

**BIOGRAPHICAL SKETCH**

NAME: Sandeep K. Mallipattu

eRA COMMONS USER NAME (credential, e.g., agency login): smallipattu

POSITION TITLE: Professor

**EDUCATION/TRAINING**

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
1) Univ. of California, San Diego (La Jolla, CA)	BS	6/2003	Biomedical Engineering
2) Boston University (Boston, MA)	MD	5/2007	Medicine
3) Icahn School of Med. At Mount Sinai (NY, NY)	-	6/2008	Internal Medicine (Internship)
4) Icahn School of Med. At Mount Sinai (NY, NY)	-	6/2009	Internal Medicine (Residency)
5) Icahn School of Med. At Mount Sinai (NY, NY)	-	6/2013	Nephrology (Fellowship)

**A. Personal Statement**

The focus of our research is on the molecular mechanisms mediating the development and progression of kidney diseases. Our laboratory concentrates on the critical role of a family of zinc finger transcription factors called Krüppel-Like Factors (KLFs). We have found evidence that specific KLFs are critically involved in regulating fundamental cellular processes in the kidney such as epithelial cell differentiation, cell-cycle, and metabolic processes and has been recognized by the Presidential Early Career Award for Scientists and Engineers (PECASE). We are currently using both *in vitro* and *in vivo* approaches to establish the physiological and pathophysiological functions of KLFs in kidney disease, which includes cell metabolism, mitochondrial complex assembly, and cell proliferation/differentiation.

In the past several years, I have invested resources and effort to mentor trainees at every stage of their career (undergraduate, graduate, post-doctoral), which has led to research awards and extramural training and career development grants. Furthermore, I am leading the LINCATS K12 program, further demonstrating a commitment to training for future scientists and physician-scientists. Specifically, I have mentored 9 post-doctoral fellows (7 training grant eligible), 3 in active training in my laboratory and 4 with previous support of NIH Fellowship Training Grants (F32) and Career Development Awards, and eventual transition to faculty positions. In addition, have mentored > 20 students, leading to successful transition to eventual graduate programs (MD, PhD, and MD/PhD), with a focus on translational and laboratory-based research.

Ongoing and recently completed projects that I would like to highlight include:

- 1R01DK112984** Mallipattu (PI) 6/2/17-4/30/23  
Transcriptional control of mitochondrial function by KLF6 in diabetic kidney disease
- 1I01BX003698** Mallipattu (PI) 1/1/18-12/30/27  
The role of KLF15 in proximal tubule metabolism (+Clinical Scientist Investigator Award)
- 1R01DK121846-01A1** Mallipattu (PI) 9/15/20-6/30/25  
Mechanisms mediating podocyte-parietal epithelial cell crosstalk in proliferative glomerulopathies
- 1I01BX005300-01** Mallipattu (PI) 1/1/21-12/30/24  
Small Molecule KLF15 Agonists for Kidney Disease
- RFP #20-02-RSG** Mallipattu (PI) 10/15/20-4/14/22  
Center for Kidney Regeneration
- OT2HL161847, EHR-03-21** Mallipattu (Co-I) 10/1/21-5/23/25  
COVID-19 Non-Clinical Research: Collaborative Analytics for EHR- and Other Real-World Data in N3C

Completed Research Support (for the last 3 years)

- 1I1S1BX004815-01** Mallipattu (PI) 1/1/19-12/31/19

## ShEEP Request for High-Throughput Single Cell Genomics Instrumentation

- |   |                 |                |
|---|-----------------|----------------|
| <b>2. 5 K08 DK102519</b>  | Mallipattu (PI) | 9/1/14-6/30/19 |
| The role of KLF15 as a transcriptional regulator of podocyte differentiation. |                 |                |
| <b>3. Paul Teschan Research Fund</b>  | Mallipattu (PI) | 2/1/17-6/30/19 |
| Mitochondrial dysfunction drives the progression of diabetic nephropathy      |                 |                |

