

PERSONAL DATA

Name: Kent Lai
 Birthplace: Hong Kong
 Citizenship: U.S.A.

EDUCATION

<u>Years</u>	<u>Degree/ Diploma</u>	<u>Institution (Area of Study)</u>
1984 - 1986	Diploma	Hong Kong Polytechnic (Medical Laboratory Sciences), Hong Kong (Diploma also awarded by British Technical and Education Council)
1986 - 1988	B.Sc. (Hons.) Upper Second Class	University of Bradford (Biomedical Sciences) Bradford, United Kingdom
1988 - 1994	Ph.D.	University of Maryland (Molecular & Cell Biology) Baltimore, Maryland, U.S.A.
1994 - 1997	Postdoctoral Training	Emory University School of Medicine (Biochemical Genetics) Atlanta, Georgia, U.S.A.
1997 - 2000	MBA, MHA	Georgia State University (Business/ Health Administration) Atlanta, Georgia, U.S.A.

BOARD CERTIFICATIONS**LICENSES/CERTIFICATIONS**

British Technical & Education Council (BTEC) Diploma in Medical Laboratory Sciences

ACADEMIC HISTORY**Pediatrics (Pediatric Genetics)**

03/01/2009 Hire, Tenure Track, Associate Professor

PROFESSIONAL EXPERIENCE**Full Time Positions**

1997 - 1999	Instructor, Emory University School of Medicine, Department of Pediatrics, Division of Medical Genetics, Atlanta, Georgia, U.S.A.
1999 - 2002	Research Assistant Professor, Emory University School of Medicine, Department of Pediatrics, Division of Medical Genetics, Atlanta, Georgia, U.S.A.
2002 - 2008	Assistant Professor, University of Miami School of Medicine, Department of Pediatrics, Division of Medical Genetics, Miami, Florida, U.S.A.
2008 - 2009	Associate Professor, University of Miami School of Medicine, Department of Pediatrics, Division of Medical Genetics, Miami, Florida, U.S.A.
2009 - 2014	Associate Professor, University of Utah School of Medicine, Department of Pediatrics, Division of Medical Genetics, Salt Lake City, Utah, U.S.A.
2014 - Present	Professor (Tenured), University of Utah School of Medicine, Department of Pediatrics, Division of Medical Genetics, Salt Lake City, Utah, U.S.A.
2018 - Present	Adjunct Professor, University of Utah College of Health Sciences, Department of Nutrition and Integrative Physiology, Salt Lake City, Utah, U.S.A.

Part Time Positions

Editorial Experience

2011 - 2018 Associate Editor for *Open Journal of Preventive Medicine*
2012 - 2017 Associate Editor for *Dataset Papers in Biology*
2016 - 2018 Editorial Board Member for *Heliyon*
2017 - 2020 Associate Editor for *BMC Medical Genetics*
2020 - present Associate Editor for *BMC Medical Genomics*
2023 - present Academic Editor for *PLOS ONE*

Reviewer Experience

Ad hoc Reviewer for *African Journal of Microbiological Research*
Ad hoc Reviewer for *Annals of Human Genetics*
Ad hoc Reviewer for *Antioxidants and Redox Signaling*
Ad hoc Reviewer for *Applied Biochemistry and Biotechnology*
Ad hoc Reviewer for *BAOJ Pediatrics*
Ad hoc Reviewer for *BBA Molecular Basis of Disease*
Ad hoc Reviewer for *BBA Proteins & Proteomics*
Ad hoc Reviewer for *Biochemistry*
Ad hoc Reviewer for *Biochimie*
Ad hoc Reviewer for *Brain and Behaviour Research*
Ad hoc Reviewer for *Bioorganic Chemistry*
Ad hoc Reviewer for *Bioorganic Medicinal Chemistry Letters*
Ad hoc Reviewer for *Biotechniques*
Ad hoc Reviewer for *BMC Medical Genetics*
Ad hoc Reviewer for *Brain Communications*
Ad hoc Reviewer for *Current Aging Science*
Ad hoc Reviewer for *Disease Models and Mechanisms*
Ad hoc Reviewer for *European Journal of Medicinal Chemistry*
Ad hoc Reviewer for *Gene*
Ad hoc Reviewer for *Genetics in Medicine*
Ad hoc Reviewer for *Human Mutation*
Ad hoc Reviewer for *International Journal of Molecular Sciences*
Ad hoc Reviewer for *IUBMB Life*
Ad hoc Reviewer for *Journal of Advanced Research*
Ad hoc Reviewer for *Journal of Inherited Metabolic Diseases*
Ad hoc Reviewer for *Journal of Inherited Metabolic Diseases Reports*
Ad hoc Reviewer for *Journal of Molecular Modeling*
Ad hoc Reviewer for *Journal of Pediatrics*
Ad hoc Reviewer for *JSM Neurosurgery and Spine*
Ad hoc Reviewer for *Mini Reviews in Medicinal Chemistry*
Ad hoc Reviewer for *Military Medical Research*
Ad hoc Reviewer for *Molecular and Genomic Medicine*
Ad hoc Reviewer for *Molecular Genetics and Metabolism*
Ad hoc Reviewer for *Molecular Genetics and Metabolism Reports*
Ad hoc Reviewer for *Open Journal of Preventive Medicine*
Ad hoc Reviewer for *Pediatric Genetics*
Ad hoc Reviewer for *Pediatric Research*
Ad hoc Reviewer for *PLOS One*
Ad hoc Reviewer for *The Journal of Biological Chemistry*
Ad hoc Reviewer for *The Journal of Virology and Antiviral Research*

SCHOLASTIC HONORS

1993 Travel Award for Poster Presentation at the Annual Yeast Genetics & Molecular Biology Meeting, Madison, Wisconsin, U.S.A.

- 2001 Travel Award for Research Presentation at the Annual Meeting of The Society for Inborn Errors of Metabolism, Miami, Florida, U.S.A.
- 2003 Madelon Ravlin Memorial Award for Research, The Woman's Cancer Association of The University of Miami, U.S.A.
- 2022 Recognized Senior Researcher, Rare Diseases Clinical Research Network (RDCRN), U.S.A.
- 2022 Finalist, Foundation of NIH Bespoke Gene Therapy Consortium Request for Proposal
- 2023 Outstanding Alumni Award, Department of Health Technology and Informatics, Hongkong Polytechnic University

ADMINISTRATIVE EXPERIENCE

Administrative Duties

- 2003 - 2006 Member, University Administrative Services Committee, University of Miami School of Medicine
- 2004 - 2009 Board member, American Heart Association Miami-Dade Community Board
- 2007 - 2009 Member, Medical School Admissions Committee, University of Miami School of Medicine
- 2010 - 2013 Member, Faculty Budget and Planning Advisory Committee, University of Utah
- 2012 - Present Member, Medical School Admissions Interview Committee, University of Utah School of Medicine (120+ interviews conducted to date)

Professional Organization & Scientific Activities

Grant Review Committee/Study Section

- 2002 Ad hoc Member, National Institutes of Health (NIH) Nutrition Study Section
- 2007 - Present Research Grant Reviewer, Research Committee, Galactosemia Foundation (formerly Parents of Galactosemic Children, Inc.), Mandeville, Louisiana, U.S.A.
- 2008 Project Grant Reviewer, The Wellcome Trust (U.K.)
- 2010 - 2017 Member, American Heart Association Western States Peer Review Study Section
- 2010 Project Grant Reviewer, National Children's Research Centre (Ireland)
- 2010 Project Grant Reviewer, Irish Health Research Board (Ireland)
- 2011 Ad hoc Reviewer, National Institutes of Health (NIH) 2012/01 ZRG1 GGG-R (80) R Study Section
- 2011 Ad hoc Reviewer, National Institutes of Health (NIH) Special Emphasis Panel ZRG1 IDM S (02)
- 2014 Ad hoc Grant Reviewer, The Croatian Science Foundation (HRZZ) (2014)
- 2015 Ad hoc Grant Reviewer, University of Missouri SPINAL CORD INJURIES RESEARCH PROGRAM (SCIRP)
- 2016 Ad hoc Grant Reviewer, NIH SBIR201615
- 2016 Ad hoc Grant Reviewer, NIH SBIR201701
- 2017 Ad hoc Grant Reviewer, NIH SBIR201705
- 2017 Ad hoc Grant Reviewer, NIH SBIR201801
- 2018 Ad hoc Grant Reviewer, NIH SBIR201815
- 2019 Ad hoc Grant Reviewer, American Heart Association (Lipids-Basic Science Committee)
- 2020 Ad hoc Grant Reviewer, American Heart Association (Lipids-Basic Science Committee)
- 2021 Ad hoc Grant Reviewer, NIH Special Emphasis Panel for PA-20-207
- 2021 Ad hoc Grant Reviewer, University of Utah Office of VP Research Seed Grant
- 2022 Ad hoc Grant Reviewer, Swiss National Science Foundation (Switzerland)
- 2022 Ad hoc Grant Reviewer, University of Utah Office of VP Research Seed Grant
- 2022 Ad hoc Grant Reviewer, Queen's University (Canada) Seed Grant Program
- 2023 Ad hoc Grant Reviewer, American Heart Association Scientific Focus Research Network (Chronic Stress and Cardiovascular Diseases)

