CURRICULUM VITAE

YUAN LIU

CONTACT INFORMATION

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EDUCATION

2004	Ph.D. (Biochemistry)	University of Rochester School of Medicine and Dentistry, NY, USA
1998	M.S. (Toxicology)	Rutgers University, NJ, USA
1991	M.M. (Master of Medicine)	Tongji Medical University, School of Public Health, Wuhan, Hubei, P. R. China
1988	M.D. (Bachelor of Medicine)	Tongji Medical University, School of Public Health, Wuhan, Hubei, P. R. China

RESEARCH AND PROFESSIONAL EXPERIENCE

Aug. 2017-present	Director, Biochemistry Ph.D. Program, Florida International University, Miami, FL, USA
June 2016-present	Associate Professor, Department of Chemistry and Biochemistry, Florida International University, Miami, FL, USA
Aug. 2010-June 2016	Assistant Professor, Department of Chemistry and Biochemistry, Florida International University, Miami, FL, USA
Jan. 2006-Aug. 2010	Research Fellow, Laboratory of Structural Biology, Institute of Environmental National Health Sciences (NIEHS)/National Institutes of Health, NC, USA (Mentor: Dr. Samuel H. Wilson)
Oct. 2003-Dec. 2005	Postdoctoral Fellow, Laboratory of Structural Biology, National Institute of Environmental Health Sciences (NIEHS)/National Institutes of Health (NIH), NC, USA (Mentor: Dr. Samuel H. Wilson)
Sept. 1998-Oct. 2003	Graduate Research Assistant, Department of Biochemistry and Biophysics, School of Medicine and Dentistry, University of Rochester, NY, USA (Advisor: Dr. Robert A. Bambara)
Sept. 1995-May 1998	Graduate Teaching Assistant, Department of Pharmacology and Toxicology, Rutgers University, NJ, USA
Sept. 1991-May 1995	Assistant Investigator, Department of Environmental Health Impact, Institute of Environmental Health Monitoring, Chinese Academy of Preventive Medicine (Chinese Center for Disease Control and Prevention), Beijing, P. R. China
Sept 1988-May 1991	Graduate Student, Department of Environmental Health, School of Public Health, Tongji Medical University, Wuhan, Hubei, P. R. China
Sept.1987-May 1988	Undergraduate research internship, Institute of Environmental Medicine, School of Public Health, Tongji Medical University, Wuhan, Hubei, P. R. China

GRANT FUNDING

Grant funded

NIH R01-ES023569 Yuan Liu (PI) 12/9/13-10/31/20
Trinucleotide repeat instability via DNA damage and repair
In this project, we explore the molecular mechanisms underlying trinucleotide repeat instability through DNA repair pathways.

Community Foundation of Broward -20140129 (PI: Yuk-Ching Tse-Dinh) 07/01/19-06/30/20
A Novel Treatment for Advanced Prostate Cancer
In this project, we will determine the DNA damage and repair capacity in prostate cancer tissue from a xenograft prostate cancer mouse model under treatment of natamycin. My group is currently studying if natamycin can suppress the growth of prostate cancer cells in mice by reducing BER capacity and increasing the accumulation of DNA strand breaks.
Role: Co-PI

NOAA NA18NOS4780171 (PI: Kathaleen Rein) 9/01/18-08/31/21
A Mechanism Based Intervention for Brevetoxin Induced Oxidative Stress
In this project, we study the effects of Brevetoxin-induced oxidative DNA damage in human lymphoblasts and hepatocytes.
Role: Co-PI

Completed

Community Foundation of Broward (PI: Yuk-Ching Tse-Dinh) 07/01/16-06/30/18
Investigation of a Novel Treatment for Advanced Prostate Cancer
In this project, we developed a novel approach for measuring the total DNA repair capacity of prostate cancer cell lysates that can be used in high throughput screening of new DNA repair inhibitors for improving prostate cancer drug resistance.
Role: Co-PI

Gift of Mr. Alan Potamkin and Dr. Brigitt Rok-Potamkin (PI: Yuk-Ching Tse-Dinh) 03/01/15-02/28/18
Predictive biomarkers for glioblastoma progression and treatment
In this project, we explored the correlation between DNA repair capacity in tumor tissue and cell lines with anti-cancer drug resistance for development of DNA repair as a predictive biomarker for anti-cancer drug resistance.
Role: Co-PI

Broward Foundation Yuk-Ching Tse-Dinh (PI), Yuan Liu (Co-PI) 01/01/15-12/31/17
Investigation of a novel treatment for advanced prostate cancer

NIHR00-ES017476 Yuan Liu (PI) 09/03/10-05/31/14
Mechanisms of trinucleotide repeat expansion
via oxidative DNA damage and repair

PATENT

2017 High throughput measurement of DNA base lesion repair capacity, US 9809843 B1 (granted on November 7, 2017)

AWARDS AND HONORS

September 2018	2018 College of Arts, Sciences and Education (CASE) Award for Service, Florida International University, Miami, FL, USA
October 2016	2016 College of Arts, Sciences and Education (CASE) Award for Research, Florida International University, Miami, FL, USA
March 2014	2014 Top Scholar of Florida International University, Miami, FL, USA
July 1998-Oct. 2003	Scholarship for graduate student, University of Rochester, NY USA
Sept.1995-May1998	Scholarship for graduate student, Rutgers University, NJ, USA
May 1995	Outstanding Achievement Award for Young Investigator, Chinese Academy of Preventive Medicine (Chinese Center for Disease Control and Prevention), Beijing, P.R. China
May 1994	Third Grade Award of Science and Technology Progress, National Committee of Patriotic Health Campaign and Ministry of Health, Beijing, P. R. China
Sept.1983-May1988	Award for Study Excellency, Tongji Medical University, Wuhan, Hubei, P. R. China