**Key citations:**

1. **Mallipattu SK\***, Horne SJ, D'Agati V, Narla G, Liu R, Frohman MA, et al. Krüppel-like factor 6 regulates mitochondrial function in the kidney. *The Journal of clinical investigation* (2015). *The Journal of clinical investigation* (2015). PubMed PMID: 25689250.
2. **Mallipattu SK\***, Guo Y, Revelo MP, Roa-Pena L, Miller T, Ling J, et al. Krüppel-like Factor 15 Mediates Glucocorticoid-Induced Restoration of Podocyte Differentiation Markers. *Journal of the American Society of Nephrology* : JASN. 2016. doi: 10.1681/ajkd.2016.01.001. PubMed PMID: 27288011.
3. Pace JA, Bronstein R, Guo Y, Yang Y, Estrada CC, Gujarati N, Salant DJ, Haley J, Bialkowska AB, Yang VW, He JC, **Mallipattu SK\***. Podocyte-specific KLF4 is required to maintain parietal epithelial cell quiescence in the kidney. *Sci Adv*. 2021;7(36):eabg6600. Epub 2021/09/14. doi: 10.1126/sciadv.abg6600. PubMed PMID: 34516901; PMCID: PMC8442927.
4. Piret SE, Guo Y, Attallah AA, Horne SJ, Zollman A, Owusu D, Henein J, Sidorenko VS, Revelo MP, Hato T, Ma'ayan A, He JC, **Mallipattu SK\***. Kruppel-like factor 6-mediated loss of BCAA catabolism contributes to kidney injury in mice and humans. *Proc Natl Acad Sci U S A*. 2021;118(23). Epub 2021/06/03. doi: 10.1073/pnas.2024414118. PubMed PMID: 34074766; PMCID: PMC8201852.

(\*corresponding author)

**B. Positions, Scientific Appointments, and Honors****Positions and scientific appointments**

2021-current: Professor (Tenured), Div. of Nephrology, Dept. of Medicine, Stony Brook University  
 2018-current: DCI-Martin R. Liebowitz Endowed Professorship in Nephrology  
 2017-current: Chief of Nephrology, Stony Brook University School of Medicine  
 2017-current: Staff Physician, Division of Nephrology, Dept. of Medicine, Northport VAMC  
 2017-2021: Associate Professor (Tenured), Div. of Nephrology, Dept. of Medicine, Stony Brook University  
 2013-2017: Assistant Professor, Division of Nephrology, Dept. of Medicine, Stony Brook University

**Other Experiences (selected)**

2021-current: Study Section- NIH/NIDDK Pathobiology of Kidney Disease (standing member 2021-2025)  
 2021: Office of Provost: Biotechnology, Medical Technology, Genomics, and Synthetic Biology Working Group (SBU)  
 2021: Co-chair Enhancing Clinical Research Working Group (Office of President, SBU)  
 2021: Co-chair - Enhancing Research Productivity Working Group (Financial Sustainability Steering Committee, Office of President, SBU)  
 2020: COVID-19 Data Registry Coordinating Group (Stony Brook Medicine)  
 2020: Advisory Committee for Office of Scientific Affairs (Stony Brook University)  
 2020-current: CTSA KL2 Planning Committee (Stony Brook Medicine)  
 2020-2021: Search Committee for Vice President for Advancement (Office of President, SBU)  
 2020-2021: Research & Innovation Task Force (Office of President, Stony Brook University)  
 2020-2021: NIDDK Institute-Wide Strategic Planning Group (Stewardship Working Group)  
 2020: National COVID Cohort Collaborative (N3C)-National Center for Data to Health (CD2H), COVID-19 AKI Working Group Lead (NIH)  
 2020: Lead Implementation of the CMS Kidney Care First Model (Stony Brook Medicine)  
 2019-current: Appointments, Promotions, Tenure (APT) Committee, School of Medicine  
 2019-current: Study Section- NIH/NIDDK DDK-D Kidney, Urology, and Hematology (KUH) fellowship application (standing member 2019-2023)  
 2019-current: PhD Thesis Committee (Candidate: Caitlyn Cardetti)