Symposium/Meeting Chair/Coordinator

PROFESSIONAL COMMUNITY ACTIVITIES

- 2016- Present Member, GalNet (Amsterdam, The Netherlands)

UNIVERSITY COMMUNITY ACTIVITIES SERVICE AT AFFILIATED INSTITUTIONS

SERVICE AT PREVIOUS INSTITUTIONS

2001 - 2002	Member, Management Team, Emory Genetics Laboratory, Emory University, U.S.A.
2002 - 2005	Committee Member, Research Committee, The Dr. John T. MacDonald Foundation Center for Medical Genetics, University of Miami School of Medicine, U.S.A.
2003 - 2006	Committee Member, University Administrative Services Committee, University of Miami School of Medicine, U.S.A.
2007 - 2009	Committee Member, Medical School Admissions Committee, University of Miami School of Medicine, U.S.A.

CURRENT/PAST MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Society of Human Genetics
Sigma Xi, The Scientific Research Society
American Association for the Advancement of Science
Society for Inherited Metabolic Disorders (SIMD)
American Heart Association

FUNDING [due to non-disclosure agreements (NDA) set up between various industrial partners and the University of Utah, the names of the industrial partners cannot be disclosed to the public without prior approvals.]

Active Grants/ Contracts

2021-2023	NIH 1R21HD104056-01A1 Advancing a novel mRNA-based therapy for Classic Galactosemia (Role: PI) (US\$420,750 total / 2 years)
2021-2024	Sponsored Research Agreement from Industry. (Role: PI) (US\$480,000 total/ 3 year)
2021-2024	Sponsored Research Agreement from Industry (Role: PI) (US\$1.36M total/ 3 years)
2022-2024	FCDGC Pilot/Feasibility Grant (Role: Co-PI) (US\$50,000/ 1 year)
2023-2024	Sponsored Research Agreement from Industry (Role: PI) (US\$128,000 / 2 years)
2023-2023	Sponsored Research Agreement from Industry (Role: PI) (US\$141,250 / 1 year)
2023-2024	Primary Children Foundation Bridge Grant (Role: PI) (US\$54,000/ 1 year)

Pending

R21HD- Optimal Window of Opportunity for Granulosa Cell Gene Therapy in Galactosemia (Pending Council Review. Impact Score: 22; Percentile: 7) (Role: Lead/Contact PI)

R01HL- Pathobiological mechanisms of cardiac disease in PGM1-CDG (Pending Council Review. Impact Score: 35; Percentile: 12) (Role: Lead/Contact PI)

Past Grants/Contracts

04/01/1992- 03/31/1993	Grant-in-aid for Research Principal Investigator: Kent Lai Total Costs: \$200 <i>Sigma Xi</i> , The Scientific Research Society
07/01/1998- 06/30/2002	Molecular analysis of GALT gene mutations in human differentiated cell lines Principal Investigator: Louis J. Elsas Total Costs: \$325,000 Nicholas Rochat Research Foundation for Galactosemia Role: Co-Investigator
08/01/2001-	Seed Grant, Emory University School of Medicine

07/31/2002 Principal Investigator: Kent Lai
Total Costs: \$50,000
Emory-Egleston Children's Research Center

01/01/2003-12/31/2003 Metabolic inhibition of cancer metastasis. Principal Investigator: Kent Lai
Total Costs: \$50,000
Madelon Ravlin Memorial Award, The Women's Cancer Association, University of Miami

08/01/2004 - 07/31/2007 Regulatory Role of Galactose Metabolism in Protein Glycosylation
Principal Investigator: Kent Lai
Total Costs: \$240,000
Scientist Development Grant, American Heart Association Greater Southeast Affiliate

05/01/2004-04/31/2005 Regulatory Role of Galactose Metabolism in Epidermal Growth Factor Receptor (EGFR) Expression.
Principal Investigator: Kent Lai
Total Costs: \$30,000
Sylvester Comprehensive Cancer Center, University of Miami

06/01/2004-05/31/2005 Controlling cancer growth by decreasing cellular UDP-hexose concentrations.
Principal Investigator: Kent Lai
Total Costs: \$25,000
The Woman's Cancer Association, University of Miami

05/15/2007 – 06/30/2013 NIH 5 RO1 HD054774-6 Innovative Therapies and Clinical Studies for Classic Galactosemia.
Principal Investigator: Kent Lai
Total Costs: \$1,530,000
National Institutes of Health

10/01/2008 – 09/30/2009 NIH 1 RO3 MH085689-01 Toward Improved Therapy for Classic Galactosemia.
Principal Investigator: Kent Lai
Total Costs: \$25,000
National Institutes of Health

10/01/2009 – 09/30/2011 NIH 3 R01 HD054744-04S1 Innovative Therapies and Clinical Studies for Classic Galactosemia.
Principal Investigator: Kent Lai
Total Costs: \$168,856
National Institutes of Health (ARRA Stimulus Act Administrative Supplement)

06/01/2012-05/31/2013 Unrestricted Gift
Principal Investigator: Kent Lai
Total costs: \$20,000
Agius Pharmaceuticals, Inc. (U.S.)

07/01/2012-06/30/2013 Primary Children's Medical Center Foundation Bridge to Success Award
Principal Investigator: Kent Lai
Total costs: \$50,000
Primary Children's Medical Center Foundation

09/03/2012 - 06/30/2015 NIH 1 RO 1HD074844-01 Toward Improved Therapy for Classic Galactosemia.
Principal Investigator: Kent Lai
Total Costs: \$928,563
National Institutes of Health

01/01/2013-12/31/2013 Targeting Galactose Metabolism in Cancers
Principal Investigator: Kent Lai
Total costs: \$28,974
University of Utah VP for Research Seed Grant Program

05/01/2013 - Characterization of a New Mammalian Animal Model of Classic Galactosemia

04/30/2014 Principal Investigator: Kent Lai
Total Costs: \$33,000
Galactosemia Foundation

2014 Warrior Benefits
Total costs: US\$ 9,000 (unrestricted research gift)
Role: Principal Investigator

2014 Agios Pharmaceuticals Inc.
Total costs: US\$ 30,000 (unrestricted research gift)
Role: Principal Investigator

2015 Warrior Benefits (The Dershem Family)
Total costs: US\$ 5,000 (unrestricted research gift)
Role: Principal Investigator

2015 Galactosemia Foundation Research Grant
Total costs: US\$ 50,000
Role: Principal Investigator

2015 K2R2R Award (Intermountain Healthcare & Dept. of Pediatrics, U. of Utah)
Total costs: US\$ 50,000
Role: Principal Investigator

2016 Race for Jase (The Dershem Family)
Total costs: US\$ 3,000 (unrestricted research gift)
Role: Principal Investigator

2016-2017 K2R2R (Intermountain Healthcare & Dept. of Pediatrics, U. of Utah)
Total Costs: US\$ 49,900
Role: Principal Investigator

2017-2020 NIH R01 "Towards Improved Therapy for Classic Galactosemia"
Total Costs: US\$1,140,000/ 3 years
NIH
Role: Principal Investigator

2017 Race for Jase (The Dershem Family)
Total costs: US\$ 9,000 (unrestricted research gift)
Role: Principal Investigator

2016-2018 Research Contract with a Boston-based pharmaceutical company (name of the company has to be withheld due to non-disclosure agreement in place)
Total Costs: US\$369,896
Role: Principal Investigator

K2R2R (Intermountain Healthcare & Dept. of Pediatrics, U. of Utah)
Total Costs: US\$ 45,000
Role: Principal Investigator

Race for Jase (The Dershem Family)
Total costs: US\$ 6,000 (unrestricted research gift)