TEACHING EXPERIENCE

Jan. 2020-Apr. 2020	Introduction to Biochemical Research
Jan. 2020-Apr. 2020	Advanced Biochemistry II
Aug. 2019-Dec. 2019	Special Topics of Biological Chemistry
Aug. 2019-Dec. 2019	Biochemistry Graduate Seminar I
Aug. 2019-Dec. 2019	Chemistry Colloquium
Jan. 2019-Apr. 2019	Introduction to Biochemical Research
Jan. 2019-Apr. 2019	Advanced Biochemistry II
Aug. 2018-Dec. 2018	Special Topics of Biological Chemistry
Aug. 2018-Dec. 2018	Biochemistry Graduate Seminar I
Aug. 2018-Dec. 2018	Chemistry Colloquium
Jan. 2018-Apr. 2018	Advanced Biochemistry II
Jan. 2018-Apr. 2018	Special Topics in Biological Chemistry
Jan. 2018-Apr. 2018	Biochemistry Graduate Seminar II
Aug. 2017-Dec. 2017	Chemistry Colloquium
Aug. 2017-Dec. 2017	Biochemistry Graduate Seminar I
Jan. 2017-Apr. 2017	Special Topics in Biological Chemistry
Jan. 2017-May 2017	Biochemistry Graduate Seminar II
Sept. 2016-Dec. 2016	Biochemistry Graduate Seminar I
Sept. 2015-Dec. 2016	Advanced Biochemistry I
Jan. 2016-Apr. 2016	Special Topics in Biological Chemistry
Jan. 2016-May 2016	Biochemistry Graduate Seminar II
Sept. 2015-Dec. 2015	Biochemistry Graduate Seminar I
Sept. 2015-Dec. 2015	Advanced Biochemistry I
Jan. 2015-Apr. 2015	Special Topics in Biological Chemistry
Jan. 2015-May 2015	Biochemistry Graduate Seminar II
Sept. 2014-Dec 2014	Biochemistry Graduate Seminar I
Sept. 2014-Dec 2014	Advanced Biochemistry I
Jan. 2014-Apr. 2014	Advanced Biochemistry II
Jan. 2014-Apr. 2014	Chemistry Graduate Seminar
Sept. 2013-Dec. 2013	Biological Chemistry I
Jan. 2013-Apr. 2013	Advanced Biochemistry II
Oct. 2012-Dec. 2012	Biochemical Techniques
Jan. 2012-Apr. 2012	Advanced Biochemistry II

Aug. 2011-Dec. 2011	Biological Chemistry I
Jan. 2011-Apr. 2011	Biological Chemistry I
Sept. 2001-Dec. 2001	Research Assistant, University of Rochester, Rochester, NY, USA (trained and mentored new graduate students)
Jan. 1999-May 1999	Teaching Assistant, University of Rochester, Rochester, NY, USA (Molecular genetics lab)
Sept.1995-May 1998	Teaching Assistant, Rutgers University, NJ, USA (Microbiology lab)
Jan. 1991-May 1991	Teaching Assistant, Department of Environment Health, School of Public Health, Tongji Medical University, Wuhan, Hubei, P. R. China (Environmental health lab and environmental epidemiology lectures)

MEMBERSHIP

2003-present	Member, American Association for the Advancement of Science (AAAS)
2012-present	Member, American Association for Cancer Research (AACR)
2013-present	Member, Environmental Mutagenesis and Genomics Society (EMGS)

PROFESSIONAL SERVICE

1. 2009, Lead Judge, NIEHS Summers of Discovery 2009 Poster Session, July, 2009
2. 2012, NIH Study section MESH (Biobehavioral Mechanisms of Emotion, Stress and Health Study Section) February 16-17, 2012
3. 2013, Ad hoc grant reviewer for Medical Research Council (MRC), UK, May, 2013
4. 2014, Judge, EMGS 45th Annual Meeting Poster Session, September 13-17, 2014, Orlando, FL
5. 2014, Panelist, EMGS 45th Annual Meeting Students and New Investigators Luncheon, September 14, 2014, Orlando, FL
6. 2014, Panelist, Chemistry Graduate School Symposium, Florida International University, October 2, 2014,
7. 2015, Judge, 17th Annual Biological and Comparative Immunology Symposium, poster session, March 26-27, 2015,
8. 2015, Judge, FIU's annual Scholarly Forum during Graduate Student Appreciation Week (GSAW), Florida International University, Miami, FL, April 6-10, 2015
9. 2015, Judge, EMGS 46th Annual Meeting Poster Session, September 26-30, 2015, New Orleans, LA
10. 2015, Co-chair, Symposium of New Frontiers in Control of Genome Stability, EMGS 46th Annual Meeting, September 26-30, 2015, New Orleans, LA
11. 2015, Ad hoc grant reviewer for Worldwide Cancer Research, UK, April, 2015
12. 2016, Ad hoc grant reviewer for Medical Research Council (MRC), UK, May 20, 2016
13. 2016, Judge, EMGS 47th Annual Meeting Poster Session, September 17-24, 2016, Kansas City, MO
14. 2017, Judge, EMGS 48th Annual Meeting Poster Session, September 9-13, 2017, Raleigh, NC
15. 2018, Scientific Advisory Panel and Judge, 1st Southern Genome Maintenance Conferences, October 20-21, Mobile, South Alabama
16. 2017, NIEHS/NIH K Award Study Section [2018/01 ZES1 LAT-S (K8)], November 2, 2017, USA
17. 2018, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2018/05 ZES1 LAT-D (K1)], March 1, 2018, USA
18. 2018, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2019/01 ZES1 JAB-D (K9)1], November 6, 2018, USA
19. 2019, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2020/01 ZES1 JAB-D (K9)1], October 8, 2019, USA

