Curriculum Vitae
Sunder Sims-Lucas, B.S. (Hons), Ph.D.

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Contact Information

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Foreign Languages:	None

Education
1999-2001 B.S. Anatomy/Physiology, Monash University, Melbourne, Australia
2001-2002 B.S. (Honours), Kidney Development, Monash University
2003-2008 Ph.D., Kidney Development, Monash University, Thesis Advisor: John F. Bertram
"The Role of Transforming Growth Factor β2 in Kidney Development"

Post Graduate Education and Training
2007-2007 Postdoctoral Fellowship, Lung Stem Cells, Australian Stem Cell Centre, Melbourne, Australia (Advisor: Ivan Bertoncello)
2007-2008 Postdoctoral Fellowship, Kidney Development, Nationwide Children's Hospital, Columbus, Ohio (Advisor: Carlton Bates)
2008-2012 Postdoctoral Fellowship, Kidney Development, University of Pittsburgh (Advisor: Carlton Bates)

Employment History
Academic Appointments
2013-2013 Instructor, Department of Pediatrics, University of Pittsburgh
2013-2016 Assistant Professor, Department of Pediatrics, University of Pittsburgh
2016-2021 Assistant Professor, Department of Pediatrics, University of Pittsburgh
2016-2021 Assistant Professor (secondary), Clinical and Translational Science Institute, University of Pittsburgh
2021-2025 Associate Professor, tenured, Department of Pediatrics, University of Pittsburgh
2025-2026 Professor, tenured, Department of Pediatrics, University of Pittsburgh

Honors and Awards
2002 First Class Honours, Monash University
2005 Best Presentation Award, Postgraduate Symposium, Department of Anatomy and Cell Biology, Monash University
2009 International AIDS Society (IAS)/National Institutes of Health Scholarship Award, Cape Town, South Africa

Professional Society Memberships
2008-present Member, American Society of Nephrology
2012-present Member, North American Vascular Biology Organization
2012-present Member, Vascular Medicine Institute
2013-present Member, American Physiological Society

Administrative Service

Institutional Service

University of Pittsburgh

2011-2018 Chair, Organizing Committee, Annual Rangos Research Symposium (graduate students and post-doctoral fellows), Children's Hospital of Pittsburgh
2013-2026 Faculty Representative and Chair, Organizing Committee, Summer Undergraduate Research Intern Program (approximately 50 undergraduate students annually)
2016-2026 Faculty Representative and Chair, Organizing Committee, Summer High School Intern Program, Pittsburgh Public Schools (4 students annually)
2016-2020 Member, Interdisciplinary Biomedical Graduate Program Admissions Committee
2017-2026 Director of Student Research Training, Department of Pediatrics, University of Pittsburgh
2017-2026 Member, Educational Leadership Committee, Children's Hospital of Pittsburgh
2018-2019 Chair, Interdisciplinary Biomedical Graduate Program Admissions Committee
2018-present Director, HistoPathology Core, UPMC Children's Hospital of Pittsburgh
2020-2026 Associate Vice Chair for Education, Department of Pediatrics, University of Pittsburgh (research training and development)
2024-2025 Member, Integrative Systems Biology Ph.D. Program Admissions Committee
2024-2026 Director of Research, Division of Pediatric Nephrology, University of Pittsburgh
2024-2026 Director, Administrative Core, U2C/TL1 Training Program, University of Pittsburgh
2025-2026 Member, Cell Biology and Molecular Physiology Ph.D. Program Admissions Committee
2026 Organizing Chair, 2026 KUH Undergraduate Research Symposium, University of Pittsburgh (capstone symposium for undergraduate trainees in the NIDDK Summer Research Experience, R25-DK119180)

Local Service

2015-2026 Ad Hoc Reviewer, Center for Medical Research Funds (CMRF), University of Pittsburgh

National Service

Ad hoc Manuscript Review

2008-present Ad Hoc Reviewer, *American Journal of Physiology-Renal Physiology* (3/yr)
2008-present Ad Hoc Reviewer, *Pediatric Research* (1/yr)
2011-present Ad Hoc Reviewer, *Development* (1/yr)
2011-present Ad Hoc Reviewer, *Developmental Biology* (1/yr)
2011-present Ad Hoc Reviewer, *Journal of the American Society of Nephrology* (4/yr)
2013-present Ad Hoc Reviewer, *Pediatric Nephrology* (1/yr)
2013-present Ad Hoc Reviewer, *Physiological Genomics* (1/yr)
2013-present Ad Hoc Reviewer, *Yonsei Medical Journal* (every other year)
2013-present Ad Hoc Reviewer, *Cytotherapy* (every other year)
2016-present Ad Hoc Reviewer, *Kidney International* (2/yr)
2020-present Ad Hoc Reviewer, *JCI Insight* (4/yr)
2022-present Ad Hoc Reviewer, *Journal of Clinical Investigation* (2/yr)
2023-present Ad Hoc Reviewer, *PNAS* (1/yr)
2023-present Ad Hoc Reviewer, *Redox Biology* (2/yr)

Editorial Roles

2014 Guest Editor, *Frontiers in Cell and Developmental Biology* (special issue: Organogenesis: From Development to Disease)

2019-present Editorial Board Member, *Physiological Reports*

Conference Abstract Review

2014-present Abstract Reviewer, American Society of Nephrology Annual Meeting

Grant Review

2015-present Ad Hoc Reviewer, NIH R03 Grants, NIDDK

2016-present Ad Hoc Reviewer, DiaComp Grants

2017-present Ad Hoc Reviewer, NIH P30 O'Brien Center Grants, NIDDK

2018-present Ad Hoc Reviewer, NIH R01 Grants, NIDDK-PBKD Study Section

2019-present Ad Hoc Reviewer, American Heart Association Fellowship Grants

2021-present Ad Hoc Reviewer, NIH R01 Grants, NIDDK-SEP Topics in Nephrology

2022-present Ad Hoc Reviewer, NIH NIDDK-KUH Fellowship and DDK-D Member COI

2023-present Ad Hoc Reviewer, NIH NIDDK-KUH Fellowship Applications, DDK-G Study Section