- Role: Principal Investigator
- University of Utah Center for Clinical & Translational Science Pilot Grant Program
Targeting Endoplasmic Reticulum Stress in Classic Galactosemia
Total costs: US\$ 30,000/ one year
Role: Principal Investigator
- 2019 Galactosemia Foundation (U.S.A.) Research Grant Program
Total costs: US\$ 49,5000
Role: Principal Investigator
- 2019 Race for Jase (The Dershem Family)
Total costs: US\$ 6,000 (unrestricted research gift)
Role: Principal Investigator
- 2019 Consultancy Agreement for Biomarin Pharmaceuticals (2 years)
Total Costs: US\$36,000
Role: Consultant
- 2019 Atomwise Inc.
Total Costs: US\$20,000/ 1 year
Role: Co-investigator
- 2021-2022 University of Utah College of Pharmacy Therapeutics Catalyst Grant
Total Costs: US\$30,000/1 year
Role: Principal Investigator
- 2021-2022 Galactosemia Foundation Research Grant
Total Costs: US\$50,000/ 1 year
Role: Principal Investigator
- 2021-2022 University of Utah Office of VP of Research Incentive Seed Grant Program
Total CostUS\$50,000/ 1 year
Role: Principal Investigator

TEACHING RESPONSIBILITIES/ASSIGNMENTS

Education Administration

Course and Curriculum Development

Courses Directed

Course Lectures

2013-2016 Lecturer for the MD ID 7350 Course for 2nd Year Medical Students at the University of Utah

Clinical Teaching

2003 - 2004 Invited Faculty Speaker, Clinical Scientist Training Program, University of Miami School of Medicine (Audience: Department of Pediatrics Residents and Fellows)

Laboratory Teaching

Small Group Teaching

Trainee Supervision

Post-doctoral Fellows/ MD Residents

2003 - 2004 Supervisor (Research), Deborah Barbouth, M.D., Department of Pediatrics, U. of Miami SOM.

- 2005 - 2006 *Trainee's Current Career Activities:* Associate Professor of Pediatrics, University of Miami.
Advisor/Mentor, Avner Ittah, Ph.D., Department of Pediatrics, U. of Miami SOM.
- 2005 - 2006 *Trainee's Current Career Activities:* Lecturer of Biochemistry, Miami Dade Community College.
Supervisor (Research), Klaas Wierenga, M.D., M.S., Department of Pediatrics, U. of Miami SOM.
- 2010 -2011 *Trainee's Current Career Activities:* Senior Consultant, Mayo Clinic
Advisor/Mentor, Sina Odejinmi, Ph.D., Department of Pediatrics, U. of Utah SOM.
- 2010 -2017 *Trainee's Current Career Activities:* Lecturer at the Salt Lake Community College
Advisor/Mentor, Manshu Tang, Ph.D., Department of Pediatrics, U. of Utah SOM.
- 2014-2019 *Trainee's Current Career Activities:* Staff Research Associate, University of Utah.
Advisor/Mentor, Bijina Balakrishnan, Ph.D., Department of Pediatrics, U. of Utah SOM.
Trainee's Current Career Activities: Research Scientist, University of Utah

Undergraduates

- 1997 Advisor/Mentor, Amy Catherine Willis, Undergraduate Research (1997) -- "The 1997 Summer Undergraduate Research Experience" (SURE), a 12 week-long program jointly sponsored by The Howard Hughes Medical Institutes, National Science Foundation and Emory University
The research initiated at the summer has been completed and is published. Lai K, Willis AC, & Elsas LJ, 1999. "Biochemical Roles of Glutamine-188 of human galactose-1-phosphate uridylyltransferase." The Journal of Biological Chemistry 274: 6559-6566.
Trainee's Current Career Activities: Ms. Willis has completed the M.D., Ph.D. program at the Medical College of Georgia, Augusta, GA, and is an Associate Professor of Neurology at University of Alabama at Birmingham, AL.
- 2004 Advisor/Mentor, Freda Addo, Department of Biomedical Engineering, University of Miami School of Medicine
The research initiated at the summer has been completed and is published. Slepak T, Tang M, Addo F, & Lai K, 2005. "Intracellular accumulation of galactose-1-phosphate leads to environmental stress response in a yeast model" Molecular Genetics and Metabolism 86: 360-371.
Trainee's Current Career Activities: Dr. Addo was accepted to the M.D. program of University of Texas Medical Center in 2006.
- 2008 Advisor/Mentor, Yohance Allette, Department of Biological Sciences, University of Maryland and The Leadership Alliance Program
Trainee's Current Career Activities: Mr. Allette graduated from the M.D., Ph.D. student at the Indiana University School of Medicine in 2018
- 2009 - 2010 Advisor/Mentor, Nick Gallegos, University of Utah LEAP program
Trainee's Current Career Activities: Mr. Gallegos was accepted to the DDS program at the School of Dentistry at the University of Virginia.
- 2010 - 2011 Advisor/Mentor, Rafael Rascon, University of Utah LEAP program.
Trainee's Current Career Activities: Mr. Rascon was accepted to the DDS program at Marquette University School of Dentistry, WI in 2016.
- 2012 Advisor/Mentor, Seth Baffoe, University of Utah. University of Utah LEAP program.
Trainee's Current Career Activities: Adjunct Assistant Professor at the Department of Health Administration, University of Maryland.
- 2012 - 2015 Advisor/Mentor, Nisa Fraser, University of Utah
Trainee's Current Career Activities: Ms. Fraser was accepted to the DO Program at Rocky Vista University College of Osteopathic Medicine, CO in 2015. She graduated in 2019 and is currently a resident at the School of Medicine at the University of Southern California
- 2012 - 2016 Advisor/ Mentor, Wyman Chen, University of Utah.
Trainee's Current Career Activities: Mr. Chen graduated from the DDS program at the University of Utah School of Dentistry in 2020 and is currently a dentist in private practice.
- 2014 - 2016 Advisor/Mentor, Rose Caston, Dartmouth College
Trainee's Current Career Activities: Ms. Caston was accepted to the MD/PhD program of the University of Utah School of Medicine in Fall, 2017

- 2015 - 2018 Advisor/ Mentor, Enoabasi Etokidem, University of Utah.
Trainee's Current Career Activities: Ms. Etokidem was accepted to the MD program of the University of California Los Angeles on a full scholarship in Fall, 2018. She graduated in 2022 and is currently a medical resident.
- 2016 - 2017 Advisor/ Mentor, Merry Feng, University of Utah.
Trainee's Current Career Activities: Ms Feng is currently a graduate student at Boston College
- 2017 - 2021 Advisor/ Mentor, Arielle Lupo, University of Utah
Trainee's Current Career Activities: Ms. Lupo is currently an engineer at Microsoft Inc.
- 2018 - 2021 Advisor/ Mentor, Annie Li, University of Utah
Trainee's Current Career Activities: Ms. Li is currently a Pharm.D. student at the University of Utah College of Pharmacy
- 2018 - 2021 Advisor/ Mentor, Emily Li, University of Utah
Trainee's Current Career Activities: Ms. Li is currently an M.D. student at the University of Utah School of Medicine
- 2021 - Present Advisor/ Mentor, Jonathan Hong, University of Utah

PhD/Doctorates

- 2004-2010 PhD Advisor/ Mentor, Manshu Tang, Department of Biochemistry and Molecular Biology, University of Miami.
Trainee's Current Career Activities: Dr. Tang is currently a Research Associate at the Department of Pediatric Neurology at the University of Utah.
- 2018- 2022 PhD Advisor/ Mentor for Synneva Hagen-Lillevik, PhD student, Department of Nutrition and Integrative Physiology, University of Utah
Trainee's Current Career Activities: Dr. Hagen-Lillevik is currently a post-doctoral fellow at the School of Nursing, University of Utah.

Visiting Faculty

- 2010 Research Mentor, Cynthia Gubbels, M.D., Ph.D., Maastricht University, The Netherlands.
Trainee's Current Career Activities: Dr. Gubbels is currently a Principal Scientist at Biogen Inc.
- 2015 Research Advisor/ Mentor, Jingxiao Zhang, M.D., Chief Physician (OB/GYN), The Fourth Hospital of Shijiazhuang, Shijiazhuang, Hebei Province 050011, China.

