neubig\*, Edmond Ellsworth\*, and Marc Bailie**, Michigan State University

- Alzheimer's disease drug discovery

**Christoph Benning**, Michigan State University

- Identification of *Chlamydomonas reinhardtii* TAG lipases.

**Tony Hazbun**, Purdue University, and **Stan Fields**, Investigator, Howard Hughes Medical Institute

- Proteomic identification of protein-protein interactions involving post-translational modifications

## LABORATORY PERSONNEL

### **Doctoral students**

|                   |  |
|-------------------|--|
| 7/2019 – present  | Kuang-Wei (Paul) Wang (BMB)<br>Thesis title: Biophysical and functional studies of hyperphosphorylated tau   |
| 5/2012 – 4/2019   | Mengyu Liu (BMB)<br>Thesis title: Alzheimer's disease drug discovery targeting hyperphosphorylated tau   |
| 9/2011 – 5/2018   | Xiexiong Deng (BMB)<br>Thesis title: Functional characterization of Sgo1 in mitotic tension sensing  |
| 5/2011 – 8/2016   | Witawas Handee (CMB)<br>Thesis title: Lifespan regulation by intracellular triacylglycerol   |
| 3/2011 – 8/2017   | Christopher Buehl (CMB)<br>Thesis title: Intra- and inter-genic suppressors of tension sensing motif of histone H3   |
| 05/2008 – 6/2012  | Xiaobo Li (Plant Biology). Co-mentor. (Major professor: Christoph Benning). Thesis title: Characterization of lipases involved in triacylglycerol metabolism in <i>Chlamydomonas reinhardtii</i> . |
| 03/2005 – 5/2010  | Jianjun Luo (Biochemistry and Molecular Biology). Thesis title: Linking histone H3 phosphorylation to mitotic progression.   |
| 12/2003 – 05/2004 | Lianjie Li (Microbiology and Molecular Genetics). Thesis: Mutation studies of Rad52 in <i>Saccharomyces cerevisiae</i> .   |
| 08/2001 – 5/2006  | David Almy (Biochemistry and Molecular Biology). Thesis title (tentative): Isolation and investigation of Gcn5-independent histone mutations.  |
| 01/2001 – 8/2006  | Yang Liu (Genetics Program). Thesis title: Isolation and molecular studies of Bypass of Gcn5 Requirement suppressors.  |

### **B RTP students** (Biochemistry Research Trainee Program)

|                  |   |
|------------------|---|
| 9/2010 – 7/2011  | Maxwell Miannecki                                     |
| 6/2004 – 5/2005  | Melissa Bosma (B RTP)                                 |
| 9/2000 – 7/2000  | David Almy (B RTP, Fall 2000-Summer 2001)             |
| 10/1999 – 4/2000 | Soumya Singh-Rodrigues (B RTP, Fall 1999-Spring 2000) |

### **Postdoctoral associates**

|                   |   |
|-------------------|---|
| 3/2022 – 11/2022  | Yi-Ching Lin                                      |
| 8/2021 – present  | Sandhya Payankulam (Research Assistant Professor) |
| 10/2017 – present | Stacy Hovde                                       |
| 7/2019 – 7/2020   | Mengyu Liu  |
| 7/2015 – 1/2016   | Meisan Nosrati                                    |
| 2/2002 – 7/2005   | Asha Acharya                                      |
| 1/2001 – 3/2004   | Dawei Guo   |
| 3/2000 – 11/2000  | Alireza Behrooz                                   |

### **Research assistants and visiting scientists**

|                   |   |
|-------------------|---|
| 2/2021 – 8/2021   | Sophie Shu-Fan Lin, Research Assistant          |
| 2/2021 – 9/2021   | Dexin Sui, Research Assistant                   |
| 10/2019 – present | Hsiao-Tien (Amy) Chien, International Scholar   |
| 9/2019 – present  | Kai-Ching (Santos) Hsiao, International Scholar |
| 12/2018 – present | Hsin-ying Lin, International Scholar            |
| 11/2013 – 2/2014  | Waymee Lwin, MD, Visiting Scholar               |

3/1011 – 3/2013 Dexin Sui, Research Assistant  
 03/2000 – 8/2010 Xinjing Xu, Research Assistant  
 10/2007 – 1/2008 Usharani Sikhakolli, laboratory aide  
 5/2001 – 9/2001 Yan Zhao, laboratory aide