2019: Chair Research Section of Department of Medicine Strategic Planning Meeting, DOM  
 2019, 2020: American Society of Nephrology Kidney Week (Moderator)  
 2019-2021: NephCure-Neptune Ancillary Grant and CureGN Pilot Project Review Committee  
 2019: Office of the Vice President for Research Seed Program Review Committee  
 2019: NIDDK Diabetes Complications Consortium Review Committee (Pilot & Feasibility Applications)  
 2019: Co-Chair Study Section- NIH/NIDDK Nephrology Small Business ZRG1 DKUS-L  
 2018: Physician Credentials Committee, Department of Medicine  
 2018: Community Outreach- Understanding Chronic Kidney Disease (Stony Brook Medicine)  
 2018-2020: Study Section- NIH/NIDDK Pathobiology of Kidney Disease  
 2018-2020: Reviewer Kidney Precision Medicine Project Abstracts (RFA-KPMP-OP-18-004)  
 2018-2019 Study Section Special Emphasis Panel (SEP) Study Section [ZRG1-EMNR-F(50)R]-  
 (Early-Stage Preclinical Validation of Therapeutic Leads for Diseases of Interest to the NIDDK)  
 2018-2019: Study Section (DOM Pilot Project Review Committee, Stony Brook Medicine)  
 2018: Study Section- Stony Brook University Targeted Research Opportunities (TRO) Fusion  
 Research Awards  
 2018: Study Section- NIH/NIDDK ZRG1 DKUS-B (03) M (Member Conflict: Topics in Nephrology)  
 2017-current: Study Section- Veterans Affairs BL&CS R&D Merit Review - Nephrology Subcommittee  
 2017: ASN-NMRI Workshop Award Recipient NIDDK Network of Minority Health Research  
 Investigators (NMRI) program  
 2017-2019: Faculty Development Committee, Department of Medicine  
 2017-2018: Scholarly Concentrations Program (SCP) Steering Committee, School of Medicine  
 2015: Invitation for the Alliance for Academic Internal Medicine (AAIM)- Third Consensus Conference  
 on the Physician Investigator Workforce  
 2015-2020: Reviewer American Society of Nephrology Abstracts (ASN Kidney Week)  
 2014-current: Editorial Board: Frontiers in Medicine- Nephrology  
 2014-2018: Organize Department of Medicine Research Seminar  
 2014-2018: BioBank Advisory Committee, School of Medicine  
 2014-2016: Review Committee for Department of Medicine Pilot Project Grant  
 2014-2015: Study Section (DOM Pilot Project Review Committee, Stony Brook Medicine)  
 2013-current: Fellowship Review Committee, Division of Nephrology  
 2013-current: Clinical Core Competency Committee, Division of Nephrology  
 2011-current: Reviewer for following peer-reviewed journals: (*American Journal of Nephrology, Infectious  
 Diseases and Public Health, Diabetes and Complications, Journal of Infection and Public  
 Health, International Journal of Nephrology, Annals of Internal Medicine, Journal of Diabetes  
 and Complications, Journal of Clinical Investigation, Scientific Reports, Nature Communications,  
 Biochemical Journal, Frontiers in Medicine, Endocrine, Molecular Oncology, American Journal  
 of Nephrology, American Journal of Physiology-Renal, Molecular Biology of the Cell, FASEB,  
 Kidney International, BMC Nephrology, Oncotarget, Journal of Clinical Investigation Insight,  
 Laboratory Investigation, Journal of American Society of Nephrology, Nature Metabolism,  
 Science Advances*)

### **Honors:**

2022: Clinical Scientist Investigator (CSI) Award, Veterans Affairs  
 2022: Graduate of Clinical Leadership Academy (SUNY Sail Institute)  
 2019: Presidential Early Career Award for Scientists and Engineers (PECASE)  
 2019: Discovery Prize Finalist (Stony Brook University)  
 2019: Department of Medicine Mentoring Award (Stony Brook University)  
 2018: Fellow of American Society of Nephrology  
 2015: Department of Medicine Basic Research Award (Stony Brook University)  
 2015: American Society of Clinical Investigation (ASCI) Young Physician-Scientist Award  
 2012-2018: NIH Extramural Loan Repayment Program Award  
 2010-2017: American Society of Nephrology Professional Development Conference Award, DOM Medicine  
 Research Award (Icahn School of Med. at Mount Sinai), New York Society of Nephrology Best  
 Oral Research Presentation Award, FASEB Conference Award (Pathobiology of Krüppel-like  
 Factors in kidney disease), GME Research Best Oral Presentation Award, DOM Best Poster  
 Presentation Award (Icahn School of Med. at Mount Sinai), American Society of Nephrology

Conference Award (PCORI), American Society of Nephrology PCORI Conference Award, FASEB Renal Hemodynamics and Cardiovascular Function in Disease Research Award, ASN/NIDDK NMRI Program Award

1998-2004: Howard Hughes Research Program Awardee, Provost Honors, Tau Beta Pi (Engineering Honor Society), Phi Beta Kappa (Honor Society), Research Award in Bioengineering, Magna Cum Laude (University of California, San Diego), Serchuck Research Scholarship (Boston University)