Graduate Student Committees

- 2004 - 2010 Co-Advisor for Manshu Tang, PhD candidate, Department of Biochemistry and Molecular Biology, University of Miami School of Medicine.
- 2018 - 2022 Advisor for Synneva Hagen-Lillevik, PhD student, Department of Nutrition and Integrative Physiology, University of Utah

Educational Lectures

Continuing Education

Other Educational Activities

Feb. 10th, 2005 Invited Speaker, 46th Annual Ruth Self Memorial Education Day, Woman's Cancer Association of the University of Miami (Seminar Title: Galactose Metabolism and Cancer Growth)

PEER-REVIEWED JOURNAL ARTICLES

1. **Lai K** , McGraw P. (1994). Dual control of inositol transport in *Saccharomyces cerevisiae* by irreversible inactivation of permease and regulation of permease synthesis by INO2, INO4, and OPI1. *J Biol Chem*, 269(3), 2245-51.
2. **Lai K** , Bolognese CP , Swift S , McGraw P. (1995). Regulation of inositol transport in *Saccharomyces cerevisiae* involves inositol-induced changes in permease stability and endocytic degradation in the vacuole. *J Biol Chem*, 270(6), 2525-34.
3. **Lai K** , Langley SD , Singh RH , Dembure PP , Hjelm LN , Elsas LJ 2nd. (1996). A prevalent mutation for

- galactosemia among black Americans. *J Pediatr*, 128(1), 89-95.
4. Robinson KS, **Lai K**, Cannon TA, McGraw P. (1996). Inositol transport in *Saccharomyces cerevisiae* is regulated by transcriptional and degradative endocytic mechanisms during the growth cycle that are distinct from inositol-induced regulation. *Mol Biol Cell*, 7(1), 81-9.
 5. Langley SD, **Lai K**, Dembure PP, Hjelm LN, Elsas LJ. (1997). Molecular basis for Duarte and Los Angeles variant galactosemia. *Am J Hum Genet*, 60(2), 366-72.
 6. Landt M, Ritter D, **Lai K**, Benke PJ, Elsas LJ, Steiner RD. (1997). Black children deficient in galactose 1-phosphate uridylyltransferase: correlation of activity and immunoreactive protein in erythrocytes and leukocytes. *J Pediatr*, 130(6), 972-80.
 7. **Lai K**, Langley SD, Dembure PP, Hjelm LN, Elsas LJ 2nd. (1998). Duarte allele impairs biostability of galactose-1-phosphate uridylyltransferase in human lymphoblasts. *Hum Mutat*, 11(1), 28-38.
 8. Elsas LJ 2nd, **Lai K**. (1998). The molecular biology of galactosemia. *Genet Med*, 1(1), 40-8.
 9. **Lai K**, Willis AC, Elsas LJ. (1999). The biochemical role of glutamine 188 in human galactose-1-phosphate uridylyltransferase. *J Biol Chem*, 274(10), 6559-66.
 10. **Lai K**, Elsas LJ. (2000). Overexpression of human UDP-glucose pyrophosphorylase rescues galactose-1-phosphate uridylyltransferase-deficient yeast. *Biochem Biophys Res Commun*, 271(2), 392-400.
 11. Elsas LJ, **Lai K**, Saunders CJ, Langley SD. (2001). Functional analysis of the human galactose-1-phosphate uridylyltransferase promoter in Duarte and LA variant galactosemia. *Mol Genet Metab*, 72(4), 297-305.
 12. **Lai K**, Elsas LJ. (2001). Structure-function analyses of a common mutation in blacks with transferase-deficiency galactosemia. *Mol Genet Metab*, 74(1-2), 264-72.
 13. **Lai K**, Langley SD, Khwaja FW, Schmitt EW, Elsas LJ. (2003). Galactose-1-phosphate uridylyltransferase deficiency causes UDP-hexose deficit in human galactosemic cells. *Glycobiology Journal*, 13, 285-294.
 14. **Lai K**, Klapa MI. (2004). Alternative pathways of galactose assimilation: Could inverse metabolic engineering provide an alternative to galactosemic patients? *Metab Eng*, 6, 239-244.
 15. Slepak T, Tang M, Addo F, **Lai K**. (2005). Intracellular galactose-1-phosphate accumulation leads to environmental stress response in yeast model. *Mol Genet Metab*, 86(3), 360-71.
 16. Barbouth D, Slepak T, Klapper H, **Lai K**, Elsas LJ. (2006). Prevention of a molecular misdiagnosis in galactosemia. *Genet Med*, 8(3), 178-82.
 17. Slepak TI, Tang M, Slepak VZ, **Lai K**. (2007). Involvement of endoplasmic reticulum stress in a novel Classic Galactosemia model. *Mol Genet Metab*, 92(1-2), 78-87.
 18. **Lai K**, Tang M, Yin X, Klapper H, Wierenga K, Elsas L. (2008). ARHI: A new target of galactose toxicity in Classic Galactosemia. *Bioscience Hypotheses*, 1(5), 263-271.
 19. Siddiqi AM, Li H, Faruque F, Williams W, **Lai K**, Hughson M, Bigler S, Beach J, Johnson W. (2008). Use of hyperspectral imaging to distinguish normal, precancerous, and cancerous cells. *Cancer*, 114(1), 13-21.
 20. **Lai K**, Wierenga KJ, Buchwald P, Tang M. (2008). High-throughput screening for human galactokinase inhibitors. *J Biomol Screen*, 13(5), 415-23.
 21. Syriopoulos C, Panayotaru A, **Lai K**, Klapa MI. (2008). Transcriptomic analysis of *Saccharomyces cerevisiae* physiology in the context of galactose assimilation perturbations. *Mol Biosyst*, 4(9), 937-49.
 22. **Lai K**, Elsas LJ, Wierenga K. (2009). Galactose Toxicity in Animals. *IUBMB Life*, 61(11), 1063-74.
 23. Tang M, Wierenga K, Elsas LJ, **Lai K**. (2010). Molecular and biochemical characterization of human galactokinase and its small molecule inhibitors. *Chem Biol Interact*, 188(3), 376-85.
 24. Boxer MB, Shen M, Tanega C, Tang M, **Lai K**, Auld DS. (2011). Toward Improved Therapy for Classic Galactosemia. Probe Reports from the NIH Molecular Libraries Program, Bethesda, MD. *National Center for Biotechnology Information*
 25. Odejinmi S, Rascon R, Tang M, Vankayalapati H, **Lai K**. (2011). Structure-activity analysis and cell-based optimization of human galactokinase inhibitors. *ACS Med Chem Lett*, 2(9), 667-672.
 26. Tang M, Odejinmi SI, Allette YM, Vankayalapati H, **Lai K**. (2011). Identification of novel small molecule inhibitors of 4-diphosphocytidyl-2-C-methyl-D-erythritol (CDP-ME) kinase of Gram-negative bacteria. *Bioorg Med Chem*, 19(19), 5886-95.
 27. Tang M, Facchiano A, Rachamadugu R, Calderon F, Mao R, Milanesi L, Marabotti A, **Lai K**. (2012). Correlation Assessment among Clinical Phenotypes, Expression Analysis and Molecular Modeling of 14 Novel Mutations in the Human Galactose-1 phosphate Uridylyltransferase Gene. *Hum Mutat*, 33(7), 1107-1115.