JOURNAL REVIEWERS

ACS Omega
Biochemistry
Biofactors
Biological Trace Element Research
BMC Medical Genetics
Brain Sciences
Cancer Research
Cell Research
Chemical Research in Toxicology
Critical Reviews in Biochemistry and Molecular Biology
DNA Repair
Electrophoresis
Frontiers in Biosciences
Genes (Basel)
Human Genetics
International Journal of Molecular Sciences
International Journal of Oncology, Biology and Physics
Journal of Biological Chemistry
Journal of Enzyme Inhibition and Medicinal Chemistry
Molecular Carcinogenesis
Mutation Research
Nucleic Acids Research
Oncotarget
PLOS One
PLOS Genetic
PNAS
Scientific Reports

PUBLICATIONS

** corresponding author
* co-first author

1. Jiang Z, Lai Y, Beaver JM, Tsegay PS, Zhao ML, Horton JK, Zamora M, Rein HL, Miralles F, Shaver M, Hutcheson HD, Agoulnik I, Wilson SH and **Liu Y**** (2020) Oxidative DNA Damage Modulates DNA Methylation Pattern in Human Breast Cancer 1 (BRCA1) Gene via the Crosstalk between DNA Polymerase β and a de novo DNA Methyltransferase. **Cells** 9, 225; doi:10.3390/cells9010225.
2. Zhao T, Sun D, Zhao M, Lai Y, **Liu Y**, Zhang, Z (2020) N6-methyladenosine Mediates Arsenite-Induced Human Keratinocyte Transformation by Suppressing p53 Activation. **Environ Pollution** 259 (2020) 113908.
3. Vasquez JL, Lai Y, Annamalai T, Jiang Z, Zhang M, Lei R, Zhang Z, **Liu Y**,** Tse-Dinh YC, Agoulnik IU (2020) Inhibition of Base Excision Repair by Natamycin Suppresses Prostate Cancer Cell Proliferation. **Biochimie**. 168:241-250.
4. Tsegay PS, Lai Y, **Liu Y**** (2019) Replication Stress and Consequential Instability of the Genome and Epigenome. **Molecules** (Basel), 24:3870
5. Wang W, Rodriguez-Silva M, Acanda de la Rocha AM, Wolf AL, Lai Y, **Liu Y**, Reinhold WC, Pommier Y, Chambers JW, Tse-Dinh YC (2019) Tyrosyl-DNA Phosphodiesterase 1 and Topoisomerase I Activities as Predictive Indicators for Glioblastoma Susceptibility to Genotoxic