### C. Contribution to Science

**1. Mechanism(s) by which HIV-1 transgene contributes to progression of glomerular injury.** As a postdoctoral fellow under the mentorship of Dr. John C. He and Christina Wyatt, I examined the effects of HIV in the progression of chronic kidney disease. We explored the epidemiology of HIV-related kidney diseases in the antiretroviral era and the deep dichotomy that exists between the developed nations and the emerging economies of the world. Furthermore, we explored potential therapeutic targets in HIV-related kidney diseases by inhibiting the critical STAT3 signaling pathway in models of HIVAN. In addition, by utilizing a system biology approach of drug-induced expression signatures, we identified the renoprotective effect of combination drug therapy in the treatment of HIV-associated nephropathy. This work has contributed to our clinical understanding of HIV-related kidney disease in the era of antiretroviral therapy.

- A. **Mallipattu SK**, Wyatt CM, He JC. The New Epidemiology of HIV-Related Kidney Disease. *Journal of AIDS & clinical research* (2012) **Suppl 4**:001. doi: 10.4172/2155-6113.S4-001. PubMed PMID: 25309811; PubMed Central PMCID: PMC4190040.
- B. Zhong Y, Chen EY, Liu R, Chuang PY, **Mallipattu SK**, Tan CM, He JC. Renoprotective effect of combined inhibition of angiotensin-converting enzyme and histone deacetylase. *Journal of the American Society of Nephrology : JASN* (2013) **24**(5):801-11. doi: 10.1681/ASN.2012060590. PubMed PMID: 23559582; PubMed Central PMCID: PMC3636790.
- C. Gu L, Dai Y, Xu J, **Mallipattu SK**, Kaufman L, Klotman PE, et al. Deletion of podocyte STAT3 mitigates the entire spectrum of HIV-1-associated nephropathy. *AIDS (London, England)* (2013) **27**(7):1091-8. doi: 10.1097/QAD.0b013e32835f1ea1. PubMed PMID: 23343908; PubMed Central PMCID: PMC3918880.
- D. **Mallipattu SK**, Salem F, Wyatt CM. The changing epidemiology of HIV-related chronic kidney disease in the era of antiretroviral therapy. *Kidney international* (2014) **86**(2):259-65. doi: 10.1038/ki.2014.44. PubMed PMID: 24573317.

**2. Identifying the mechanism(s) mediating the progression of diabetic kidney disease.** As I transitioned to an independent laboratory at Stony Brook Medicine in 2013, we have utilized novel mouse models to characterize the mechanisms(s) mediating the progression of diabetic kidney disease. These key studies have led to identification of key inflammatory signaling pathways as well as key transcriptional regulators mediating these pathways in early DKD.

- A. **Mallipattu SK**, Liu R, Zhong Y, Chen EY, D'Agati V, Kaufman L, et al. Expression of HIV transgene aggravates kidney injury in diabetic mice. *Kidney international* (2013) **83**(4):626-34. doi: 10.1038/ki.2012.445. PubMed PMID: 23325078; PubMed Central PMCID: PMC3612382.
- B. **Mallipattu SK**, Gallagher EJ, LeRoith D, Liu R, Mehrotra A, Horne SJ, et al. Diabetic nephropathy in a nonobese mouse model of type 2 diabetes mellitus. *American journal of physiology Renal physiology* (2014) **306**(9):F1008-17. doi: 10.1152/ajprenal.00597.2013. PubMed PMID: 24598803; PubMed Central PMCID: PMC4010680.
- C. Horne SJ, Vasquez J, Guo Y, Ly V, Piret S, Leonardo A, Ling J, Revelo MP, Bogenhagen D, Yang VW, He JC, **Mallipattu SK**\*. Podocyte-Specific Loss of Kruppel-Like Factor 6 Increases Mitochondrial Injury in Diabetic Kidney Disease. *Diabetes*. 2018. doi: 10.2337/db17-0958. PubMed PMID: 30115650. (\*corresponding author)
- D. Zhong F, Chen H, Wei C, Zhang W, Li Z, Jain MK, **Mallipattu SK**, He JC. Reduced Kruppel-like factor 2 expression may aggravate the endothelial injury of diabetic nephropathy. *Kidney international* (2015) **87**(2):382-95. doi: 10.1038/PubMed PMID: 25185079; PubMed Central PMCID: PMC4312548.