- 28 **Lai K** , Yin X , Tang M , Baffoe S , Johnson B , Bodamer OA. (2012). Galactose-induced lethality and growth retardation in a new galactose-1-phosphate uridylyltransferase (GALT) gene-knockout mouse model. *Mol Genet Metab*, 105(3), 330.
29. Tang M , Odejinmi S , Vankayalapati H , Wierenga K , **Lai K**. (2012). Innovative Therapy for Classic Galactosemia - Tale of Two HTS. *Mol Genet Metab*, 105(1), 44-55.
30. Odejinmi SI , Rascon RG , Chen W , **Lai K**. (2012). Formal Synthesis of 4-diphosphocytidyl-2-C-methyl D-erythritol From D-(+)-Arabitol. *Tetrahedron*, 68(43), 8937-8941.
- 31 Tang M, Siddiqi A, Witt B, Johnson B, Fraser N, Rascon R, Chen W, Yin X, Bodamer OA, and **Lai K** (2014). Subfertility and growth restriction in a new galactose-1-phosphate uridylyltransferase (GALT) gene-trapped mouse model. *European Journal of Human Genetics*, 2014 Feb 19. doi: 10.1038/ejhg.2014.12. [Epub ahead of print]
- 32 Marabotti A, **Lai K**, Boxer M, 2014. "GALK inhibitors for Galactosemia." *Future Med Chem*. 2014 Jun; 6(9):1003-1015. doi: 10.4155/fmc.14.43.
- 33 Liu L, Tang M, Tanega C, Brimacombe KR, Walsh MR, Rohde J, Pragani R, Shen M, **Lai K**, & Boxer MB. "Structure Activity Relationships of Human Galactokinase Inhibitors" *Bioorg Med Chem Lett*, 2015 Feb 1;25(3):721-7. doi: 10.1016/j.bmcl.2014.11.061
- 34 Balakrishnan B, Chen W, Tang M, Huang X, Cakici DD, Siddiqi A, Berry G, **Lai K**. Galactose-1 phosphate uridylyltransferase (GalT) gene: A novel positive regulator of the PI3K/Akt signaling pathway in mouse fibroblasts. *Biochem Biophys Res Commun*. 2016 Jan 8. pii: S0006-291X(16)30036-5. doi: 10.1016/j.bbrc.2016.01.036. [Epub ahead of print]
- 35 Tang M, Etokidem E, **Lai K**. The Leloir pathway of galactose metabolism – a novel therapeutic target for hepatocellular carcinoma. *Anticancer Res*. 2016 Dec;36(12):6265-6271.
- 36 Chen W, Caston R, Balakrishnan B, Siddiqi A, Parmar K, Tang M, Feng M, **Lai K**. Assessment of ataxia phenotype in a new mouse model of galactose-1 phosphate uridylyltransferase (GALT) deficiency. *JIMD*. 2017 Jan;40(1):131-137. doi: 10.1007/s10545-016-9993-2. Epub 2016 Oct 25.
- 37 Balakrishnan B, Nicholas C, Siddiqi A, Chen W, Bales E, Feng M, Johnson J, **Lai K**. Reversal of aberrant PI3K/Akt signaling by Salubrinal in a GalT-deficient mouse model. *Biochim Biophys Acta*.(Molecular Basis of Disease) 2017 Aug 24. pii: S0925-4439(17)30305-8. doi: 10.1016/j.bbdis.2017.08.023. [Epub ahead of print]
38. Yuzyuk T, Balakrishnan B, Schwarz EL, De Biase I, Hobert J, Longo N, Mao R, **Lai K**, Pasquali M. Effect of genotype on galactose-1-phosphate in classic galactosemia patients. *Mol Genet Metab*. 2018 Nov;125(3):258-265. doi: 10.1016/j.ymgme.2018.08.012. Epub 2018 Aug 23.
39. Hu X, Zhang YQ, Lee OW, Liu L, Tang M, **Lai K**, Boxer MB, Hall MD, Shen M. Discovery of novel inhibitors of human galactokinase by virtual screening. *J Comput Aided Mol Des*. 2019 Apr;33(4):405-417. doi: 10.1007/s10822-019-00190-3. Epub 2019 Feb 26..
40. Siddiqi A, Webb F, Smotherman C, Shuja S, Mubeen A, **Lai K**. Prevalence of epithelial abnormalities and high-risk human papilloma virus in cervicovaginal Pap smears of population subgroups as a guide toward evidence-based best practice. *Diagn Cytopathol*. 2019 Jul;47(7):648-652. doi: 10.1002/dc.24158. Epub 2019 Feb 23. PubMed PMID: 30801970.
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- 42 Balakrishnan B, Siddiqi A, Mella J, Lupo A, Li E, Hollien J, Johnson J, **Lai K**. Salubrinal enhances eIF2 α phosphorylation and improves fertility in a mouse model of Classic Galactosemia *Biochim Biophys Acta Mol Basis Dis*. 2019 Nov 1;1865(11):165516. doi: 10.1016/j.bbdis.2019.07.010. Epub 2019 Jul 27.
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- 44 Welsink-Karssies M, van Weeghel M, Elfrink H, Hollak C, Janssen M, **Lai K**, Langendonk J, Oussoren E, Ruiters J, Treacy E, de Vries M, Ferdinandusse S, Bosch A (2020) The Galactose Index measured in fibroblasts of GALT deficient patients distinguishes variant patients detected by newborn screening from patients with classical phenotypes (in press, *Molecular Genetics and Metabolism*)
- 45 Yang Y, Vankayalapati H, Tang M, Zheng Y, Li Y, Ma C, **Lai K** (2020) *Discovery of novel inhibitors targeting*

- multi-UDP-hexose pyrophosphorylases as anticancer agents”* *Molecules* 2020 Feb 3;25(3):645. doi: 10.3390/molecules25030645.
- 46 Cari EL, Hagen-Lillevik S, Giornazi A, Post M, Komar AA, Appiah L, Bitler B, Polotsky AJ, Santoro N, Kieft J, **Lai K**, Johnson J. Integrated stress response control of granulosa cell translation and proliferation during normal ovarian follicle development. *Mol Hum Reprod.* 2021 Jul 26;gaab050. doi: 10.1093/molehr/gaab050. Epub ahead of print. PMID: 34314477.
- 47 Hagen-Lillevik, S., Rushing, J. S., Appiah, L., Longo, N., Andrews, A., **Lai, K.**, & Johnson, J. (2021). Pathophysiology and management of classic galactosemic primary ovarian insufficiency, *Reproduction and Fertility*, 2(3), R67-R84. Retrieved Aug 13, 2021, from <https://raf.bioscientifica.com/view/journals/raf/2/3/RAF-21-0014.xml>
- 48 Mackinnon SR, Krojer T, Foster WR, Diaz-Saez L, Tang M, Huber KVM, von Delft F, **Lai K**, Brennan PE, Arruda Bezerra G, Yue WW. Fragment Screening Reveals Starting Points for Rational Design of Galactokinase 1 Inhibitors to Treat Classic Galactosemia. *ACS Chem Biol.* 2021 Apr 16;16(4):586-595. doi: 10.1021/acscchembio.0c00498. Epub 2021 Mar 16. PMID: 33724769; PMCID: PMC8056384
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- 50 Hagen-Lillevik S, Johnson J, Siddiqi A, Persinger J, Hale G, **Lai K**. Harnessing the Power of Purple Sweet Potato Color and *Myo*-Inositol to Treat Classic Galactosemia. *Int J Mol Sci.* 2022 Aug 4;23(15):8654. doi: 10.3390/ijms23158654. PMID: 35955788; PMCID: PMC9369367.
- 51 Hagen-Lillevik S, Johnson J, **Lai K**. Early postnatal alterations in follicular stress response and survival in a mouse model of Classic Galactosemia. *J Ovarian Res.* 2022 Nov 21;15(1):122. doi: 10.1186/s13048-022-01049-2. PMID: 36414970; PMCID: PMC9682695
- 52 Derks B, Rivera-Cruz G, Hagen-Lillevik S, Vos EN, Demirbas D, **Lai K**, Treacy EP, Levy HL, Wilkins-Haug LE, Rubio-Gozalbo ME, Berry GT. The hypergonadotropic hypogonadism conundrum of classic galactosemia. *Hum Reprod Update.* 2022 Dec 13:dmac041. doi: 10.1093/humupd/dmac041. Epub ahead of print. PMID: 36512573.)
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PRE-PRINT ARTICLES

- 1 Balakrishnan B, **Lai K** (2021) Modulation of SARS-CoV-2 Spike-induced Unfolded Protein Response (UPR) in HEK293T cells by selected small chemical molecules *bioRxiv* doi: <https://doi.org/10.1101/2021.02.04.429769>
- 2 Hagen-Lillevik S, **Lai K**, Johnson J., Evidence of Fluctuating Integrated Stress Response Activity in Murine Primordial Ovarian Follicles May 2022 DOI: 10.21203/rs.3.rs-1682172/v1

REVIEW ARTICLES

1. Elsas LJ 2nd , **Lai K**. (1998). The molecular biology of galactosemia. *Genet Med*, 1(1), 40-8.
2. **Lai K** , Elsas LJ , Wierenga K. (2009). Galactose Toxicity in Animals. *IUBMB Life*, 61(11), 1063-74
3. Tang M , Odejinmi S , Vankayalapati H , Wierenga K , **Lai K**. (2012). Innovative Therapy for Classic Galactosemia - Tale of Two HTS. *Mol Genet Metab*, 105(1), 44-55.