2024-present Standing Member, NIH NIDDK-KUH Fellowship Applications, DDK-G Study Section

2026 Chairperson, NIH Center for Scientific Review Special Emphasis Panel ZRG1 F14-G (20), Fellowships: Kidney, Urology, and Skin, National Institutes of Health, Bethesda, MD

Moderator, Scientific Meetings

2017 Session Moderator, "Novel Pathways, Differentiation, and New Insights in the Developing Kidney," American Society of Nephrology Annual Meeting, New Orleans, LA

2019 Session Moderator, "Novel Pathways, Vascularization and Innervation of the Kidneys," American Society of Nephrology Annual Meeting, Washington, DC

2021 Session Moderator, "Novel Pathways, Maladaptive Responses to AKI," American Society of Nephrology Annual Meeting (virtual)

2023 Session Moderator, "Maternal and Environmental Factors: Effect on Kidney Formation and Function," American Society of Nephrology Annual Meeting (virtual)

International Service

2020-present Ad Hoc Reviewer, Medical Research Council, part of UK Research and Innovation

2023-present Ad Hoc Reviewer, ATIP-Avenir Program, Inserm and French National Center for Scientific Research (CNRS)

2023-present Ad Hoc Reviewer, Kidney Research UK, Research Project Grants

Teaching Service

Undergraduate Student Teaching/Mentoring

2006-2007 Teaching Fellow, Anatomy and Cell Biology, Monash University, Melbourne, Australia -- 150-200 students, 3-4 hours/week

2002-2007 Demonstrator (2nd-year Cell Biology; 3rd-year Human Pathology and Embryology; 1st-3rd year Medicine Histology), Anatomy and Cell Biology, Monash University, Melbourne, Australia -- 150-200 students, 3-4 hours/week

2013-2020 Lecturer, Honors 1620 (Clinical and Medical Research), University of Pittsburgh -- 8-10 undergraduate students, 1-2 hours/week

2017-present Course Designer and Instructor, Pediatrics: Bench to Bedside (Honors College), University of Pittsburgh -- 8-12 undergraduate students, 1-2 hours/week

Graduate/Post-Graduate Teaching/Mentoring

2003-2007 Examiner, 3rd-year Science (Human Pathology), Anatomy and Cell Biology, Monash University, Melbourne, Australia -- 150-200 students, 3-4 hours/week

2008-2012 Senior Postdoctoral Fellow and Supervisor of Incoming Postdoctoral Fellows, University of Pittsburgh

2015-2020 Lecturer, HUGEN 2051 (Inborn Errors of Development), Department of Human Genetics, University of Pittsburgh -- 6-8 graduate students, 1-2 hours/week

2015-2021 Lecturer, MSCBMP 2895 (Cellular Physiology of the Kidney), University of Pittsburgh -- 6-8 graduate students, 1-2 hours/week

2016-2021 Lecturer, MSMGDB 3510 (Advanced Topics in Gene Expression), University of Pittsburgh -- 6-8 graduate students, 1-2 hours/week

2017-2022 Lecturer, MSMGDB 2535 (Model Organisms), University of Pittsburgh -- 6-8 graduate students, 1-2 hours/week

Resident and Fellow Teaching

2023-present Lecturer, First-Year Medical Fellows' Retreat ("Creating an NIH Biosketch"), Children's Hospital of Pittsburgh

Mentoring

Summary of formal mentoring activity (individual mentees are not named per UMSOM guidance):

Pre-doctoral mentees: 18 individuals, spanning approximately 1-4 years each, with weekly to daily contact depending on training phase

Post-doctoral mentees: 6 individuals, spanning 2-7 years each, with weekly direct laboratory supervision

Scholarly oversight/thesis committees: 12 committees

Junior faculty transitions mentoring: 1 faculty member (transitions mentor for a junior faculty member from an underrepresented minority (URM) background)

Post-doctoral laboratory composition: 5 of 6 post-doctoral fellows mentored were female

Summer undergraduate research program: 11 of 18 participants were from underrepresented groups; 13 of 16 participants were female

Research Activities

Research Interests:

Kidney development and disease; acute kidney injury; vascular development; congenital abnormalities of the kidney and vasculature; blood flow, hypoxia, and oxygen concentration; diabetes and structural kidney disease; metabolic signaling; sirtuin signaling in kidney injury; renal cell carcinoma

Grant Support

Active Grants or Contracts

2019-present Multiple PI, 5%
"University of Pittsburgh Summer Research Internship Program Kidney Workshop (SRIP-Kid)"
NIH R25-DK119180
Annual Direct Costs: $108,000
Total Direct Costs: $540,000

2020-2026 Principal Investigator, 35%
"The Role of Sirtuin 5 in Acute Kidney Injury"
NIH R01-DK121758
Annual Direct Costs: $359,083
Total Direct Costs: $1,795, 415

2021-2026 Multiple-PI, 5%
"The Children's Hospital of Pittsburgh -- Cardiology, Hematology and Pulmonology Summer Research Internship Program (CHP2-SRIP)"
NIH R25-HL158295
Annual Direct Costs: $119,000
Total Direct Costs: $595,000

2023-2026 Co-Investigator, 5%
"Regulation of Tubulointerstitial Crosstalk by microRNAs in Renal Fibrosis"
NIH R01-DK137410
Annual Direct Costs: $20,000
Total Direct Costs: $100,000

2024-2028 Multiple-PI, 25%
"Dicarboxylic Acid Therapy for Prevention of Kidney Injury"
NIH R01-DK134346
Annual Direct Costs: $423,426
Total Direct Costs: $1,693,704

2024-2029 Principal Investigator, 5%
"PCT-KUH: Pittsburgh Center for Training in Kidney, Urology and Hematology"
NIH U2C/TL1-DK136783
Annual Direct Costs: $103,935
Total Direct Costs: $519,675

Completed Grants or Contracts

2010-2013 Principal Investigator
"Harnessing Renal Blood Flow and Oxygenation to Manipulate Differentiation of the Nephrons"
NIDDK and Diabetes Complications Consortium Pilot and Feasibility Grant
Annual Direct Costs: $66,000
Total Direct Costs: $132,000