Agents. **Cancers** (Basel), 11(10). doi: 10.3390/cancers11101416.
6. Lai Y, Lei R, Ren Y, **Liu Y****. (2019). Methods to Study Trinucleotide Repeat Instability Induced by DNA damage and Repair. **Methods Mol Biol**, 1999:87-101.
7. Chatgilialoglu C, Ferreri C, Geacintov NE, Krokidis MG, **Liu Y**, Masi A, Shafirovich V, Terzidis, MA, and Tsegay PS (2019).5′,8-Cyclopurine Lesions in DNA Damage: Chemical, Analytical, Biological, and Diagnostic Significance. **Cells**, 8(6):513.
8. Wen Z, Tuttle PR, Howlader AH, Vasilyeva A, Gonzalez L, Tangar A, Lei R, Laverde EE, **Liu Y**, Miksovska J, Wnuk SF (2019). Fluorescent 5-Pyrimidine and 8-Purine Nucleosides Modified with an N-Unsubstituted 1,2,3-Triazol-4-yl Moiety. **J Org Chem**. 84(6):3624-3631.
9. Masi A, Sabbia A, Ferreri C, Manoli F, Lai Y, Laverde E, **Liu Y**, Krokidis MG, Chatgilialoglu C, Faraone Mennella MR (2019). Diastereomeric Recognition of 5',8-cyclo-2'-Deoxyadenosine Lesions by Human Poly(ADP-ribose) Polymerase 1 in a Biomimetic Model. **Cells**. 8(2). pii: E116.
10. Wen Z, Peng J, Tuttle PR, Ren Y, Garcia C, Debnath D, Rishi S, Hanson C, Ward S, Kumar A, **Liu Y**, Zhao W, Glazer PM, **Liu Y**, Sevilla MD, Adhikary A, Wnuk SF (2018). Electron-Mediated Aminyl and Iminyl Radicals from C5 Azido-Modified Pyrimidine Nucleosides Augment Radiation Damage to Cancer Cells. **Organic Letters**. 20 (23): 7400–7404.
11. Lai Y, Weizmann Y, **Liu Y**** (2018) The deoxyribose phosphate lyase of DNA polymerase β suppresses a processive DNA synthesis to prevent trinucleotide repeat instability. **Nucleic Acids Res**. 46(17):8940-8952.
12. Suzol, SH, Howlader, AH, Wen Z, Ren, Y, Laverde EE, Garcia C, **Liu, Y** and Wnuk SF (2018) Pyrimidine nucleosides with a reactive (β-chlorovinyl)sulfone or (β-keto)sulfone group at the C5 position, their reactions with nucleophiles and electrophiles, and their polymerase-catalyzed incorporation into DNA. **ACS Omega**, 2018, 3 (4), pp 4276–4288 doi: 10.1021/acsomega.8b00584
13. Beaver JM, Lai Y, Rolle SJ, Weng L, Greenberg MM, **Liu, Y**** (2018) An oxidized abasic lesion inhibits base excision repair leading to DNA strand breaks in a trinucleotide repeat tract. **PLoS One** 13(2):e0192148. doi: 10.1371/journal.pone.0192148.
14. Gu S, Lai, Y., Chen, H., **Liu Y****, Zhang Z. (2017) miR-155 mediates arsenic trioxide resistance by activating Nrf2 and suppressing apoptosis in lung cancer cells. **Sci Rep**. 2017; 7(1):12155.
15. Chen W, Tuladhar A, Rolle S, Lai Y, Del Rey FR, Zavala CE, **Liu Y**, and Rein KS (2017) Brevetoxin-2, is a unique inhibitor of the C-terminal redox center of mammalian thioredoxin reductase-1. **Toxicol Appl Pharmacol** 329: 58–66.
16. Ren Y, Lai Y, Laverde EE, Lei R, Rein HL and **Liu Y**** (2017) Modulation of trinucleotide repeat instability by DNA polymerase β polymorphic variant R137Q. **PLoS One** 12(5):e0177299. doi: 10.1371/journal.pone.0177299.
17. Luo Q, Beaver JM, **Liu Y**** and Zhang Z (2017) Dynamics of p53: A master decider of cell fate. **Genes** 8(2). pii: E66. doi: 10.3390/genes8020066.
18. Chen C, Jiang X, Gu S, Lai Y, **Liu Y****, Zhang Z (2017) Protection of Nrf2 against arsenite-induced oxidative damage is regulated by the cyclic guanosine monophosphate-protein kinase G signaling pathway. **Environ Toxicol** 32:2004-2020.
19. Beaver JM, Lai Y, Rolle SJ, **Liu, Y**** (2016) Proliferating cell nuclear antigen prevents trinucleotide repeat expansions by promoting repeat deletion and hairpin removal. **DNA Repair (Amst)** 48: 17-29.
20. Lai Y, Budworth H, Beaver JM, Chan NL, Zhang Z, McMurray CT, **Liu Y**** (2016) Crosstalk between MSH2- MSH3 and pol β promotes trinucleotide repeat expansion during base excision repair. **Nat Commun**. 7:12465. doi: 10.1038/ncomms12465.
21. Lai Y, Jiang Z, Zhou J, Osemota E, and **Liu Y**** (2016) AP endonuclease 1 prevents the extension of a T/G mismatch by DNA polymerase β to prevent mutations in CpGs during base excision repair. **DNA Repair (Amst)** 43: 89-97.
22. Jiang Z, Xu M, Lai Y, Laverde EE, and **Liu Y**** (2015) Bypass of a 5',8-cyclo-2'-deoxypurine by DNA polymerase β during DNA replication and base excision repair leads to nucleotide misinsertions and DNA strand breaks. **DNA Repair (Amst)** 33: 24-34.