BOOKS

BOOK CHAPTERS

1. Tang M , Wierenga KJ , **Lai K**. (2013). Use of site-directed mutagenesis (SDM) in the diagnosis, prognosis and treatment of Galactosemia in *Genetic Manipulation of DNA and Protein: Examples from Current Research*, David Figurski, Columbia University (Eds.), Intech Publishers. (ISBN 978-953-51-0994-5)
- 2 Longo L, & **Lai K**, 2022. Gene Therapy for Inherited Metabolic Diseases in *Nutrition Management of IMD (2nd Edition)*

CONFERENCE PROCEEDINGS

OTHER (Commentary/Letters/Editorials/Case Reports/Video/Film)

Commentary

Book Reviews

Case Reports

Editorials

Letters

Newspaper

Other

1. **Lai K.** (2003). Copyright holder of the Miami GenCure Diagnostic Laboratory's Logo. US Copyright Office Reference: VAu 592-099.

Patents (including Provisional Patents recently filed)

1. **Lai K.** (2008). A set of small molecule inhibitors for human galactokinase. (Role: First Inventor) U.S. Patent No. PCT/US08/73152. Washington, D.C.:U.S. Patent and Trademark Office.
2. **Lai K.** (2011). Galactokinase Inhibitors for the Treatment and Prevention of Associated Diseases and Disorders (Role: Co-inventor); International patent filed by National Chemical Genomics Center/National Institutes of Health. U.S. Patent No. PCT/US11/53021. Washington, D.C.:U.S. Patent and Trademark Office.
3. **Lai K.** (2012). A Set of Small Molecule Inhibitors for Human Galactokinase (Role: First Inventor).U.S. Patent No. 12/672,347. Washington, D.C.:U.S. Patent and Trademark Office.
4. A co-crystallized structure between GALK1 and compound NCGC0023864 was licensed to a pharmaceutical company in California in Feb. 2019.
5. Balakrishnan B and **Lai K** (2021) Gene Therapy for Phosphoglucomutase I Deficiency (Patent Application Filed in 2022) (Role: Lead Inventor)
6. Zhong ML, Balakrishnan B, and **Lai K** (2023) AAV9-PMM2 Gene Replacement Therapy (Lead Inventor)

Reports

Video/Film/CD/Web/Podcast

1. **Lai K,** Langley SD , Guerrero NV , Elsas LJ. (1998). "GALT gene mutations database" , World Wide Website [Web]. Available: <http://www.cc.emory.edu/PEDIATRICS/medgen/research/galt.htm>.
2. **Lai K,** Marabotti A , Mao R. (2012). Molecular Genetics of Galactosaemia- eLS Online Library[Web]. Chichester: John Wiley & Sons Ltd. Available: <http://www.els.net> [doi: 10.1002/9780470015902.a0024323].
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PENDING PUBLICATIONS

RECENTLY PUBLISHED ABSTRACTS (Last 3 Years)

UNPUBLISHED POSTER PRESENTATIONS

1. **Lai K** , Belas R. (1990). *Genetic analysis of chemotaxis mutants of Vibrio parahemolyticus*. Poster session presented at American Society for Microbiology 90th Annual Meeting, Anaheim, CA.
2. McGraw P , **Lai K.** (1992). *Inositol transport activity is coordinated to phospholipid biosynthesis in Saccharomyces cerevisiae*. Poster session presented at 16th International Conference on Yeast Genetics and Molecular Biology, Vienna, Austria.
3. **Lai K** , McGraw P. (1993). *Regulation of inositol metabolism in Saccharomyces cerevisiae*. Poster session presented at 1993 Yeast Genetics and Molecular Biology Meeting, Madison, WI.
4. McGraw P , Bolognese C , **Lai K** , Swift S. (1994). *Inositol-mediated repression of uptake is accompanied by endocytic degradation of the yeast inositol permease*. Poster session presented at 1994 Yeast Genetics and Molecular Biology Meeting, Seattle, WA.
5. **Lai K** , Langley SD , Singh R , Hjelm N , Dembure P , Elsas LJ. (1995). *Impairment of galactose-1-phosphate uridylyltransferase (GALT) activity due to S135L mutation in the GALT gene is tissue-specific*. *Experimental Biology 95, FASEB*. Atlanta, GA.
6. **Lai K** , Langley SD , Singh R , Hjelm N , Dembure P , Elsas LJ. (1995). *Molecular characterization of the 'Negro variant' of galactosemia*. Poster session presented at American Society of Human Genetics 45th Annual Meeting,

Minneapolis, MN.

7. **Lai K** , Langley SD , Dembure PP , Hjelm N , Elsas LJ. (1996). *The Duarte allele impairs biostability of human galactose-1-phosphate uridylyltransferase in human lymphoblasts*. Poster session presented at American Society of Human Genetics 46th Annual Meeting, San Francisco, CA.
8. **Lai K** , Willis AC , Elsas LJ. (1999). *The biochemical role of glutamine-188 in human galactose-1-phosphate uridylyltransferase*. Poster session presented at Society for Inherited Metabolic Disorders 1999 Annual Meeting, Lake Lanier Islands, GA.
9. **Lai K** , Presley CA , Langley SD , Elsas LJ. (1999). *Tissue-specific regulation of the human galactose-1-phosphate uridylyltransferase gene*. Poster session presented at American Society of Human Genetics 49th Annual Meeting, San Francisco, CA.
10. Saunders CJ , **Lai K** , Langley SD , Elsas LJ. (2000). *Functional analysis of the human galactose-1-phosphate uridylyltransferase promoter in Duarte and LA variant galactosemia*. Poster session presented at American Society of Human Genetics 50th Annual Meeting, Philadelphia, PA.
11. **Lai K** , Langley SD , Khwaja F , Schmitt EW , Elsas LJ. (2002). *Galactose-1-phosphate uridylyltransferase deficiency causes decreased UDP-glucose concentrations in human galactosemic cells*. Poster session presented at American Society of Human Genetics 52nd Annual Meeting, Baltimore, MD.
12. Slepak T , **Lai K**. (2003). *Decreased abundance of epidermal growth factor receptor in galactosemic patients*. Poster session presented at American Society for Human Genetics 53rd Annual Meeting, Los Angeles, CA.
13. **Lai K** , Elsas LJ , Webb AL , Singh RH , Kennedy MJ. (2003). *Indicadores de dyspraxia verbal en galactosemia*. Poster session presented at IV Congreso Latinoamericano de Errores Innatos del Metabolismo y Pesquisa Neonatal, Cataratas del Iguazu, Argentina.
14. Klapa M , **Lai K**. (2004). *Alternate pathways of galactose assimilation: Could Inverse Metabolic Engineering provide an alternative to galactosemic patients*. Poster session presented at American Institute of Chemical Engineering 2004 Annual Meeting, San Antonio, Texas.
15. Slepak T , Longo N , **Lai K**. (2004). *Decreased glycogen content in galactose-1-phosphate uridylyltransferase (GALT) deficient patient cells*. Poster session presented at The American Society of Human Genetics 54th Annual Meeting, Toronto, Canada.
16. Slepak T , Barbouth D , Klapper H , **Lai K** , Elsas LJ. (2004). *Pseudo uniparental disomy in galactosemia*. Poster session presented at Southeastern regional genetics group annual meeting, Sandestin, FL.
17. Slepak T , **Lai K**. (2005). *Classic Galactosemia: a paradigm for endoplasmic stress response*. Poster session presented at American Society for Human Genetics 55th Annual Meeting, Salt Lake City, UT.
18. **Lai K** , Tang M , Slepak T. (2005). *Intracellular accumulation of galactose-1-phosphate leads to environmental stress response in yeast*. Poster session presented at American Society for Human Genetics 55th Annual Meeting, Salt Lake City, UT.
19. Wierenga KJ , **Lai K**. (2006). *Development of a high throughput assay for the identification of small molecule inhibitors of human galactokinase*. Poster session presented at American Society of Human Genetics 56th Annual Meeting, New Orleans, LA.
20. Syriopoulos CH , **Lai K** , Klapa MI. (2006). *Metabolomic analysis of galactosemia using yeast as the model system*. Poster session presented at Metabolic Engineering 6th Conference, Amsterdam, The Netherlands.
21. Siddiqi AM , Li H , Williams W , Faruque F , **Lai K** , Beach J. (2006). *Use of hyperspectral imaging to distinguish normal and dysplastic fibroblasts*. Poster session presented at American Society of Cytology 54th Annual Scientific Meeting, Toronto, Ontario, Canada.
22. Wierenga KJ , **Lai K**. (2007). *Development of a high throughput assay for the identification of small molecule inhibitors of human galactokinase*. Poster session presented at Annual Meeting for the Society for Inherited Metabolic Disorders, Nashville, TN.
23. Tang M , Slepak TI , Elsas LJ , **Lai K**. (2007). *Oxidative and endoplasmic reticulum stress in novel isogenic cell models for classic galactosemia*. Poster session presented at 2007 Annual Meeting for the Society for Inherited Metabolic Disorders, Nashville, TN.
24. Siddiqi AM , Li H , Williams W , Faruque F , **Lai K** , Baliga M , Flowers R , Beach J. (2007). *Use of hyperspectral imaging in detection of precancerous cells*. Poster session presented at The United States and Canadian Academy of