2011-2013 Principal Investigator
"Determining the Role of Blood Vessel Formation and Vascular Flow in Kidney Development"
American Heart Association Postdoctoral Fellowship
Annual Direct Costs: $44,000
Total Direct Costs: $88,000

2013-2015 Principal Investigator
"Renal Stroma Derived Endothelial Precursors are Critical for Renal Development"

	Children's Hospital of Pittsburgh Research Advisory Committee Start-up Grant Annual Direct Costs: $40,000 Total Direct Costs: $80,000
2013-2015	Principal Investigator "Determining Role of Stromally Derived Endothelium During Organogenesis" University of Pittsburgh Pilot Project Program in Hemostasis and Vascular Biology Annual Direct Costs: $25,000 Total Direct Costs: $50,000
2013-2018	Principal Investigator, 50% "Renal Stroma Derived Endothelial Precursors are Critical for Renal Development" NIDDK Mentored Research Scientist Development Award (K01-DK096996) Annual Direct Costs: $107,415 Total Direct Costs: $537,075
2015-2016	Principal Investigator, 5% "The Renal Microvasculature is Highly Sensitive to Hyperglycemia" University of Pittsburgh Pilot Project Program in Hemostasis and Vascular Biology/CTSI Annual Direct Costs: $50,000 Total Direct Costs: $50,000
2015-2016	Co-Investigator, 5% (PI: Consortium) "The Renal Endothelium and Diabetes" NIDDK and Diabetes Complications Consortium Pilot and Feasibility Grant Annual Direct Costs: $30,000 Total Direct Costs: $30,000
2015-2016	Co-Investigator, 5% (PI: Consortium) "Effect of Aging on Urothelial Function" NIA Supplement Annual Direct Costs: $20,000 Total Direct Costs: $20,000
2016-2017	Principal Investigator, 5% "The Renal Microvasculature is Highly Sensitive to Hyperglycemia" University of Pittsburgh Pilot Project Program in Hemostasis and Vascular Biology Annual Direct Costs: $25,000 Total Direct Costs: $25,000
2016-2017	Co-Investigator, 8% (PI: Consortium) "Anatomical Annotation of the Human GI Tract Throughout Gestation"

GUDMAP Consortium
Annual Direct Costs: $10,000
Total Direct Costs: $10,000

2016-2019 Co-Investigator, 20% (PI: Consortium)
"University of Pittsburgh as the GUDMAP Tissue Hub and Collection Site"
NIH U24-DK110791
Annual Direct Costs: $100,000
Total Direct Costs: $500,000

2017-2019 Principal Investigator, 10%
"Kidney Derived Endothelial Progenitors Play a Critical Role During Kidney Injury"
NIH R03-DK110503
Annual Direct Costs: $50,000
Total Direct Costs: $100,000

2018-2021 Co-Investigator, 10% (PI: J. Coburn)
"Modeling the Effects of Stroma on Clear Cell Renal Cell Carcinoma"
Department of Defense, GRANT12540859
Annual Direct Costs: $20,000
Total Direct Costs: $100,000

2019-2020 Principal Investigator, 10%
"The Role of Sirtuin 5 in Acute Kidney Injury"
NIH R56-DK121758
Annual Direct Costs: $60,000
Total Direct Costs: $60,000

2019-2021 Principal Investigator, 5%
"The Role of Maternal Diabetes in Patterning the Formation of the Kidney"
University of Virginia Pediatric Center of Excellence Pilot Award
Annual Direct Costs: $26,000
Total Direct Costs: $52,000

2019-2021 Principal Investigator, 5%
"Fatty Acid Oxidation Switching Protects Against Kidney Injury"
University of Pittsburgh O'Brien Center Pilot Grant
Annual Direct Costs: $30,000
Total Direct Costs: $60,000

2019-2021 Principal Investigator, 10%
"The Role of Sirtuin 5 in Acute Kidney Injury"
University of Pittsburgh Dean's Faculty Development Award
Annual Direct Costs: $35,000
Total Direct Costs: $70,000

2019-2021 Co-Investigator, 5% (PI: Consortium)
"Phosphate Signaling in Bone Mineralization"
NIH R01-AR074981
Annual Direct Costs: $30,000

	Total Direct Costs: $60,000
2017-2022	Co-Investigator, 10% (PI: Consortium) "Phenotyping Renal Cases in Sepsis and Surgery for Early Acute Kidney Injury (PReCISE AKI)" NIH UG3/UH3-DK114891 Annual Direct Costs: $20,000 Total Direct Costs: $100,000
2020-2025	Multiple-PI, 25% "Endothelial miR-17~92 Protects Against Acute Kidney Injury" NIH R01-DK125015 Annual Direct Costs: $240,915 Total Direct Costs: $ 1,204,575

Grant Support Awarded to Trainees (as Mentor)

2013-2015 Katherine Maringer (mentee, PI), "Endothelial Progenitors in the Kidney Play a Critical Role in Susceptibility to Acute Kidney Injury" -- Children's Hospital of Pittsburgh Research Advisory Committee Fellowship Grant

2017-2017 Katherine Maringer (mentee, PI), "The Role of Oxygen Tension in Regulating the Differentiation of Nephron Progenitors" -- NIDDK F32-DK111165

2017-2017 Kasey Cargill (mentee, PI), "The Role of HIF Signaling in Mediating Nephron Progenitor Fate via Metabolic Signaling" -- Children's Hospital of Pittsburgh Research Advisory Committee Fellowship Grant

2017-2019 Takuto Chiba (mentee, PI), "Mitochondrial-Peroxisomal Switching in the Proximal Tubule Protects Against Acute Kidney Injury" -- American Heart Association Post-Doctoral Fellowship

2018-2019 Kasey Cargill (mentee, PI), "Von Hippel-Lindau Mediates Nephron Progenitor Fate via Regulation of Metabolism" -- NIDDK F31-DK113690

2020-2021 Takuto Chiba (mentee, PI), "Endothelial-Derived miR-17~92 Mediates Blood-Flow Dependent Recovery in Acute Kidney Injury" -- RK Mellon Institute Post-Doctoral Fellowship