23. Beaver JM, Lai Y, Xu M, Casin, AH, Laverde EE, and **Liu Y**** (2015) AP endonuclease 1 prevents trinucleotide repeat expansion via a novel mechanism during DNA base excision repair. **Nucleic Acids Res** 43(12):5948-5960.
24. Chen C, Jiang X, Lai Y, **Liu Y****, Zhang Z (2015) Resveratrol protects against arsenic trioxide-induced oxidative damage through maintenance of glutathione homeostasis and inhibition of apoptotic progression. **Environ Mol Mutagen** 56:333-346.
25. Xu M, Lai Y, Jiang Z, Terzidis MA, Masi A, Chatgilialoglu C and **Liu Y**** (2014) A 5**'**, 8-cyclo-2**'**-deoxypurine lesion induces trinucleotide repeat deletion via a unique lesion bypass by DNA polymerase β. **Nucleic Acids Res** 42(22):13749–13763.
26. Jiang X, Chen C, **Liu Y**, Zhang P and Zhang Z (2014) Critical role of cellular glutathione homeostasis for trivalentinorganic arsenite-induced oxidative damage in human bronchial epithelial cells. **Mut Res-Genetic Tox Environ Mut** 770: 35-45.
27. Wu S, Liang P, Yu H, Xu X, **Liu,** Lou X and Xiao Y (2014) Amplified Single Base-Pair Mismatch Detection via Aggregation of Exonuclease-Sheared Gold Nanoparticles**. Anal Chem** 86(7): 3461-7.
28. Lai, Y., Beaver J.M., Lorente, K., Melo, J., Ramjagsingh, S., Agoulnik, I.U., Zhang, Z. and **Liu, Y.** ** (2014) Base excision repair of chemotherapeutically-induced alkylated DNA damage predominantly causes contractions of expanded GAA repeats associated with Friedreich's ataxia. **PLoS One** 9(4): e93464.
29. Xu, M., Lai, Y., Torner, J., Zhang, Y., Zhang, Z**., Liu, Y.** ** (2014) Base excision repair of oxidative DNA damage coupled with removal of a CAG repeat hairpin attenuates trinucleotide repeat expansion. **Nucleic Acids Res.** 42(6):3675–3691.
30. Zhao, W., Wu, M., Lai, Y., Deng, W., **Liu, Y. ****, and Zhang, Z. (2013) Involvement of DNA polymerase beta overexpression in the malignant transformation induced by benzo[a]pyrene. **Toxicology** 5 (309):73-80.
31. Lai, Y., Xu, M., Zhang, Z. and **Liu, Y.**** (2013) Instability of CTG Repeats Is Governed by the Position of a DNA Base Lesion through Base Excision Repair. **PLoS One** 8(2): e56960.
32. Xu, M., Gabison J and **Liu, Y.**** (2013) Trinucleotide repeat deletion via a unique hairpin bypass by DNA polymerase β and alternate flap cleavage by flap endonuclease 1. **Nucleic Acids Res** 41(3):1684-1697.
33. Luo, Q., Lai, Y., Liu S., Wu, M., **Liu, Y**.**** and Zhang, Z. (2012) Deregulated expression of DNA polymerase β is involved in the progression of genomic instability. **Environ Mol Mutagen** 53: 325-333.
34. **Liu, Y.**** and Wilson, S.H. (2012) DNA base excision repair: a mechanism of trinucleotide repeat expansion. **Trends Biochem Sci** 37 (4): 162-172.
35. Naidu, M.D., Agarwal R., Pena, L. A., Cunha, L., Mezei, M., Shen M., Wilson III, D.M. **Liu, Y**., Sanchez, Z., Wilson, S.H. and Waring, M.J. (2011) Lucanthone and its derivative Hycanthone inhibit Apurinic Endonuclease-1 (APE1) by direct protein binding **PLoS One** 6 (9):e23679.
36. Prasad, R. Beard, W.A., Batra, V., **Liu, Y.** and Wilson, S.H. (2011) A Review of recent experiments on step-to-step "hand-off" of the DNA intermediates in mammalian base excision repair pathways. **Mol. Biol (Mosk)**. 45(4):586-600.
37. Wilson, S.H., Beard, W.A., Shock, D. D., Batra, V.K., Cavanaugh, N. A., Prasad, R., Hou, E. W., **Liu, Y**., Asagoshi, K., Horton, J.K., Stefanick, D. F., Kedar, P.S., Carrozza, M. J., Masaka, A., Heacock, M.L. (2010) Base excision repair and design of small molecule inhibitors of human polymerase β. **Cell Mol Life Sci** 67: 3633-3647.
38. Khodyerva, S.N., Prasad, R., Ilina, E.S., Sukhanova, M.V.m Kutuzov, M.M., **Liu, Y**., Hou, E.W., Wilson, S.H., Lavrik, O.I. (2010) Apurinic/apyrimidinic (AP) site recognition by the 5'-dRP/AP lyase in poly(ADP-ribose) polymerase-1 (PARP-1). **Proc Natl Acad Sci USA** 107(51): 22090-5.
39. Asagoshi, K., **Liu**, **Y.,** Masaoka, A., Lan, L., Prasad, R., Horton, J.K., Brown, A.R., Wang, XH., Bdour, H.M., Sobol, R.W., Taylor, J., Yasui, A. and Wilson, S.H. (2010) DNA polymerase β-dependent long patch base excision repair of UV-induced pyrimidine photoproducts in nucleotide excision repair-deficient cells. **DNA repair (Amst) 9 (2):** 109-119.
40. **Liu, Y.,** Prasad, R. Wilson, S.H. (2010) HMGB1: roles in base excision repair and related function. **Biochim Biophysica Acta-Gene Regulatory Mechanisms**-2010 Jan-Feb Special Edition (ed. Michael Bustin), 1799 (1-2): 119-130.