- Pathology 96th Annual Meeting, San Diego, CA.
25. Tang M , Wierenga K , **Lai K.** (2009). *A KFC-based approach for rational drug design to treat genetic diseases.* Poster session presented at 59th Annual Meeting for American Society of Human Genetics, Honolulu, HI.
 26. Tang M , Facchiano A , Rachamadugu R , Calderon F , Mao R , Milanesi L , Marabotti A , **Lai K.** (2011). *Correlation Assessment among Clinical Phenotypes, Expression Analysis and Molecular Modeling of 14 Uncharacterized Mutations in the Human Galactose-1 phosphate Uridyltransferase Gene.* Poster session presented at 61st American Society for Human Genetics Annual Meeting, Montreal, Quebec, Canada.
 27. Odejinmi S , Rascon R , Tang M , Vankayalapati H , **Lai K.** (2011). *Optimization of small molecule inhibitors of human galactokinase.* Poster session presented at American Chemical Society Annual Meeting, Anaheim, CA.
 28. **Lai K** , Yin X , Tang M , Baffoe S , Johnson B , Bodamer OA. (2012). *Galactose-induced lethality and growth retardation in a new galactose-1-phosphate uridylyltransferase (GALT) gene-knockout mouse model.* Poster session presented at 2012 Annual Meeting for the Society for Inherited Metabolic Disorders, Charlotte, NC.
 29. **Lai K**, Tang M, Siddiqi A, Witt B, Johnson B, Fraser N, Chen W, Rascon R, Yin X, Goli H, Bodamer OA (2013). *Subfertility and growth restriction in a new galactose-1-phosphate uridylyltransferase (GALT) deficient mouse model.* Poster presented at 2013 ICIEM Meeting, Barcelona, Spain.
 30. Bijina Balakrishnan, Wyman Chen, Manshu Tang, Xiaoping Huang, Didem Demirbas Cakici, Anwer Siddiqi, Gerard Berry, **Kent Lai** (2016) *Galactose-1 phosphate uridylyltransferase (GALT) deficiency induces pleiotropic down-regulation of Pi3k/Akt signaling in mouse fibroblasts.* Poster presented at 2016 Annual Meeting of Society of Inherited Metabolic Disorders, Jacksonville, Florida.
 31. Wyman Chen, Rose Caston, Manshu Tang, Anwer Siddiqi, Kamalpreet Parmar, Merry Feng, **Kent Lai** (2016) *Ataxia phenotype assessment in a new mouse model of galactose-1-phosphate uridylyltransferase (GalT) deficiency.* Poster presented at 2016 Annual Meeting of Society of Inherited Metabolic Disorders, Jacksonville, Florida.
 32. Balakrishnan B, An J, Nguyen V, Lukacs C, Guey L, Martini P, **Lai K** (2018) *Restoration of hepatic galactose-1 phosphate uridylyltransferase (GALT) activity by a novel mRNA-based therapy decreases hepatic and red blood cell GAL-1P and plasma galactose* Poster accepted for presentation at 2018 Annual Meeting of Society of Inherited Metabolic Disorders, San Diego, California.
 33. Balakrishnan B, Lupo A, Johnson J, **Lai K** (2018) *Salubrinal enhances follicular maturation in a mouse model of galactose-1 phosphate uridylyltransferase (GALT) deficiency* Poster accepted for presentation at 2018 Annual Meeting of Society of Inherited Metabolic Disorders, San Diego, California.
 34. Balakrishnan B, Verheijen J, Lupo A, Yang Y, Carter KL, Whitehead KJ, Kozicz T, Morava E, **Lai K.** (2019) *A New Phosphoglucomutase 2 Gene Knockout (KO) Mouse Model Reveals Aberrant Glycosylation and Embryonic Lethality* Poster accepted for presentation at 2019 Annual Meeting of Society of Inherited Metabolic Disorders.
 35. Balakrishnan, B., Llerena Cari, E., Siddiqi, A., Bales, C.E., **Lai, K.**, Johnson, J. (2019) *Rescue of Long-Term Ovarian Function, Fertility, and Fecundity in a Murine Model of Galactosemia by Blocking Endoplasmic Reticulum Stress.* Poster accepted for presentation at SRI 66th Annual Scientific Meeting, Paris, France. March 12-16, 2019.
 36. Verheijen J, Balakrishnan B, Lupo A, Yang Y, Carter KL, Turgeon C, Raymond K Whitehead KJ, Tamas Kozicz, **Kent Lai**, Eva Morava-Kozicz (2019) *A new phosphoglucomutase 2 gene knockout Mouse model shows disrupted glycosylation partially reflecting PGM1-CDG. Poster accepted for presentation at the 2019 Annual Meeting of SSIEM, Rotterdam, The Netherlands.*
 37. Dhall et al., 2022 Gene Replacement Therapy with JAG101 Reduces Pathogenic Biomarkers in a Mouse Model of Type 1 Galactosemia ASGCT 25th Annual Meeting May 2022, Washington D.C.
 38. Scott D et al., 2022 Development of BBP-818 for the Treatment of Classic Galactosemia ASGCT 25th Annual Meeting May 2022, Washington D.C
 39. Balakrishnan B,....., **Lai, K** 2022 Pioneering AAV Gene Therapy for Congenital Disorders of Glycosylation (CDG): Multi-Faceted Correction of Disease Progression in a Mouse Model of PGM1-CDG ASGCT 25th Annual Meeting May 2022, Washington D.C.
 40. Balakrishnan B, Yan X, Bellagamba O, Winkler F, Zimmer M, McCue M, Martini P, **Lai, K** 2023 WHOLE-BODY GALACTOSE OXIDATION AS A ROBUST FUNCTIONAL ASSAY TO EVALUATE THE EFFECTIVENESS OF HGALT GENE-BASED THERAPIES IN A MOUSE MODEL OF CLASSIC GALACTOSEMIA 2023 Annual Meeting of Society for Inherited Metabolic Disorders, Salt Lake City, Utah, U.S.A.

ORAL PRESENTATIONS

Keynote/Plenary Lectures

International

- 2009 Inhibition of galactokinase as treatment for Galactosemia (Invited Speaker). Segal Symposium, 11th International Congress of Inborn Errors of Metabolism, San Diego, CA
- 2009 A novel hybrid approach for rational drug design to treat Classic Galactosemia. 11th International Congress of Inborn Errors of Metabolism, San Diego.
- 2011 Innovative Therapies for Classic Galactosemia: Tales of Two HTS (Invited Speaker), 2011 PAS/ASPR Joint Scientific Meeting, Denver, CO.
- 2017 Multiple Therapeutic Modalities for Classic Galactosemia (Invited Speaker) 2017 GalNet & European Society of Galactosemia Meeting, Amsterdam, The Netherlands.
- 2019 Experimental Nucleic acid-based Therapy for Classic Galactosemia (Invited Speaker) 2019 GalNet & European Society of Galactosemia Meeting, Amsterdam, The Netherlands.
- 2021 Novel Mouse Models and Gene Therapy for Phosphoglucomutase I Deficiency 2021 Scientific CDG Symposium 2021, Leuven, Belgium

National

- 2008 Identification of Novel Antimicrobials, 2008 Annual Biomedical Research Conference for Minority Students (ABRCMS), Orlando, FL.
- 2018 Invited Speaker, 2018 Newborn Screening Translational Research Network (NBSTRN) Meeting, Bethesda, MD.
- 2020 Invited Speaker, Rare Disease Day, Sanford Children's Health Research Center
- 2022 Invited Speaker, Rare Disease Day, Sanford Children's Health Research Center

Meeting Presentations (Not Published Abstracts and Not Unpublished Posters)