2021-2024 Katherine Pfister (mentee, PI), "Defining the Role of Calcium-Induced Adhesion in Sirtuin 5-Induced AKI" -- RK Mellon Institute Post-Doctoral Fellowship

2023-2028 Takuto Chiba (mentee, PI), "The Role of Maladaptive VEGFR2 Signaling in Renal Stroma for Chronic Kidney Disease" -- NIDDK K01 Mentored Research Scientist Career Development Award

2024-2029 Aidan Porter (mentee, PI), "Endoplasmic Reticulum Protein Homeostasis in Renal Physiology and Acute Kidney Injury" -- NIDDK K08 Mentored Clinical Scientist Research Career Development Award

Patents, Inventions and Copyright

1. PCT/US2021/050885 Filed 17 September 2021, For: miR-17~92 for Treatment or Protection Against Acute Kidney Injury, Pitt Ref.: 05448, Webb Ref.: 06527-2207646, Serial No.: 18/025,299
2. PCT/US2022/048596 filed 01 November 2022, For: MEDIUM CHAIN DICARBOXYLIC ACIDS FOR THE TREATMENT AND PREVENTION OF DISEASES AND CONDITIONS, Pitt Ref. No. 05763, Klarquist Ref. No. 8123-106942-04. Licensed to Tarnagulla Ventures

Publications

Peer-reviewed Journal Articles

1. Hains D, **Sims-Lucas S**, Kish K, Saha M, McHugh K, Bates CM. Role of fibroblast growth factor receptor 2 in kidney mesenchyme. *Pediatr Res*. 2008;64(6):592-8.
2. **Sims-Lucas S**, Caruana G, Dowling J, Kett MM, Bertram JF. Augmented and accelerated nephrogenesis in TGF-beta2 heterozygous mutant mice. *Pediatr Res*. 2008;63(6):607-12.
3. McQualter JL, Brouard N, Williams B, Baird BN, **Sims-Lucas S**, Yuen K, et al. Endogenous fibroblastic progenitor cells in the adult mouse lung are highly enriched in the sca-1 positive cell fraction. *Stem Cells*. 2009;27(3):623-33.
4. **Sims-Lucas S**, Argyropoulos C, Kish K, McHugh K, Bertram JF, Quigley R, et al. Three-dimensional imaging reveals ureteric and mesenchymal defects in Fgfr2-mutant kidneys. *J Am Soc Nephrol*. 2009;20(12):2525-33.
5. **Sims-Lucas S**, Cullen-McEwen L, Eswarakumar VP, Hains D, Kish K, Becknell B, et al. Deletion of Frs2alpha from the ureteric epithelium causes renal hypoplasia. *Am J Physiol Renal Physiol*. 2009;297(5):F1208-19.
6. Hains DS, **Sims-Lucas S**, Carpenter A, Saha M, Murawski I, Kish K, et al. High incidence of vesicoureteral reflux in mice with Fgfr2 deletion in kidney mesenchyme. *J Urol*. 2010;183(5):2077-84.
7. **Sims-Lucas S**, Young RJ, Martinez G, Taylor D, Grimmond SM, Teasdale R, et al. Redirection of renal mesenchyme to stromal and chondrocytic fates in the presence of TGF-beta2. *Differentiation*. 2010;79(4-5):272-84.
8. Ho J, Pandey P, Schatton T, **Sims-Lucas S**, Khalid M, Frank MH, et al. The pro-apoptotic protein Bim is a microRNA target in kidney progenitors. *J Am Soc Nephrol*. 2011;22(6):1053-63.
9. Paredes J*, **Sims-Lucas S***, Wang H, Lu W, Coley B, Gittes GK,* et al*. Assessing vesicoureteral reflux in live inbred mice via ultrasound with a microbubble contrast agent.* Am J Physiol Renal Physiol*. 2011;300(5):F1262-5. (* co-first authors)
10. **Sims-Lucas S**, Cusack B, Baust J, Eswarakumar VP, Masatoshi H, Takeuchi A, et al. Fgfr1 and the IIIc isoform of Fgfr2 play critical roles in the metanephric mesenchyme mediating early inductive events in kidney development. *Dev Dyn*. 2011;240(1):240-9.
11. **Sims-Lucas S**, Cusack B, Eswarakumar VP, Zhang J, Wang F, Bates CM. Independent roles of Fgfr2 and Frs2alpha in ureteric epithelium. *Development*. 2011;138(7):1275-80.
12. Walker KA, **Sims-Lucas S**, Caruana G, Cullen-McEwen L, Li J, Sarraj MA, et al. Betaglycan is required for the establishment of nephron endowment in the mouse. *PLoS One*. 2011;6(4):e18723.
13. El-Gohary Y, **Sims-Lucas S**, Lath N, Tulachan S, Guo P, Xiao X, et al. Three-dimensional analysis of the islet vasculature. *Anat Rec (Hoboken)*. 2012;295(9):1473-81.
14. El-Gohary Y, Tulachan S, Branca M, **Sims-Lucas S**, Guo P, Prasadan K, et al. Whole-mount imaging demonstrates hypervascularity of the pancreatic ducts and other pancreatic structures. *Anat Rec (Hoboken)*. 2012;295(3):465-73.
15. Graves JA, Wang Y, **Sims-Lucas S**, Cherok E, Rothermund K, Branca MF, et al. Mitochondrial structure, function and dynamics are temporally controlled by c-Myc. *PLoS One*. 2012;7(5):e37699.
16. **Sims-Lucas S**#. Analysis of 3D branching pattern: hematoxylin and eosin method. *Methods Mol Biol*. 2012;886:73-86. (# corresponding author)