### Undergraduate students

5/2022 – present John Henige  
 9/2021 – present Anh Phan  
 8/2021 – present Nicholas Lewis  
 1/2021 – present Nakoa Po (**CNS Undergraduate Research Scholarship awardee**)  
 9/2019 – 5/2022 Garry Zhang (**BMB Outstanding Undergraduate Research Award**)  
 9/2018 – 5/2021 Albert Ay (Currently a laboratory technician at Stanford University)  
 9/2019 – 3/2020 Alya Rohaizan (terminated early due to Covid-19 lockdown)  
 10/2018 – 5/2019 Cindy Nguyen  
 1/2017 – 7/2018 Madison Smith (Currently a PhD student at University of Utah)  
 6/2017 – 8/2017 Nora Kuo (University of Michigan, Ann Arbor; Currently a student at the Royal Veterinary College, University of London)  
 6/2017 – 8/2017 Tyler Natof (University of Illinois, Urbana Champagne, via the MSUCOM SUPER Program)  
 1/2015 – 8/2016 Cody Teller  
 9/2012 – 5/2014 Wei-Yu Liu (Obtained MS from University of Michigan; admitted to Indiana University for PhD)  
 9/2012 – 12/2012 Jan Stoelting (German exchange student)  
 9/2011 – 1/2012 Sabastian Raschka (German exchange student; obtained PhD from Michigan State University)  
 9/2011 – 1/2013 James Crawford  
 10/2009 – 9/2011 Hao Nguyen (obtained MS from Eastern Michigan University)  
 10/2009 – 9/2012 Pan Li (Hired by Pfizer, Kalamazoo, Summer, 2012; obtained MS from University of Utah)  
 10/2009 – 9/2012 Soo Hur  
 11/2008 – 5/2011 Xumei Ye (**BMB, Undergraduate Research Fellowship winner, 2009; attended Thomas Jefferson Medical School, 2011**)  
 7/2009 – 9/2009 Bahvna Singichetti (University of Michigan, Ann Arbor; currently a PhD student at Duke University)  
 7/2009 – 8/2009 Wendy Yang (National Normal University, Taiwan)  
 11/2007 – 5/2008 Andrew Rappa  
 9/2007 – 5/2009 Asra Shaik (Human Biology; **UARF poster presentation, 2<sup>nd</sup>**)  
 9/2007 – 5/2008 Janice Christian  
 7/2004 – 10/2007 No Ya Hung  
 1/2003 – 5/2003 Hae-young Hawong (Obtained DO/PhD from Michigan State University)  
 1/2003 – 5/2005 Sze-Ling Ng (Honorable mention by the Goldwater Scholarship; first place for the University Undergraduate Research and Arts Forum, 4/2/04)  
 6/2004 – 5/2005 Michael Collins  
 1/2001 – 3/2003 Bonnie Ebendick (Currently in an MS program at Western Michigan University)  
 1/2002 – 6/2002 Aaron Kosinsky

### High School student

8/2021 – present Uma Malde (Okemos High School)  
 6/2017 – 9/2017 Araysa Alspaugh (Edgewood Village Scholar Program)  
 9/2013 – 8/2015 Jaikishan Prasad (Okemos High School)  
 9/2007 – 6/2008 Andy Lin (Okemos High School)  
 5/2002 – 9/2004 Yan Zhao (Okemos High School)



### ROTATION STUDENTS (\*, stayed for thesis)

- Lianjie Li\* (MGG), Fall, 1999
- Carrie Duncan (Genetics), Spring, 2000
- Uri Mbonye (BMB), Fall, 2002
- Geou-Yarh Liou (BMB), Fall, 2002
- Kanchan Champhekar (Genetics), Spring, 2003
- Joshua Kwekel (BMB), Spring, 2003
- Marc Anderson (MMB), Summer 2004
- Sebla Kutluay (CMB), Fall 2004
- Jianjun Luo\* (BMB), Fall 2004
- Chin-Mei Lee (BMB), Summer 2006
- Ying-Chou Chen (Genetics), Fall, 2006
- Erin Slabaugh (BMB), Spring, 2008
- Chotirat Rattanasinchai (CMB), Fall, 2009
- Katherine Stanchak (BMB), Fall 2009
- Katie Stanchek (BMB), Fall 2010
- Witwas Handee\* (CMB), Fall 2010
- Christopher Buehl\* (CMB), Fall 2010
- Nanda Sasi (Genetics), Fall, 2011
- Michael McAndrews (CMB), Fall, 2011
- Sebastian Raschke (German exchange student), Fall, 2011
- Arun Sivanandam (DO/PhD, CMB), Fall, 2011
- Erin Zaluzec (BMB), Fall, 2018
- Mariia Mikhova (BMS), Fall, 2020

### SERVICES – UNIVERSITY

|                  |   |
|------------------|---|
| 9/2022 – present | Faculty Senate (Representing College of Natural Sciences)                   |
| 8/2020 – present | University Committee on International Studies & Programs (representing CNS) |
| 8/2003 – 7/2005  | University Grievance Committee  |