41. **Liu**, **Y.,** Prasad, R., Beard, W.A., Hou, E.W., Horton, J.K., McMurray, C.T. and Wilson, S.H. (2009) Coordination between polymerase β and FEN1 modulate CAG repeat expansion. **J Biol Chem** 284 (41): 28352-28366.
42. Prasad, R., **Liu, Y**., Deterding, L.J., Poltorasky, V.P., Kedar, P.S., Horton, J.K., Kanno, S., Asagoshi, K., Hou, E.W., Khodyreva, S.V., Lavrik, O.I., Tomer, K.B., Yasui, A. and Wilson, S.H. (2007) HMGB1 is a cofactor in mammalian base excision repair. **Mol Cell** 27:829-841.
43. Kovtun, I.V., **Liu, Y**., Bjoras, M., Klungland, A., Wilson, S.H. and McMurray, C.T. (2007) OGG1 initiates age-dependent CAG trinucleotide expansion in somatic cells. **Nature**, 447 (24):447-452.
44. **Liu, Y**., Prasad, R., Beard, W.A., Kedar, P.S., Hou, E.W., Shock, D.D. and Wilson, S.H. (2007) Coordination of steps in single-nucleotide base excision repair mediated by apurinic/apyrimidinic endonuclease 1 and DNA polymerase β. **J Biol Chem** 282 (18):13532-13541.
45. **Liu, Y.,** Beard, W.A., Shock, D.D., Prasad, R., Hou, E.H. and Wilson, S.H. (2005) DNA polymerase β and flap endonuclease 1 enzymatic specificities sustain DNA synthesis for long-patch base excision repair. **J Biol Chem** 280 (5):3665-3674.
46. **Liu, Y.**, Kao, H., and Bambara, R.A. (2004) Flap Endonuclease 1: A central component of DNA metabolism. **Annu Rev Biochem** 73:589-615.
47. **Liu, Y**., Zhang, H., Veeraraghavan, J., Bambara, R.A., and Freudenreich, C.H. (2004) *Saccharomyces cerevisiae* flap endonuclease 1 uses flap equilibration to maintain triplet repeat stability. **Mol Cell Biol** 24 (9):4049-4064.
48. **Liu, Y.** and Bambara, R.A. (2003) Analysis of human flap endonuclease 1 mutants reveals a mechanism to prevent triplet repeat expansion. **J Biol Chem** 278:13728-13739.
49. Kao, H., Henricksen, L.A., **Liu, Y.** and Bambara, R.A. (2002) Cleavage specificity of *Saccharomyces cerevisiae* flap endonuclease 1 suggests a double-flap structure as the cellular substrate. **J Biol Chem** 277:14379-14389.
50. Xie, Y., ***Liu, Y.,** Argueso, J.L., Henricksen, L.A., Kao, H., Bambara, R.A. and Alani, E. (2001) Identification of *rad27* mutations that confer differential defects in mutation avoidance, repeat track instability, and flap cleavage. **Mol Cell Biol**, 21:4889-4899.
51. Henricksen, L.A, Tom, S., **Liu, Y.,** and Bambara, R.A. (2000) Inhibition of flap endonuclease 1 by flap secondary structure and relevance to repeat sequence expansion. **J Biol Chem** 275:16420-16427.
52. Smith, T.J., Liao, A.M., **Liu, Y.,** Jones, A.B., Anderson, L.M. and Yang, C.S. (1997) Enzymes involved in the bioactivitation of 4-(methylnitrosamino)-1-(3-pyridyl)-1- butanone in Patas monkey lung and liver microsomes. **Carcinogenesis** 18:1577-1584.
53. **Liu, Y.,** Liu, J., Zhang, X., Guo, R., Fan, M., Tao, Y. and Cao, Z. (1996) Studies on mutagenicity, teratogenicity and reproductive toxicity of magnetized water. **J Hygiene Res** 25:291-293.
54. **Liu, Y.,** Lin, S., Wang, Q., Chen, C., Yang, S. and Han, Y. (1996) Study on the effect of total intakes of calcium, magnesium and protein on fluorosis and fluoride tolerance. **J Hygiene Res** 25:213-216.
55. **Liu, Y.,** Lin, S., Wang, Q., Chen, C., Yang, S., Han, Y., Liu, X., Yang, Y., Zang, Z. and Zhang, F., (1995) Study on adequate and safe level of fluoride in drinking water and total intake of fluoride. **J Hygiene Res** 24:335-338.
56. Chen, C, **Liu, Y**. and Wang, X. (1995) Study on deterioration of environmental and ecosystem and its effect on human health, Science Foundation in China. **Bull Sci Foundation China** 3 (3):1-4.
57. Chen, C. and **Liu, Y**. (1993) International guideline for drinking water quality. **Water Supply Health China** 2:20-25.
58. **Liu, Y.,** Pan, X., Liu, S., Wang, J. and Xia, S. (1993) Study on correlation between organochloride pesticide exposure and adverse reproductive outcome in rural area in China. **Chinese J Public Health**, 12(1):54.
59. **Liu, Y.,** Pan, X., Liu, S., Wang, J. and Xia, S. (1993) Study of relationship between activity of cholinesterase and pesticide exposure in cotton growing and rice growing area. **Chinese J Public Health** 12(1):21-23.
60. **Liu, Y.,** Pan, X., Liu, S., Wang, J. and Xia, S. (1993) Comparison between organochloride pesticides

in chicken eggs in cotton growing and rice growing areas in Hubei province. **Chinese J Public Health** 9 (1):3.

61. Pan, X., Wang, J., Wu, Z., **Liu, Y.**, Liu, S., Xia, S., Li, J., Chen, D., Liu, C. (1993) A cohort study on correlation between pesticide exposure and adverse reproductive outcome. **Chinese J Eugenics** 4 (2):79-83.
62. Pan, X., Wang, J., Wu, Z., **Liu, Y.**, Xia, S. and Liu, S. (1992) A cohort study of effects of pesticide exposure on human fetal development. **Chinese J Public Health** 11(4):249
63. Liang, G., **Liu, Y.**, Xiao, C. and Zhou, Y. (1991) Determination of cobalt in serum by flow injection-chemiluminescence analysis. **Spectroscopy Spectral Analysis**. 11 (1):21-23.
64. Zhou, Y., Li, H. and **Liu, Y**. Liang, G. (1991) Chemiluminescence determination of vitamin B12 by a flow injection method. **Anal Chim Acta.**, 243, 127-130.
65. Zhou, Y., Li, H. and **Liu, Y**. (1989) Determination of vitamin B_{12} by chemiluminescence analysis. **Acta Pharm Sinica**, 24 (8):611-617.

BOOK CHAPTER

1. **Liu Y**, Prasad R and Wilson SH (2006) DNA Repair models for understanding triplet repeat instability. In Wells, R.D. and Ashizawa, T. Eds. **Genetic Instability and Neurological Diseases** 2nd edition, Elsevier-Academic Press, 2006, pp. 667-678.
2. Prasad R, Horton J, **Liu Y** and Wilson SH (2017) Central Steps in Mammalian BER and Regulation by PARP1: Molecular Mechanisms and Role in Disease Development and Therapeutic Design. In book: **The Base Excision Repair Pathway**, pp. 253-280, DOI: 10.1142/9789814719735_0007.