17. **Sims-Lucas S**, Di Giovanni V, Schaefer C, Cusack B, Eswarakumar VP, Bates CM. Ureteric morphogenesis requires Fgfr1 and Fgfr2/Frs2alpha signaling in the metanephric mesenchyme. *J Am Soc Nephrol*. 2012;23(4):607-17.
18. Galambos C, **Sims-Lucas S**, Abman SH. Histologic evidence of intrapulmonary anastomoses by three-dimensional reconstruction in severe bronchopulmonary dysplasia. *Ann Am Thorac Soc*. 2013;10(5):474-81.
19. Sarin M, Wang Y, Zhang F, Rothermund K, Zhang Y, Lu J, **Sims-Lucas S**, et al. Alterations in c-Myc phenotypes resulting from dynamin-related protein 1 (Drp1)-mediated mitochondrial fission. *Cell Death Dis*. 2013;4:e670.
20. **Sims-Lucas S**#, Schaefer C, Bushnell D, Ho J, Logar A, Prochownik E, et al. Endothelial progenitors exist within the kidney and lung mesenchyme. *PLoS One*. 2013;8(6):e65993. (# co-corresponding authors)
21. Spencer JD, Schwaderer AL, Wang H, Bartz J, Kline J, Eichler T, (…), **Sims-Lucas S**, et al. Ribonuclease 7, an antimicrobial peptide upregulated during infection, contributes to microbial defense of the human urinary tract. *Kidney Int*. 2013;83(4):615-25.
22. Chu JY, **Sims-Lucas S**, Bushnell DS, Bodnar AJ, Kreidberg JA, Ho J. Dicer function is required in the metanephric mesenchyme for early kidney development. *Am J Physiol Renal Physiol*. 2014;306(7):F764-72.
23. Galambos C, **Sims-Lucas S**, Abman SH. Three-dimensional reconstruction identifies misaligned pulmonary veins as intrapulmonary shunt vessels in alveolar capillary dysplasia. *J Pediatr*. 2014;164(1):192-5.
24. Hum S, Rymer C, Schaefer C, Bushnell D, **Sims-Lucas S**#. Ablation of the renal stroma defines its critical role in nephron progenitor and vasculature patterning. *PLoS One*. 2014;9(2):e88400. (# corresponding author)
25. Rymer C, Paredes J, Halt K, Schaefer C, Wiersch J, Zhang G, (…), **Sims-Lucas S**#. Renal blood flow and oxygenation drive nephron progenitor differentiation. *Am J Physiol Renal Physiol*. 2014;307(3):F337-45. (# corresponding author)
26. Acker SN, Mandell EW, **Sims-Lucas S**, Gien J, Abman SH, Galambos C. Histologic identification of prominent intrapulmonary anastomotic vessels in severe congenital diaphragmatic hernia. *J Pediatr*. 2015;166(1):178-83.
27. Di Giovanni V, Walker KA, Bushnell D, Schaefer C, **Sims-Lucas S**, Puri P, et al. Fibroblast growth factor receptor-Frs2alpha signaling is critical for nephron progenitors. *Dev Biol*. 2015;400(1):82-93.
28. Galambos C, **Sims-Lucas S**, Ali N, Gien J, Dishop MK, Abman SH. Intrapulmonary vascular shunt pathways in alveolar capillary dysplasia with misalignment of pulmonary veins. *Thorax*. 2015;70(1):84-5.
29. Junttila S, Saarela U, Halt K, Manninen A, Parssinen H, Lecca MR, (…), **Sims-Lucas S**, et al. Functional genetic targeting of embryonic kidney progenitor cells ex vivo. *J Am Soc Nephrol*. 2015;26(5):1126-37.
30. Phua YL, Chu JY, Marrone AK, Bodnar AJ, **Sims-Lucas S**, Ho J. Renal stromal miRNAs are required for normal nephrogenesis and glomerular mesangial survival. *Physiol Rep*. 2015;3(10).
31. Rymer CC, **Sims-Lucas S**#. In utero intra-cardiac tomato-lectin injections on mouse embryos to gauge renal blood flow. *J Vis Exp*. 2015 Feb 4;(96). (# corresponding author)
32. Stolz DB, **Sims-Lucas S**#. Unwrapping the origins and roles of the renal endothelium. *Pediatr Nephrol*. 2015;30(6):865-72. (# corresponding author)