**3. Identifying the critical role of Krüppel-Like Factors (KLFs) in maintaining homeostasis under cell stress in the kidney.** We have reported the role of other KLFs (KLF4, KLF6, and KLF15) in their role in mediating various cell processes in the kidney. The focus of my lab is to explore the mechanisms by which KLFs maintain

cell homeostasis under stress in the kidney. This work has resulted in key publications and expanded the understanding of the role of transcriptional regulation in the kidney, and its impact on kidney disease progression.

- A. **Mallipattu SK\***, Horne SJ, D'Agati V, Narla G, Liu R, Frohman MA, et al. Krüppel-like factor 6 regulates mitochondrial function in the kidney. *The Journal of clinical investigation* (2015). *The Journal of clinical investigation* (2015). PubMed PMID: 25689250. (**\*corresponding author**)
- B. **Mallipattu SK\***, Guo Y, Revelo MP, Roa-Pena L, Miller T, Ling J, et al. Krüppel-like Factor 15 Mediates Glucocorticoid-Induced Restoration of Podocyte Differentiation Markers. *Journal of the American Society of Nephrology* : JASN. 2016. PMID: 27288011. (**\*corresponding author**)
- C. Guo Y, Pace J, Li Z, Ma'ayan A, Wang Z, Revelo MP, He JC, **Mallipattu SK\***. Podocyte-Specific Induction of Kruppel-Like Factor 15 Restores Differentiation Markers and Attenuates Kidney Injury in Proteinuric Kidney Disease. *Journal of the American Society of Nephrology*: JASN. 2018. PubMed PMID: 30143559. (**\*corresponding author**)
- D. Piret SE, Guo Y, Attallah AA, Horne SJ, Zollman A, Owusu D, Henein J, Sidorenko VS, Revelo MP, Hato T, Ma'ayan A, He JC, **Mallipattu SK\***. Kruppel-like factor 6-mediated loss of BCAA catabolism contributes to kidney injury in mice and humans. *Proc Natl Acad Sci U S A*. 2021;118(23). PubMed PMID: 34074766. (**\*corresponding author**)

**4. Mechanisms mediating kidney disease in COVID-19.** During the midst of the COVID-19 crisis, in partnership with Biomedical Informatics, we sought to investigate the mechanisms mediating kidney disease as well as RAAS blockade in COVID-19. We also co-led the creation of the COVID-19 Data Registry at Stony Brook Medicine. Subsequently, this served as the platform to have him lead the national effort on the AKI-COVID-19 working group in the National COVID Cohort Collaborative (N3C)-National Center for Data to Health (CD2H) with the NIH. This work has contributed to the following key publications:

1. Bolotova O, Yoo J, Chaudhri I, Marcos LA, Sahib H, Koraisly FM, Skopicki H, Ahmad S, **Mallipattu SK\***. Safety, Tolerability, and Efficacy of Losartan in Patients Hospitalized with SARS-CoV-2 Infection: A Feasibility Study. *PlosOne* (2020). Dec 30;15(12):e0244708. PMID: 33378401 (**\*corresponding author**)
2. Chaudhri I, Koraisly FM, Bolotova O, Yoo J, Marcos LA, Skopicki H, **Mallipattu SK\***. Outcomes associated with the use of RAAS Blockade in hospitalized patients with SARS-CoV-2 infection. *Kidney360* (2020). doi:10.34067/KID.0003792020. PMID: 33345195. (**\*corresponding author**)
3. **Stony Brook COVID-19 Research Consortium (Mallipattu SK\*)**. Geospatial Distribution and Predictors of Mortality in Hospitalized Patients with COVID-19: A Cohort Study. *Open Forum Infectious Diseases* (2020). Sep 14;7(10):ofaa436. doi: 10.1093/ofid/ofaa436. PMID: 33117852. (**\*corresponding author**)
4. Bennett TD, Moffitt RA, Hajagos JG, Amor B, Anand A, Bissell MM, K, Lehmann HP, **Mallipattu SK**, Manna A, Austin CP, Saltz JH, Gersing KR, Haendel MA, Chute CG, National CCCC. Clinical Characterization and Prediction of Clinical Severity of SARS-CoV-2 Infection Among US Adults Using Data From the US National COVID Cohort Collaborative. *JAMA Netw Open*. 2021;4(7):e2116901. Epub 2021/07/14. doi: 10.1001/jamanetworkopen.2021.16901. PubMed PMID: 34255046.

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