### SERVICES – COLLEGE

|                  |   |
|------------------|---|
| 8/2020 – present | COM College Advisory Committee  |
| 8/2015 – 7/2020  | Tenure, Promotion, and Reappointment Committee, College of Osteopathic Medicine |
| 8/2010 – 5/2014  | Advisory Council, College of Osteopathic Medicine                               |
| 8/2003 – 5/2009  | Curriculum Committee, College of Osteopathic Medicine                           |

### SERVICES – DEPARTMENTS

|                   |   |
|-------------------|---|
| 8/2022 – present  | Undergraduate Industry Internship Committee                     |
| 11/2020 – present | Experiential Learning Opportunity representative                |
| 9/2021 – 11/2021  | BMB Instructor Search Committee (Chair)                         |
| 9/2018 – 11/2018  | BMB Instructor Search Committee (Chair)                         |
| 8/2017 – present  | BMB Undergraduate Curriculum Committee                          |
| 11/2014 – 3/2015  | Synthetic Biology faculty search                                |
| 11/2013 – 3/2014  | BMB Gene Expression and Signaling faculty search (Chair)        |
| 9/2013 – 5/2015   | Faculty Advisory Committee, BMB (Chair, 2014 – 2015)            |
| 11/2012 – 3/2013  | BMB Gene Expression and Signaling faculty search (ad hoc)       |
| 8/2010 – 7/2013   | Comprehensive Exam Chair committee (BMB) (Chair)                |
| 8/2012 – 5/2014   | Advisory Council, Cellular and Molecular Biology Program        |
| 11/2007 – 8/2011  | Admissions Committee, Program in Cellular and Molecular Biology |
| 11/2010 – 8/2011  | Admissions Committee, Genetics Program                          |

|                  |  |
|------------------|--|
| 9/2007 – 8/2009  | Faculty Advisory Committee, BMB                                |
| 9/2008 – 7/2010  | Instrument Committee, BMB                                      |
| 9/2004 – 5/2007  | Undergraduate Curriculum Committee                             |
| 9/2003 – 8/2004  | Equipment Committee  |
| 11/2003 – 9/2005 | Departmental Brochure Committee (Ad hoc): Chair                |
| 9/2002 – 8/2003  | Curriculum Committee, Dept. Biochemistry and Molecular Biology |
| 10/2001 – 8/2002 | Faculty Advisory Committee, Program in Genetics                |

#### GRADUATE THESIS COMMITTEES (since 1999)

- Aljazi, Mohammod (BMB). Advisor, Jin He
- Atwa, Ahmed Atwa (Neuroscience MS Program). Advisor, Nicholas Kanaan
- Aykul, Senem (BMB). Advisor, Erik Martinez-Hackert
- Barnett, Brian (Biochemistry and Molecular Biology). Advisor, Jonathan Walton.
- Bradford, Aaron (BMB). Advisor, Bill Atchison.
- Caballero, Oscar (PRL). Advisor, Jonathan Walton.
- Champhekar, Kanchan (Genetics). Advisor, Steven Triezenberg.
- Chang, Yen-Pu (Academia Sinica, Institute of Biological Chemistry). Advisor, Rita Chen
- Chen, Ying-Chou (Genetics). Advisor, Michael Weinreich.
- Cerben, Stefan (Horticulture). Advisor, Jian Nieh
- Doherty, Colleen (Biochemistry and Molecular Biology). Advisor, Michael Thomashow.
- Gajewski, Paula (Genetics). Advisor, AJ Robison
- Gao, Shenglan (CMB). Advisor, Hua Xiao.
- Gray, Richard (Biochemistry and Molecular Biology). Advisor, John Wang.
- Hall, Kevin (Zoology). Advisor, Barry Williams.
- Harper (Herwaldt), Emily (Cellular and Molecular Biology). Advisor, Eric Hegg.
- Haudek, Kevin (Biochemistry and Molecular Biology). Advisor, Ronald Patterson.
- Kwekel, Joshua (Biochemistry and Molecular Biology). Advisor, Tim Zacharewski
- Lee, Chin-Mei (BMB). Advisor, Michael Thomashow
- Li, Lianjie (Microbiology and Molecular Genetics). Advisor, He Wang.
- Lin, Kuei-Ming (Institute of Biological Chemistry, Academia Sinica). Advisor, Rita Chen
- Lin, Yan-Tsung (BMB). Advisor, Christopher Benning
- Liu, Yaojian (CMB). Advisor, Art Alberts.
- Liu, Yaojian (Genetics). Advisor, Donna Kowslowsky.
- Loepf, Robert (CMB). Advisor, Steve Van Nocker
- Lou, Zhenjun (BMB), departmental representative. Advisor, Justin McCormick.
- McAndrews, Michael (Genetics). Advisor: Monique Floer
- Miller, Charles Thomas (CMB). Advisor, Michael Weinreich.
- Nguyen, Phong (BMB). Advisor, Polly Hsu
- Ning, Wenjing (Chemistry). Advisor, Merlin Bruening
- Olle, Eric (Genetics and CMB). Advisor, Will Kopachik.
- Pan, Ronghui (BMB). Advisor, Jianping Hu
- Philips, Jennifer Marie (Biochemistry and Molecular Biology). Advisor, Jay Goodman.
- Poliner, Eric (BMB, CMB). Advisor, Christoph Benning.
- Rakshit, Joydeep (CMB). Advisor, Chris Chan
- Rosado-Ruiz, Fernando (BMB). Advisor, Lauri Kaguni
- Selvakumar, Tharakeswari (CMB). Advisor, Bill Henry.
- So, Mingyoung (BMB). Advisor: Laurie Kaguni.
- Song, Xianzhou (BMB). Advisor, R. William Henry.
- Struffi, Paolo (Genetics). Advisor, David Arnosti.
- Thellman, Nikki (Van Andel Institute). Advisor, Steve Triezenberg
- Thireault, Caitlin (BMB). Advisor, Gregg Howe