33. Walker KA, **Sims-Lucas S**, Bates CM. Fibroblast growth factor receptor signaling in kidney and lower urinary tract development. *Pediatr Nephrol*. 2015.
34. Galambos C, **Sims-Lucas S**, Abman SH, Cool CD. Intrapulmonary bronchopulmonary anastomoses and plexiform lesions in idiopathic pulmonary arterial hypertension. *Am J Respir Crit Care Med*. 2016;193(5):574-6.
35. Song R, Preston G, Kidd L, Bushnell D, **Sims-Lucas S**, Bates CM, et al. Prorenin receptor is critical for nephron progenitors. *Dev Biol*. 2016;409(2):382-91.
36. Halt K, Parssinen H, Junttila S, Saarela U, **Sims-Lucas S**, Koivunen P, et al. The CD146+ cells are essential for kidney vasculature development. *Kidney Int*. 2016;90(2):311-24.
37. Airik R, Schueler M, Airik M, Cho J, Porath J, Mukherjee E, **Sims-Lucas S**, et al. Fan1-/- mice develop karyomegalic interstitial nephritis. *J Am Soc Nephrol*. 2016;27(12):3552-9.
38. Maringer K, Yarbrough A, **Sims-Lucas S**, Saheb E, Jawed S, Bush J. Dictyostelium discoideum RabS and Rab2 colocalize with the Golgi and contractile vacuole system and regulate osmoregulation. *J Biosci*. 2016;41(2):205-17.
39. Bebee TW, **Sims-Lucas S**, Park JW, Bushnell D, Cieply B, Xing Y, et al. Ablation of the epithelial-specific splicing factor Esrp1 results in ureteric branching defects and reduced nephron number. *Dev Dyn*. 2016;245(10):991-1000.
40. Hemker SL, **Sims-Lucas S**, Ho J. Role of hypoxia during nephrogenesis. *Pediatr Nephrol*. 2016;31(10):1571-7.
41. Maringer K, **Sims-Lucas S**#. The multifaceted role of the renal microvasculature during acute kidney injury. *Pediatr Nephrol*. 2016;31(8):1231-40. (# corresponding author)
42. Casinelli G, LaRosa J, Sharma M, Cherok E, Banerjee S, Branca M, (…), **Sims-Lucas S**, et al. N-Myc overexpression increases cisplatin resistance in neuroblastoma via deregulation of mitochondrial dynamics. *Cell Death Discov*. 2016;2:16082.
43. Walker KA*, **Sims-Lucas S**, *Di Giovanni VE, Schaefer C, Sunseri WM, Novitskaya T,* et al. *Deletion of fibroblast growth factor receptor 2 from the peri-Wolffian duct stroma leads to ureteric induction abnormalities and vesicoureteral reflux.* PLoS One. *2016;11(11):e0167191. (*co-first authors)
44. Dangle P, Salgado C, Reyes-Mugica M, Schneck F, Ost M, **Sims-Lucas S**#. Testicular hypoplasia is driven by defective vascular formation. *Urology*. 2017;101:94-8. (# corresponding author)
45. Zhang Y, Bharathi SS, Rardin MJ, Lu J, Maringer KV, **Sims-Lucas S**, et al. Lysine desuccinylase SIRT5 binds to cardiolipin and regulates the electron transport chain. *J Biol Chem*. 2017;292(24):10239-49.
46. Mukherjee E, Maringer K, Papke E, Bushnell D, Schaefer C, Kramann R, (…), **Sims-Lucas S**#. Endothelial marker-expressing stromal cells are critical for kidney formation. *Am J Physiol Renal Physiol*. 2017;313(3):F611-20. (# corresponding author)
47. **Sims-Lucas S**#, Good M, Vainio SJ. Editorial: organogenesis: from development to disease. *Front Cell Dev Biol*. 2017;5:85. (# corresponding author)
48. Su S, Guntur AR, Nguyen DC, Fakory SS, Doucette CC, Leech C, Lotana H, (…), **Sims-Lucas S**, et al. A renewable source of human beige adipocytes for development of therapies to treat metabolic syndrome. *Cell Rep*. 2018;25(11):3215-28.e9.
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60. Chiba T, Cerqueira DM, Li Y, Bodnar AJ, Mukherjee E, Pfister K, Phua YL, (…), **Sims-Lucas S**#. Endothelial-derived miR-17~92 promotes angiogenesis to protect against renal ischemia-reperfusion injury. *J Am Soc Nephrol*. 2021;32:553-62. (# corresponding author)
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74. **Sims-Lucas S**#, Goetzman ES, Kleyman TR. Cystic fibrosis-related metabolic defects: crosstalk between ion channels and organs. *J Clin Invest*. 2024;134(13):e182329. (# corresponding author)
75. Goetzman ES, Zhang Y, Zhang B, Bharathi SS, Bons J, Rose JB, Shah S, (…), **Sims-Lucas S**, et al. Dicarboxylic acids are a non-storable alternative fat source that increase metabolic rate and protect against obesity. *J Clin Invest*. 2024;134(12):e174186.
76. Pfister K, Young V, Frankel B, Silva Barbosa AC, Bons J, Rose JB, (…), **Sims-Lucas S**#. Succinylation of Park7 activates a protective metabolic response to acute kidney injury. *Am J Physiol Renal Physiol*. 2024;327(1):F128-36. (# corresponding author)
77. Maggiore JC, LeGraw R, Przepiorski A, Velazquez J, Chaney C, Vanichapol T, (…), **Sims-Lucas S**, et al. A genetically inducible endothelial niche enables vascularization of human kidney organoids with multilineage maturation and emergence of renin expressing cells. *Kidney Int*. 2024 Jun 18:S0085-2538(24)00407-1.
78. Zhang Y, Zhang BB, Bharthi SS, Bons J, Rose JP, Shah S, (…), **Sims-Lucas S**, et al. Sirtuin-5 is recruited to hepatic peroxisomes in mice fed dodecanedioic acid but has little impact on the peroxisomal succinylome. *Biomolecules*. 2024;14(12):1508.
79. Chiba T, Oda A, Zhang Y, Pfister K, Bons J, Bharathi SS, (…), **Sims-Lucas S**. Loss of long-chain acyl-CoA dehydrogenase protects against acute kidney injury. *JCI Insight*. 2025;10(6):e186073.

80. Khan M, Bond K, Grilli E, Cameron D, Zhao L, **Sims-Lucas S**, et al. Mitochondrial organization in the developing proximal tubule is controlled by LRRK2. *Nat Commun*. 2025;16(1):9611.
81. Schilling B, Rorrer L 3rd, Royer L, Silva-Barbosa A, Pfister K, Goetzman E, **Sims-Lucas S**, et al. Novel high-resolution ion mobility mass spectrometry for site-specific quantification of the sirtuin-5 regulated kidney succinylome. *J Proteomics*. 2026 Feb 11:105625.

Book Chapters

1. **Sims-Lucas S**, Bates C. Chapter 464: Renal Morphogenesis. In: Rudolph's Pediatrics. 2012.
2. Bates CM, Ho J, **Sims-Lucas S**. Chapter 1: Embryonic Development of the Kidney. 2016.

Abstracts and/or Proceedings

1. **Sims-Lucas S**, Young RJ, Caruana G, Bertram JF. Effects of exogenous TGF-β2 on mouse metanephric development in vitro. 15th International Society of Developmental Biology, Sydney, Australia, 2005 Jul 3-7. *Mech Dev*. 122:S45.
2. **Sims-Lucas S**, Caruana G, Bertram JF. TGF-β2 regulates branching morphogenesis and nephron endowment in vitro and in vivo. Australian and New Zealand Society of Nephrology Conference, Melbourne, Australia, 2006 Aug 16. *Nephrology*. 11:pA2.
3. **Sims-Lucas S**, Bushnell D, Schaefer C, Bates CM. Renal stroma derived endothelial precursors are critical for renal development. International Workshop on Developmental Nephrology, Edinburgh, UK, 2013 Jun 23-26. *Angiogenesis*. 17(1):p292.
4. Maringer K, **Sims-Lucas S**. Endothelial marker expressing stromal cells play a critical role in recovery following acute kidney injury. Experimental Biology Meeting, Chicago, IL, 2017 Apr 22-26. *FASEB J*. 31.