INVITED SCIENTIFIC PRESENTATIONS

Liu Y (2019) DNA base damage and repair and genome and epigenome stability, Department of Chemistry, University of Florida, December 13, 2019, Gainesville, Florida

Liu Y (2019) DNA base damage and base excision repair and instability of genetics and epigenetics, Department of Cell Biology, Microbiology and Molecular Biology, University of South Florida, November 1, 2019, Tempa, Florida

Liu Y (2019) Environmental toxicants and human neurodegenerative diseases, Chengdu Medical College School of Public Health, May 10, 2019, Chengdu, Sichuan, China

Liu Y (2019) Environmental toxicants and human neurodegenerative diseases, Chengdu Traditional Chinese Medicine School of Public Health, May 6, 2019, Chengdu, Sichuan, China

Liu Y (2019) Environmental toxicants and human neurodegenerative diseases, Sichuan University West China School of Public Health, April 29, 2019, Chengdu, Sichuan, China

Liu Y (2018) DNA damage landscape governs trinucleotide repeat instability FASEB SRC Dynamics of DNA Structures in Biology July 8-13, 2018, Olean, NY

Liu Y (2018) Base excision repair interplays with chromatin structures to modulate trinucleotide repeat instability, National Institute of Diabetics, Digestive and Kidney Diseases/National Institutes of Health, Bethesda, MD, April 11, 2018.

Liu Y (2018) DNA repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Barry University, Miami Shores, FL, March 14, 2018.

Liu Y (2017) DNA methylation pattern at BRCA1 gene is disrupted by environmentally-induced oxidative DNA damage via DNA base excision repair, EMGS 48th Annual Meeting, Raleigh, NC, September 9-13, 2017.

Liu Y (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Department of Biochemistry and Molecular Biology, West China School of Basic Biomedical Sciences and Forensic Medicine Sichuan University, Chengdu, Sichuan, China, May 15, 2017.

Liu Y (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Institute of Environment and Health, Jianghan University, Wuhan, Hubei, China, May 11, 2017.

Liu Y (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Department of Nutrition, Tongji Medical College School of Public Health, HuaZhong Science and Technology University, Wuhan, Hubei, China, May 9, 2017.

Liu Y (2016) Applications of DNA repair in human disease prevention and treatment. 2016 Annual Meeting of Sichuan Environmental Health Society and Sichuan Disinfection Agents and Vector Organisms Society, Mianzhu, Sichuan, China, November 23-26, 2016

Liu Y (2016) Environmentally-induced Oxidative DNA damage disrupts DNA methylation pattern in human breast cancer 1 (BRCA1) gene via base excision repair. Environmental Mutagenesis and Genomics Society 47th Annual Meeting, Kansas City, MO, September 17-24, 2016.

Liu Y (2016) Functional Coordination of DNA polymerase β dual enzymatic activities prevents trinucleotide repeat instability. FASEB SRC Dynamic DNA Structures in Biology, Saxon River, VT, July 10-15, 2016.

Liu Y (2016) Chemotherapeutic treatment of trinucleotide repeat expansion diseases via DNA damage and repair. National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, MD, May 5, 2016.

Liu Y (2016) DNA lesion repair and trinucleotide repeat instability. Gordon Research Conference DNA Damage, Mutation & Cancer**,** Ventura Beach Marriott, Ventura, CA, March 13-18, 2016.

Liu Y (2015) DNA damage repair regulates genome instability to prevent human neurodegeneration. Florida Memorial University, Miami, FL, October 27, 2015.

Liu Y (2015) Oxidative DNA damage repair and repeat sequence instability. COST action CM1201: Biomimetic Radical Chemistry, 4th MC meeting and 3rd Annual Scientific Meeting, Athens, Greece, May 11-14, 2015.

Liu Y (2014) Somatic Trinucleotide repeat instability and treatment of human neurodegenerative diseases, Sichuan University West China School of Public Health, Chengdu, Sichuan, China May 22, 2014.

Liu Y (2013) Trinucleotide repeat expansion via DNA base lesion repair. EMGS DNA Repair Special Interest Group, Environmental Mutagenesis and Genomics Society 42nd Annual Meeting, Monterey, CA, September 21-25, 2013.

Liu Y (2013) Trinucleotide repeat instability via DNA base lesion repair. Department of Biochemistry and Biophysics, University of Rochester School of Medicine and Dentistry, August 7, 2013, Rochester, NY.

Liu Y (2012) The position of a DNA base lesion governs the stability of trinucleotide repeats through DNA base excision repair. FASEB SRC: Scientific Research Conferences-Dynamic DNA Structures in Biology, June 17-22, 2012.

Liu Y (2012) Trinucleotide repeat deletion via a unique hairpin bypass by DNA polymerase β and FEN1. Gordon Research Conference-DNA Damage, Mutation & Cancer, Ventura, CA, March 25-30, 2012.

Liu, Y. (2012) DNA base lesion repair and trinucleotide repeat instability. Department of Biochemistry and Molecular Biology, University of Miami School of Medicine, Miami, FL, January, 2012.

Liu, Y. (2011) Perspectives on DNA Base Lesion Repair: Cellular and molecular implications in human diseases, Department of Chemistry, Florida Institute of Technology, Melbourne, FL, February, 2011.

Liu, Y. (2010) Perspectives on DNA Base Lesion Repair: Cellular and molecular implications in human diseases, Department of Cellular Biology and Pharmacology, College of Medicine, Florida International University, Miami, FL, October, 2010.

Liu, Y. (2010) Perspectives on DNA base lesion repair, Department of Chemistry and Biochemistry, College of Arts and Sciences, Florida International University, Miami, FL, March, 2010.

Liu, Y. (2010) Perspectives on DNA base lesion repair, Department of Radiation Oncology, College of Physicians and Surgeons, Columbia University, New York, NY, February, 2010.

Liu, Y. (2010) Perspectives on DNA base lesion repair, Department of Biochemistry, University of Iowa, Iowa City, IA, January 2010.