National

- 1997 Invited Seminar Speaker, **Lai K**, Willis AC & Elsas LJ. "The catalytic role of glutamine-188 in human galactose-1-phosphate uridylyltransferase". American Society of Human Genetics 47th Annual Meeting, Baltimore, MD
- 2003 Faculty Speaker, 9th Ross Metabolic Conference
- 2007 Oral Platform Presentation, Tang M; Slepak TI; Elsas LJ; **Lai K**. Oxidative and endoplasmic reticulum stress in novel isogenic cell models for classic galactosemia. Annual Meeting for the Society for Inherited Metabolic Disorders, Nashville, TN
- 2007 Oral Platform Presentation, Wierenga KJ; **Lai K**. Development of a high throughput assay for the identification of small molecule inhibitors of human galactokinase. Annual Meeting for the Society for Inherited Metabolic Disorders, Nashville, TN
- 2007 Invited Seminar Speaker, **Lai K**, Tang M, Yin X , Klapper H, Wierenga K, Elsas LJ. "Up-regulation of ARH1 in Galactose-stressed, Isogenic Human Fibroblasts deficient in Galactose-1-phosphate Uridyltransferase". American Society of Human Genetics 57th Annual Meeting, San Diego, CA
- 2010 Invited Seminar Speaker, Novel Therapies for Classic Galactosemia, 2010 Parents of Galactosemic Children Conference, Bloomington, MN.
- 2010 Invited Seminar Speaker, Optimization of human galactokinase inhibitors and beyond, 2010 Parents of Galactosemic Children Conference, Bloomington, MN
- 2010 Invited Seminar Speaker, ARHI: a novel target of galactose toxicity in Classic Galactosemia? 2010 Parents of Galactosemic Children Conference, Bloomington, MN.
- 2012 Invited Seminar Speaker, Targeting Human Galactokinase in treatment of Classic Galactosemia & common diseases, 2012 Galactosemia Foundation Conference, Dallas, TX.
- 2012 Invited Seminar Speaker, New mouse models of Classic Galactosemia, 2012 Galactosemia Foundation Conference, Dallas, TX.
- 2012 Invited Seminar Speaker, Toward improved outcome in Classic Galactosemia, 2012 Galactosemia Foundation Conference, Dallas, TX.

- 2014 Invited Seminar Speaker, Research Briefing, 2014 Galactosemia Foundation Conference, Orlando, FL
- 2014 Invited Seminar Speaker, Characterization of a New Mammalian Animal Model of Classic Galactosemia. 2014 Galactosemia Foundation Conference, Orlando, FL.
- 2016 Invited Seminar Speaker, Toward improved outcome in Classic Galactosemia: A Decade of Blood, Sweat and Tears, 2016 Galactosemia Foundation Conference, Atlanta, GA.
- 2016 Invited Seminar Speaker, Novel Insights into the Pathophysiology of Classic Galactosemia, 2016 Galactosemia Foundation Conference, Atlanta, GA.
- 2018 Invited Seminar Speaker, Update on Galactosemia Research, 2018 Galactosemia Foundation Conference, Denver, CO.
- 2018 Invited Seminar Speaker, Novel Experimental Nucleic Acid-based Therapies for Classic Galactosemia 2018 Galactosemia Foundation Conference, Denver, CO.
- 2020 Invited Seminar Speaker, Gene-based Therapies for Classic Galactosemia 2020 Galactosemia Foundation Conference
- 2020 Invited Seminar Speaker, Targeting Integrated Stress Response in Classic Galactosemia 2020 Galactosemia Foundation Conference
- 2022 Invited Seminar Speaker, Marching towards a Cure for Classic Galactosemia 2020 Galactosemia Foundation Conference (Orlando, U.S.A.)
- 2022 Invited Speaker, European Galactosemia Society. GalNet Joint Conference (Amsterdam, The Netherlands)

Local/Regional

- 2003 Division of Medical Genetics Journal Club. Seminar Title: Glycosylation of Nucleocytoplasmic Proteins: Signal Transduction and O-GlcNAc
- 2003 Division of Medical Genetics Journal Club. Seminar Title: Expression patterns of α -2, 3-sialyltransferases and α -1,3- fucosyltransferases determine the mode of sialyl Lewis X inhibition by disaccharide decoys
- 2004 **Lai K**, Barbouth D, Klapper H, Slepak T, & Elsas LJ. "The metabolomics of galactose-1-phosphate uridylyltransferase (GALT) deficiency in human diploid fibroblasts". PLATFORM Presentation at the Southeastern regional genetics group annual meeting, San destin, FL
- 2005 University of Miami Yeast Group Seminar Speaker . Title: Stress Management in yeast and beyond
- 2005 UM Pediatrics Department Clinical Research Forum Speaker. Seminar Title: Classic Galactosemic: Paradigm of ER stress
- 2005 UM Division of Medical Genetics Journal Club Speaker. Seminar Title: Classic Galactosemic: Paradigm of ER stress
- 2007 UM Mitochondria Club Speaker. Seminar Title: Does oxidative stress play a role in the pathophysiology of Classic Galactosemia
- 2008 Seminar Speaker, Department of Biochemistry & Molecular Biology, University of Miami School of Medicine, Innovative therapy and pathophysiology studies for Classic Galactosemia
- 2009 Seminar Speaker, Division of Medical Genetics, Department of Pediatrics, University of Utah School of Medicine, Seminar Title: Research Update on Classic Galactosemia
- 2010 Seminar Speaker, Division of Medical Genetics, Department of Pediatrics, University of Utah School of Medicine. Seminar Title: Targeting GHMP kinases for treating rare and common diseases
- 2011 Seminar Speaker, Division of Medical Genetics, Department of Pediatrics, University of Utah School of Medicine. Seminar Title: Galactose metabolism in health and diseases
- 2011 Research in Progress Seminar Speaker, Department of Biochemistry, University of Utah School of Medicine. Seminar Title: Galactose metabolism in health and diseases
- 2011 Research in Progress Seminar Speaker, Department of Pediatrics, University of Utah School of Medicine. Seminar Title: Galactose metabolism in health and diseases
- 2012 Seminar Speaker, Division of Medical Genetics, Department of Pediatrics, University of Utah School of Medicine. Seminar Title: Research Update in Classic Galactosemia
- 2014 Research Seminar Speaker, Department of Medicinal Chemistry, U. of Utah.
- 2016 Seminar Speaker, Resident Lecture, Department of Pediatrics, U. of Utah School of Medicine

2017 Seminar Speaker, Research-in-Progress, Department of Pediatrics, U. of Utah School of Medicine
2018a Seminar Speaker, Research-in-Progress, Department of Pediatrics, U. of Utah School of Medicine
2018b Seminar Speaker, Research in Progress, Department of Pediatrics, U. of Utah School of Medicine
2022 Seminar Speaker, Research in Progress, Department of Pediatrics, U. of Utah School of Medicine

Invited/Visiting Professor Presentations

International

2001 Invited Seminar Speaker, Department of Medicine, University of Hong Kong
2008 Invited Seminar Speaker, Department of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, Hong Kong. (Seminar Title: Innovative therapy and pathophysiology studies for Classic Galactosemia)
2023 Invited Seminar Speaker, Department of Health Technology and Informatics, Hong Kong Polytechnic University

National

2005 Invited Speaker, 46th Annual Ruth Self Memorial Education Day, Woman's Cancer Association of the UM. Seminar Title: Galactose Metabolism and Cancer Growth
2012 Invited Speaker, Agios Pharmaceuticals Inc.
2015 Research Seminar entitled "New Mouse Model of Classic Galactosemia" given to the Division of Genetics and Genomics, Department of Pediatrics, Harvard Medical School on November 21st, 2015.
2017 Research Seminar entitled "New Mouse Model of Classic Galactosemia" Moderna Therapeutics.

Local/Regional

2003 - 2004 Invited Faculty Speaker, Clinical Scientist Training Program, University of Miami School of Medicine
2007 Invited Seminar Speaker, Department of Physiology, Pharmacology and Therapeutics, University of North Dakota. Seminar Title: Innovative therapy and pathophysiology for Classic Galactosemia
2007 Invited Seminar Speaker, Division of Medical Genetics, Department of Pediatrics, University of Utah. Seminar Title: Innovative therapy and pathophysiology for Classic Galactosemia
2008 Invited Seminar Speaker, Department of Basic Medical Science, Mercer University School of Medicine, Seminar Title: Innovative therapy and pathophysiology for Classic Galactosemia
2008 Invited Seminar Speaker, Department of Biochemistry, University of Mississippi Medical Center, Seminar Title: Innovative therapy and pathophysiology studies for Classic Galactosemia
2009 Invited Seminar Speaker, Department of Pharmacology and Toxicology, University of Utah School of Medicine, Seminar Title: Innovative therapy and pathophysiology studies for Classic Galactosemia

Grand Rounds Presentations

Outreach Presentations

2003 Faculty Speaker, Abbott Laboratories, 9th Ross Metabolic Conference