Major Invited Speeches

Local/Regional

1. "In Vitro Studies on the Effect of TGF-β2 on Mouse Metanephric Development," Institute for Molecular Biosciences, University of Queensland, Australia, 2004
2. "TGF-β2 Regulates Branching Morphogenesis and Nephron Endowment In Vitro and In Vivo," Postgraduate Symposium, 2005
3. "Investigating the Role of TGF-β2 in Mouse Kidney Development," Postgraduate Symposium, Department of Anatomy and Cell Biology, Monash University, Victoria, Australia (Winner, Best Presentation), 2005
4. "TGF-β2 Effects Kidney Development in a Dose-Dependent Manner," Institute for Molecular Biosciences, University of Queensland, Australia, 2005
5. Departmental Seminar, Anatomy and Cell Biology, Monash University, Victoria, Australia, 2006
6. "Fgf Receptor Signaling Plays Multiple Roles During Kidney Development," Postdoctoral Association Seminar Series, University of Pittsburgh, Pittsburgh, PA, 2010
7. "Blood Flow, Oxygenation and the Renal Microvasculature," Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA, 2016
8. "Blood Flow, Oxygenation and the Renal Microvasculature," Renal-Electrolyte Division, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, 2016
9. "Blood Flow and Oxygenation During Kidney Development and Disease," Molecular Medicine Seminar Series, Department of Pediatrics, Children's Hospital of Pittsburgh, Pittsburgh, PA, 2016
10. "Renal Microvasculature and Acute Kidney Injury," Division of Endocrinology, Department of Pediatrics, Children's Hospital of Pittsburgh, Pittsburgh, PA, 2017

11. "Sirtuin Signaling in Acute Kidney Injury," Critical Care Nephrology Research Seminar Series, University of Pittsburgh, Pittsburgh, PA, 2019
12. "Mechanisms Regulating Kidney Injury," Molecular Medicine Seminar Series, Department of Pediatrics, Children's Hospital of Pittsburgh, Pittsburgh, PA, 2019
13. "Sirtuins and MicroRNAs During Kidney Injury," Renal-Electrolyte Division, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, 2020
14. "Manipulating Fatty Acid Oxidation to Protect Against Acute Kidney Injury," Renal-Electrolyte Division, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, 2021
15. "Manipulating Fatty Acid Oxidation to Protect Against Acute Kidney Injury," University of Pittsburgh AKI Symposium, Pittsburgh, PA, 2022
16. "Trimming the Fat to Counter Kidney Injury," Renal-Electrolyte Division, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, 2024

National

17. "Identifying and Characterizing the Roles of Novel Endothelial Progenitors," Department of Anatomy, The Ohio State University, Columbus, OH, 2013
18. "Renal Endothelial Progenitors and Blood Flow During Development and Disease," Department of Anatomy and Physiology, Kansas State University, Manhattan, KS, 2014
19. "Blood Flow and Oxygen Mediated Signaling During Kidney Development," Maine Medical Center Research Institute Seminar Series, Portland, ME, 2017
20. "Relating Maternal Health and Nutrition Preconception and During Pregnancy to Fetal Renal Development," NIDDK Workshop on New Insights into Congenital Kidney Disease, 2022
21. "Manipulating Fatty Acid Oxidation to Protect Against Acute Kidney Injury," American Society of Nephrology Annual Meeting, Orlando, FL, 2022
22. "Relating Maternal Health and Nutrition Preconception and During Pregnancy to Fetal Renal Development," 8th Annual Duke Multidisciplinary Benign Urology Research Symposium, Trent Semans Center, Duke University, Durham, NC, 2023
23. "Unravelling the Kidney from Development to Disease," Louisiana State University Health System, Shreveport, LA, 2023
24. "Medium Chain Fatty Acids and Kidney Protection," Buck Institute, Novato, CA, 2024
25. "Who Is Bringing the Medium Chain Fatty Acids to Dinner?" Stony Brook University School of Medicine, Stony Brook, NY, 2025

International

26. "Renal Endothelial Progenitors and Blood Flow During Development and Disease," Department of Anatomy and Developmental Biology, Monash University, Melbourne, Australia, 2014
27. **Sims-Lucas S**. "Renal Endothelial Progenitors during Development and Injury." 13th International Workshop on Developmental Nephrology, Snowbird Ski and Summer Resort, Salt Lake City, UT, USA, 2015

Proffered Communications

Oral or poster presentations not by special invitation and not resulting in a published abstract.

National

1. **Sims-Lucas S**, Young RJ, Caruana G, Bertram JF. Exogenous TGF-β2 leads to the expansion of 2 novel cell populations in mouse metanephroi. 38th American Society of Nephrology Meeting, Philadelphia, PA, 2005 Nov 8-13 (poster).