Liu, Y. (2009) Implication of oxidative DNA damage and base excision repair in human diseases, Shenzhen Center for Disease Control and Prevention, Shenzhen, Guangdong, China, August, 2009.

Liu, Y. (2009) Implication of genomic damage in human neurodegeneration. Department of Environmental & Occupational Health, Robert Stempel College of Public Health and Social Work, Florida International University, Miami, Florida, USA, June, 2009.

Liu, Y. (2009) Implication of genomic damage in human neurodegeneration. Burnett School of Biomedical Sciences, College of Medicine, University of Central Florida, Orlando, Florida, USA, May, 2009.

Liu, Y., Prasad, R., Beard, W.A., Hou, E.W., Horton, J.K., McMurray, C.T. and Wilson, S.H. (2009) Coordination between DNA polymerase β and flap endonuclease 1 modulates CAG repeat expansion associated with Huntington's disease 3rd US EU Conference-Repair of Endogenous Genome Damage, Galveston, TX, USA, Feb. 21-25, 2009.

Liu, Y., Prasad R., Beard, W.A., Kedar, P.S., Shock, D.D., Hou, E.W. and Wilson, S.H. (2006) Molecular coordination of DNA base excision repair mediated by protein-protein and protein-DNA interactions. ***Fourth Annual NIEHS Science Awards Day, Nov. 2, 2006,*** National Institute of Environmental Health Sciences (NIEHS)/National Institutes of Health (NIH), Research Triangle Park, NC, USA.

Liu, Y. (2003) Eukaryotic flap endonuclease 1 (FEN1) maintains stability of repeat sequence during DNA replication. Laboratory of Structural Biology, National Institute of Environmental Health Sciences (NIEHS)/National Institutes of Health (NIH), Research Triangle Park, NC. USA, July 2003.

Trainees

Graduate students with Ph.D. (Major Professor)

Meng Xu, Ph.D. (2014), Chemistry, Department of Chemistry and Biochemistry, Florida International University
Yanhao Lai, Ph.D. (2014) Biomedical Sciences, Sichuan University West China School of Public Health, Chengdu, Sichuan, China
Jill Beaver, Ph.D. (2016), Biochemistry, Biochemistry Ph.D. Program, Florida International University
Zhongliang Jiang, Ph.D. (2017), Biochemistry. Biochemistry Ph.D. Program, Florida International University
Yaou Ren, Ph.D. (2018), Biochemistry, Biochemistry Ph.D. Program, Florida International University
Eduardo Laverde (2015-present), Biochemistry, Biochemistry Ph.D. Program, Florida International University
Pawlos Tsegay (2017-present), Biochemistry, Biochemistry Ph.D. Program, Florida International University

Postdoctoral fellows

Yanhao Lai, Ph.D. (2014-present), Department of Chemistry and Biochemistry, Florida International University
Zhongliang Jiang, Ph.D. (2017-2018), Department of Chemistry and Biochemistry, Florida International University

Graduate Committee

Zhiwei Duan M.S., Chemistry, 2010-2012
Sabina Stice, Ph.D., Chemistry, 2010-2014
Deepti Nori, Ph.D., Chemistry, 2010-2014
Jessica Zayas, Ph.D., Chemistry, 2010-2015
Qinghao He, Ph.D., Chemistry, 2011-2016
Elena Shersher, Ph.D., Biochemistry, 2011-2016
Pingping Liang, Ph.D., Chemistry, 2011-2016
Wei Chen, Ph.D., Chemistry, 2011-2016
Khoa Pham, Ph.D., Chemistry, 2012-2016
Walter Gonzalez, Ph.D., Chemistry, 2011-2016
Jiaojiao Li, Ph.D., Basic Biomedical Sciences, 2011-2017
Qingxuan Zhou, Ph.D., Biochemistry, 2012-2017

Joana Antunes, Ph.D., Biochemistry, 2011-2017
Shrikanth Banda, Ph.D., Biochemistry, 2012-2017
Shayna Sandhaus, Ph.D. Chemistry, 2013-2017
Javier Pino, Ph.D., Biological Sciences, 2012-2017
Alyssa Garabedian, Ph.D., Chemistry, 2013-2018
Georgiana Gibson-Daw, Ph.D., Chemistry, 2014-2018
Anupama Tuladhar, Ph.D., Chemistry, 2013-2018
Elwood Kwong, Ph.D., Biochemistry, 2013-2018
Jessical Lopez, Ph.D., Biochemistry, 2013-2018
Nan Cao, Ph.D. Biochemistry, 2012-2018
Pamela Garcia, Ph.D., Biochemistry, 2013-2018
Leah Newzow, Ph.D. Biochemistry and Molecular Biology, University of Miami, 2013-2018
Haixiang Yu, Ph.D., Biochemistry, 2013-2019
Wenjie Wang, Ph.D., Chemistry, 2014-2019
Ahmed Seddek, Chemistry, 2016-present
Fabiana Taglia, Chemistry, 2016-present
Hussain Alghanim, 2015-present
Jing Guo, Physics, 2016-present
Manqi Zhang, Biochemistry, 2014-present
Meghan Roig, Chemistry, 2015-present
Nisha Bhattarai, Physics, 2016-present
Quentin Gauthier, Chemistry, 2015-present
Rajib Dutta, Basic Biomedical Sciences, 2015-present
Maria Lopez, Basic Biomedical Sciences, 2017-present
Samiol Azam, Chemistry, 2015-present
Tumpa Dasgupta, Biochemistry, 2017-present
Xiaoqing Tang, Biochemistry, 2016-present
Yongjian Guo, Biochemistry, 2014-present
Rifat Farhana, Chemistry, 2018-present