- Wang, Zhenzhen (BMB). Advisor, Daniel Jones.
- Warakanont, Jaruswan (Plant Biology). Advisor, Christoph Benning
- Weigand, Michael (BMB). Advisor, George Sundin.
- Wight, Wanessa (CMB). Advisor, Jonathan Walton.
- Williams, Mark (CMB). Advisor, Hua Xiao.
- Xu, Jinghua (MMG). Advisor, Donald Jump.
- Yoder, Debra (MMG). Advisor, Lee Kroos.
- Zheng, Fei (BMB). Advisor, Hongbing Wang.

## REVIEWER FOR GRANTS, JOURNALS, AND TEXTBOOKS

### Grants:

- National Institute of Health, special review panels, 4/2020; 12/2020; 7/2021-present
- National Science Foundation: investigator-initiated research proposals (2002, 2005, 2010, 2012, 2013, 2021)
- National Science Foundation CAREER Award review (2013, 2016, 2018)
- Hong Kong Research Council (2008, 2009, 2012 - present)
- National Science Foundation, review panel for Division of Molecular and Cellular Biology, Epigenetics and Chromatin (March, 2013; March, 2017)
- National Institutes of Health F08/F31 fellowships (minority, pre- and postdoctoral; 2007-2011, 2013-2015)
- Biochemistry textbook reviews, Berg, Tymoczko, and Stryer (Freeman), and Nelson and Cox (Freeman)
- Career Development Award, Academic Sinica, Republic of China (Taiwan)
- Pasteur Institute
- Wellcome Foundation
- Biotechnology and Biological Sciences Research Council, United Kingdom
- New York University, NIEHS
- Michigan State University, Strategic Partnership Grant
- Michigan State University, Competitive Discretionary Funding Program (CDFP)
- Michigan Agricultural Experimentation Station research projects
- IRGP grant review, MSU, 2001, 2003, 2005

### Journals:

- Acta Biochimica et Biophysica Sinica
- Alzheimer's & Dementia
- Alzheimer's & Dementia: Translational Research & Clinical Interventions
- Alzheimer's Disease Journal
- BMC Genomics
- BMC Molecular Biology
- Cell Cycle
- Cell Science
- Cellular Biology and Toxicology
- eLife
- Epigenetics
- Eukaryote Cell
- FEMS Yeast
- Frontiers in Cell and Developmental Biology
- Frontiers in Oncology
- International Journal of Molecular Science
- Journal of Alzheimer's Disease
- Journal of Biological Chemistry

- Journal of Biological and Inorganic Chemistry
- Journal of Immunological Methods
- Journal of Molecular Biology
- Journal of Neuroscience
- JoVE
- Lipid Research
- Molecular and Cellular Biology
- Molecular Biology of Cell
- Nature Biotechnology
- Nature Communications
- Nucleic Acids Research
- Oncotarget
- Proceedings of the National Academy of Sciences, USA
- Protein Expression and Purification
- Oncotarget
- Science Advances
- Scientific Reports

#### Textbooks:

- Review on "Biochemistry" by Berg, Tymoczko, and Stryer, 5<sup>th</sup> edition, Freeman
- Review on "Protein post-translational modifications" by Christopher Walsh, Roberts Publishers
- Judge, Science and Engineering Fair of Metropolitan Detroit (SEFMD; [www.sefmd.org](http://www.sefmd.org)), 2018 - present
- Judge, All-University Undergraduate Research and Arts Forum, 4/9/2003

#### EDITORIAL BOARDS

Managing Editorial Board for Frontiers of Biosciences  
Protein Expression and Purification

#### PROFESSIONAL SOCIETIES

- American Society of Cell Biology
- American Association for the Advancement of Sciences
- Genetics Society of America
- American Society of Microbiology
- American Society of Biochemistry and Molecular Biology
- Society for Neuroscience