2. **Sims-Lucas S**, Caruana G, Stenvers KL, Kett MM, Bertram JF. TGF-beta2 signaling during mouse kidney development. 40th American Society of Nephrology Meeting, San Francisco, CA, 2007 Oct 31-Nov 5 (poster).
3. **Sims-Lucas S**, Argyropoulos C, Kish K, McHugh K, Bertram JF, Quigley R, Bates CM. Novel three-dimensional characterization of branching morphogenesis and nephrogenesis in mouse kidney development. 42nd American Society of Nephrology Meeting, San Diego, CA, 2009 Oct 27-Nov 1 (poster).
4. **Sims-Lucas S**, Argyropoulos C, Kish K, McHugh K, Bertram JF, Quigley R, Bates CM. Novel three-dimensional characterization of branching morphogenesis and nephrogenesis in mouse kidney development. University of Pittsburgh Postdoctoral Data and Dine Symposium, Pittsburgh, PA, 2009 (oral).
5. **Sims-Lucas S**, Miller C, Gattone VH, Eswarakumar VP, Bates CM. Critical role of Fgfr2 adaptor protein Frs2α in ureteric bud induction, ciliary structural integrity, and renal tubular cysts. 42nd American Society of Nephrology Meeting, San Diego, CA, 2009 (poster).
6. **Sims-Lucas S**, Cusack B, Eswarakumar VP, Yoder B, Bates CM. Critical role of Fgfr2 adaptor binding protein Frs2a in regulating cilia length, cyst formation and nephrogenesis. University of Pittsburgh Postdoctoral Data and Dine Symposium, Pittsburgh, PA, 2010 (oral).
7. **Sims-Lucas S**, Cusack B, Eswarakumar VP, Yoder B, Bates CM. Critical role of Fgfr2 adaptor binding protein Frs2a in regulating cilia length, cyst formation and nephrogenesis. International Workshop on Developmental Nephrology, New Paltz, NY, 2010 Aug 24-27 (poster).
8. **Sims-Lucas S**, Cusack B, Eswarakumar VP, Zhang J, Wang F, Bates CM. Independent roles of Fgfr2 and Frs2α in ureteric epithelium. Pediatric Academic Societies Meeting, Denver, CO, 2011 Apr 30-May 3 (poster).
9. **Sims-Lucas S**, Paredes J, Gittes GK, Bates CM. Critical role of the stroma in mediating vascular development of the kidney. 44th American Society of Nephrology Meeting, Philadelphia, PA, 2011 Nov 8-13 (poster).
10. **Sims-Lucas S**, Schaefer C, Vainio S, Bates CM. Fibroblast growth factor receptor signaling is critical for nephron differentiation. 44th American Society of Nephrology Meeting, Philadelphia, PA, 2011 Nov 8-13 (poster).
11. **Sims-Lucas S**, Bushnell D, Schaefer C, Prochownik E, Gittes GK, Bates CM. Renal stroma derived endothelial precursors are critical for renal development. 45th American Society of Nephrology Meeting, San Diego, CA, 2012 Oct 31-Nov 4 (poster).
12. **Sims-Lucas S**, Bushnell D, Schaefer C, Bates CM. Renal stroma derived endothelial precursors are critical for renal development. Vascular Biology 2013, Cape Cod, MA, 2013 Oct 20-24 (poster).
13. Dangle P, Mukherjee E, **Sims-Lucas S**. Embryonic testis contain vascular endothelial precursor cells -- a new insight. American Urological Association Meeting, New Orleans, LA, 2015 May 15-19 (poster).
14. Maringer K, Rogers N, Isenberg I, **Sims-Lucas S**. Kidney endothelial progenitors play a critical role in susceptibility to acute kidney injury. American Society of Nephrology Meeting, San Diego, CA, 2015 Nov 4-8 (poster).
15. Mukherjee E, Maringer K, Ho J, **Sims-Lucas S**. Oxygenation and Von Hippel-Lindau regulate nephron progenitor differentiation. American Society of Nephrology Meeting, San Diego, CA, 2015 Nov 4-8 (poster).

16. Maringer K, Rogers N, Isenberg I, **Sims-Lucas S**. Stromally derived endothelial progenitors mediate damage after acute kidney injury. American Society of Nephrology Meeting, Chicago, IL, 2016 Nov 15-20 (selected for platform presentation).
17. Chiba T, Rogers N, Isenberg I, **Sims-Lucas S**. TSP1-CD47 signaling suppresses renal tubular epithelial reprogramming and proliferation during acute kidney injury. American Society of Nephrology Meeting, Chicago, IL, 2016 Nov 15-20 (selected for platform presentation).
18. Arora N, Mukherjee E, Lenneman N, **Sims-Lucas S**, Dermody T, Coyne C. Zika virus infection of human fetal brain microvascular endothelial cells. Pediatric Academic Societies Meeting, San Francisco, CA, 2017 May 6-9 (poster).
19. Maringer K, Mukherjee E, **Sims-Lucas S**. Endothelial marker expressing stromal cells are important regulators of recovery from AKI. American Society of Nephrology Meeting, New Orleans, LA, 2017 Nov 1-5 (poster).
20. Murali A, Cargill K, Mukherjee E, **Sims-Lucas S**. HIF regulation of nephron progenitor metabolic state mediates cell fate decisions. American Society of Nephrology Meeting, New Orleans, LA, 2017 Nov 1-5 (poster).
21. Goetzman E, Maringer K, Bharathi SS, Mukherjee E, **Sims-Lucas S**. Deletion of Sirtuin-5 (Sirt5) protects mice against ischemia-reperfusion kidney injury. American Society of Nephrology Meeting, New Orleans, LA, 2017 Nov 1-5 (poster).
22. Peasley K, Chiba T, Mukherjee E, Goetzman ES, **Sims-Lucas S**. Metabolic switch in fatty acid oxidation that protects against AKI. American Society of Nephrology Meeting, Washington, DC, 2019 Nov 5-10 (poster).
23. Chiba T, Bodnar AJ, Hemker S, Mukherjee E, Phua YL, Shaikh KJ, Sanders BT, Ho J, **Sims-Lucas S**. Endothelial derived miR-17~92 protects against renal ischemia reperfusion injury. American Society of Nephrology Meeting, Washington, DC, 2019 Nov 5-10 (selected for platform presentation).
24. Chiba T, Rogers NM, Maringer KV, Mukherjee E, **Sims-Lucas S**. VEGF-R2 signaling in renal interstitium exacerbates post-AKI CKD progression. American Society of Nephrology Meeting (virtual), 2021 Nov 3-7 (selected for platform presentation).
25. Pfister K, **Sims-Lucas S**. Succinylation of metabolic enzymes protects against AKI. American Society of Nephrology Meeting (virtual), 2021 Nov 3-7 (selected for platform presentation).

<u>International</u>

26. **Sims-Lucas S**, Caruana G, Bertram JF. Augmented and accelerated nephrogenesis in TGF-β2 heterozygous mice. 1st Healthy Start to Life Conference, Clayton, Victoria, Australia, 2006 Jul 14 (poster).
27. **Sims-Lucas S**, Caruana G, Bertram JF. TGF-beta2 signaling and nephron endowment in the developing mouse kidney. 5th Australian Developmental Biology Workshop, Victor Harbour, South Australia, 2006 Nov 29-Dec 3 (oral).
28. Rogers N, Rymer C, Isenberg J, **Sims-Lucas S**. Kidney derived endothelial progenitors play a critical role during development and kidney injury. Gordon Research Conference, Girona, Spain, 2014 Jul 5-11 (poster, selected for platform presentation).